1987

The University of Nebraska-Lincoln College of Agriculture: The First Century Part VI. Research/Extension Centers and Farms

Elvin F. Frolik
University of Nebraska-Lincoln

Ralston J. Graham
University of Nebraska-Lincoln

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Part VI. Research/Extension Centers and Farms

Chapter 1. University of Nebraska Field Laboratory at Mead/UN Agricultural Research and Development Center (UNARDC)¹

Contents

Names .................................................. 287
Administrators ...................................... 287
Chief Administrator ................................ 288
Other Administrators ............................... 288
Lands and Improvements ............................ 288
Quitclaim Deed No. SA-VI-31 ..................... 288
Agreement of Retransfer No. SA-VI-15 ............ 288
Quitclaim Deed No. SA-VI-14 ..................... 288
Buildings and Other Improvements Added Since 1962 289
History of Acquisition ............................. 290
Beginning and Disposal of Nebraska Ordnance Plant 290
Additional Needs for Land .......................... 290
Gaining Public Support for Application for Land at Mead ........ 291
Gaining Internal Support ........................... 291
Preparing the Application to the U.S. Department of Health, Education and Welfare ........ 292
Roadblocks and Gaining U.S. Government Approval .... 292
Official Conveyances ............................... 294
Activation ........................................... 294
Disposal of the Remainder of the NOP ............. 294
Sale of University Lands to Help Finance the UNARDC 294
Development & Utilization of the UN Field Lab at Mead ... 295
Getting Started ..................................... 295
Overall Development ................................ 297
Principal College of Agriculture Users of the Mead Lab ... 297
Agricultural Engineering ........................... 297
Agronomy .......................................... 297
Animal Science ..................................... 299
Entomology ....................................... 299
Horticulture ...................................... 299
Forestry .......................................... 300
Agricultural Meteorology & Climatology .......... 300
Veterinary Science ................................ 300
The integrated energy farm ....................... 300
Users Outside of the College of Agriculture/IANR .... 300
NUON-TV/NE ETV Transmitter Station .......... 300
UNL Museum ....................................... 300
Behlen Observatory ................................ 300
UN Medical Center ................................. 300
Corps of Engineers, U.S. Army/UN Dept. of Civil Engineering 301
Special Programs ................................... 301
Tractor power and safety day ..................... 301
Other events and visitors ....................... 301
Wildlife and hunting .............................. 301
Airstrip ........................................... 301
Utilizing inmates of the Nebraska Penal Complex .... 301
References ......................................... 302

Names

University of Nebraska Field Laboratory 1962-1985
University of Nebraska Research and Development Center 1985-present

¹The authors gratefully acknowledge the assistance of Warren W. Salls in providing material for this Chapter from the time the Laboratory was activated to the present.
Administrators

Chief Administrator

Name: Warren W. Sahs
Title: Superintendent, and Assistant Director Operations, ARD
Period Served: 1962-present

Other Administrators

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Period Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>F. C. Hastert</td>
<td>Facilities Manager</td>
<td>1962-1974</td>
</tr>
<tr>
<td>Richard Ehlers</td>
<td>Facilities Manager</td>
<td>1974-1979</td>
</tr>
<tr>
<td>Richard McManaman</td>
<td>Facilities Manager</td>
<td>1979-present</td>
</tr>
<tr>
<td>Elmer Knapp</td>
<td>Farm Manager</td>
<td>1963-1982</td>
</tr>
<tr>
<td>Douglas Gustafson</td>
<td>Farm Manager</td>
<td>1982-present</td>
</tr>
</tbody>
</table>

Lands and Improvements

1. Conveyed by the U.S. Government to the Board of Regents of the University of Nebraska, without cost (24):
   a. Quitclaim Deed N. SA-VI-31 dated April 12, 1962 - 8,420 acres of land via HEW/GSA, plus the load lines directly from GSA.

   An inventory of the land and facilities constructed by the Government for the Ordnance Plant in the portion transferred to the University in 1962 was (15):

<table>
<thead>
<tr>
<th>Item</th>
<th>Acres/Feet</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land (including the four load lines)</td>
<td>8,833 acres</td>
<td>$1,137,002</td>
</tr>
<tr>
<td>Natural gas line</td>
<td>18,028 feet</td>
<td>55,608</td>
</tr>
<tr>
<td>Railroad line</td>
<td>122,031 feet</td>
<td>435,210</td>
</tr>
<tr>
<td>Fence</td>
<td>125,654 feet</td>
<td>25,459</td>
</tr>
<tr>
<td>Bridge</td>
<td>1 each</td>
<td>1,983</td>
</tr>
<tr>
<td>Gravel road</td>
<td>251,729 feet</td>
<td>577,733</td>
</tr>
<tr>
<td>Concrete road</td>
<td>7,738 feet</td>
<td>35,953</td>
</tr>
<tr>
<td>Concrete walks</td>
<td>133 each</td>
<td>13,929</td>
</tr>
<tr>
<td>Entrance gates</td>
<td>64 each</td>
<td>2,500</td>
</tr>
<tr>
<td>Concrete aprons</td>
<td>52 each</td>
<td>54,926</td>
</tr>
<tr>
<td>Railroad equipment</td>
<td>45 items</td>
<td>4,958</td>
</tr>
<tr>
<td>Buildings</td>
<td>464 each</td>
<td>5,416,537</td>
</tr>
<tr>
<td>Dam</td>
<td>1 each</td>
<td>4,350</td>
</tr>
<tr>
<td>Concrete docks</td>
<td>133 each</td>
<td>60,859</td>
</tr>
<tr>
<td>Tanks, septic and recirculating</td>
<td>26 each</td>
<td>20,018</td>
</tr>
<tr>
<td>Sewer line</td>
<td>25,339 feet</td>
<td>50,678</td>
</tr>
<tr>
<td>Water line</td>
<td>73,668 feet</td>
<td>144,407</td>
</tr>
<tr>
<td>Steam distribution line</td>
<td>30,280 feet</td>
<td>81,756</td>
</tr>
<tr>
<td>Electrical distribution system</td>
<td>400,510 feet</td>
<td>140,908</td>
</tr>
<tr>
<td>Parking areas, gravel</td>
<td>10 each</td>
<td>15,942</td>
</tr>
<tr>
<td>Approaches, concrete</td>
<td>30,000 feet</td>
<td>185,222</td>
</tr>
<tr>
<td>Barricades, dirt</td>
<td>140 each</td>
<td>33,148</td>
</tr>
<tr>
<td>Fuel tanks, underground</td>
<td>19 each</td>
<td>48,363</td>
</tr>
<tr>
<td>Installed property in buildings</td>
<td></td>
<td>310,010</td>
</tr>
<tr>
<td>Equipment in load lines</td>
<td>1,413 items</td>
<td>271,428</td>
</tr>
</tbody>
</table>

   TOTAL: $9,126,887

   b. Agreement of Retransfer No. SA-VI-15 dated September 13, 1966 - 640 acres of land, (S 1/2 Sec. 21 and N 1/2 of Sec. 28-14-9, Saunders County) and 6 buildings, signed by James W. Doarn, HEW, October 3, 1966 and Carl A. Donaldson, UN, September 13, 1966 (28).

   c. Quitclaim Deed No. SA-VII-14 dated June 28, 1971 - 112 acres of land and 27 buildings

---

1 There have been no academic staff members stationed at the UNARDC. Warren W. Sahs has been headquartered at Lincoln throughout the time of his position as Superintendent.

2 Warren W. Sahs has reported transfers of 32.45 acres to Saunders County for Avenue A, and 96.93 acres to the Nebraska Department of Roads for State Highway No. 63. Subtracting these transfers from the grants made to the University by the U.S. Government, leaves a net of 9,456 acres. However, Sahs also reported that a recent check at the Saunders County Courthouse showed that the University owns 9,497.06 acres. We are unable to reconcile the difference.
## Major Buildings and Other Improvements Added Since 1962

<table>
<thead>
<tr>
<th>Date</th>
<th>Item</th>
<th>Source of Funding</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>Entomology facility</td>
<td>Product sales(^1)</td>
<td>$ (N.A.)</td>
</tr>
<tr>
<td>1964-66</td>
<td>Planting 3,000 acres improved pastures</td>
<td>Field Laboratory</td>
<td>93,000</td>
</tr>
<tr>
<td>1964</td>
<td>Irrigation well #1</td>
<td>Sale of South Genoa Foundation Seed Farm</td>
<td>8,000</td>
</tr>
<tr>
<td>1965-75</td>
<td>Livestock fencing</td>
<td>Principally product sales</td>
<td>(N.A.)</td>
</tr>
<tr>
<td>1965</td>
<td>Hydraulics Laboratory</td>
<td>U.S. Army Corp of Engineers</td>
<td></td>
</tr>
<tr>
<td>1965-66</td>
<td>Dairy unit facilities</td>
<td>State appropriated funds</td>
<td>100,000</td>
</tr>
<tr>
<td>1966</td>
<td>Dairy residence</td>
<td>Appropriated funds</td>
<td>28,000</td>
</tr>
<tr>
<td>1966</td>
<td>Forestry facility</td>
<td>McIntyre-Stennis federal funds</td>
<td></td>
</tr>
<tr>
<td>1966-80</td>
<td>Hard surface road repair and improvements</td>
<td>Sale of surplus equipment principally</td>
<td>380,000</td>
</tr>
<tr>
<td>1966</td>
<td>Climatology laboratory</td>
<td>Nebr Water Resource Research Institute</td>
<td>15,000</td>
</tr>
<tr>
<td>1967</td>
<td>ETV transmitter</td>
<td>State appropriated funds</td>
<td>800,000</td>
</tr>
<tr>
<td>1967</td>
<td>Swine farrowing facility</td>
<td>State appropriated funds</td>
<td>10,000</td>
</tr>
<tr>
<td>1968</td>
<td>College of Medicine Eppeley Cancer Institute facility</td>
<td>One-third State appropriated funds,</td>
<td>200,000</td>
</tr>
<tr>
<td>1968-69</td>
<td>Swine complex</td>
<td>Sale of portions of Havelock farms</td>
<td>1,300,000</td>
</tr>
<tr>
<td>1969</td>
<td>Sheep complex</td>
<td>Sale of portions of Havelock farms</td>
<td>50,000</td>
</tr>
<tr>
<td>1970</td>
<td>Agronomy underground distribution irrigation system</td>
<td>Sale of portions of Havelock farms</td>
<td>60,000</td>
</tr>
<tr>
<td>1970-75</td>
<td>Land shaping</td>
<td>Product sales</td>
<td>80,000</td>
</tr>
<tr>
<td>1970-83</td>
<td>Twenty-one irrigation wells</td>
<td>Field laboratory</td>
<td>200,000</td>
</tr>
<tr>
<td>1971</td>
<td>Foundation Seed complex</td>
<td>Foundation seed sales</td>
<td>200,000</td>
</tr>
<tr>
<td>1972</td>
<td>Walter Behlen Observatory</td>
<td>Behlen grant</td>
<td>350,000</td>
</tr>
<tr>
<td>1972</td>
<td>South feed mixing mill</td>
<td>Private donations by beef producers</td>
<td>60,000</td>
</tr>
<tr>
<td>1973</td>
<td>Veterinary Science Complex</td>
<td>Grant funds</td>
<td>20,000</td>
</tr>
<tr>
<td>1974</td>
<td>Individual beef feeding barn</td>
<td>Dept. of Animal Science</td>
<td>35,000</td>
</tr>
<tr>
<td>1974</td>
<td>Swine manager’s trailer house</td>
<td>Dept. of Animal Science</td>
<td>15,000</td>
</tr>
<tr>
<td>1974-85</td>
<td>Agronomy complex renovation of irrigation and drainage systems</td>
<td>Sales of portion of Havelock farms</td>
<td>218,000</td>
</tr>
<tr>
<td>1975</td>
<td>Main feed mill</td>
<td>Sales of portion of Havelock farms</td>
<td>600,000</td>
</tr>
<tr>
<td>1977-78</td>
<td>Solar array</td>
<td>U.S. Dept. of Energy</td>
<td>200,000</td>
</tr>
<tr>
<td>1980</td>
<td>Energy Integrated Farm</td>
<td>U.S. Dept. of Energy</td>
<td>800,000</td>
</tr>
<tr>
<td>1980-81</td>
<td>Expansion of Climatology Laboratory</td>
<td>Grant funds(^1)</td>
<td>15,000</td>
</tr>
</tbody>
</table>

\(^1\)Product sales include funds generated from surplus property such as rails and ties; and from sales of crops and livestock produced at the Laboratory.
History of Acquisition
Beginning and Disposal of the Nebraska Ordnance Plant

The UNARDC owes its existence to WW II as shown by these chains of events:

On October 14, 1941, in advance of Pearl Harbor but when U.S. involvement in the War appeared likely, the War Department announced that a $25,000,000 Ordnance Plant was to be built south of Mead. Senator George W. Norris had worked hard to get the plant located in Nebraska. The Nebraska Ordnance Plant (NOP), as it came to be known, was constructed under the direction of the U.S. Army Corps of Engineers. A total of 17,348 acres of farming land, consisting of 96 families (5), Construction began on January 1, 1942. Loading ammunition began on September 9, 1942 with the operation being conducted by the Nebraska Defense Corporation, a subsidiary of the Firestone Tire and Rubber Company. Over 3,000 employees worked at the plant during the peak of its operations.

Following WW II loading ammunition was terminated with the War Department assuming custody of the Plant on December 1, 1945. From July 1946 through December 1949, the Plant produced ammonium nitrate under the Emergency Export Corporation, a subsidiary of the Spencer Chemical Company. With the onset of the Korean War, the Plant was reactivated to again load ammunition, this time by the National Gypsum Company. The number of employees again exceeded 3,000. On June 30, 1956 the Plant was placed on a standby basis where it remained until 1959 when the U.S. Air Force began construction of an Atlas Missile Site. When the missile installation and the Ordnance Plant later became obsolete, the U.S. Government, on August 5, 1960, declared the land and buildings excess and published a notice for disposal (1).

Additional Needs for Land

The College of Agriculture needed more land, especially good quality, irrigated land for research on annual crops, and on grasses and legumes for grazing and forage production. In 1960, the College of Agriculture owned and operated 1,391 acres of land on the east edge of Lincoln (known as the Havelock farms), plus 2,408 acres in six other tracts scattered over the southeast quadrant of the State. The College was also renting a total of 1,186 additional acres at various locations in the above quadrant, including 480 acres from the Burlington Railroad, located near Pioneers Park southwest of Lincoln, and 530 acres on the Nebraska Ordnance Plant (2). Little of the land

in the Lincoln vicinity was good enough quality or had sufficient underground water to carry out appropriate irrigation experiments. A good share of the land being irrigated was subject to flooding from Stevens Creek.

There was a second factor which made the acquisition of additional land away from the city urgent. This was population pressure. As the number of houses increased close to the then College of Agriculture campus and the Havelock farms, both of which had initially been "out in the country", there was an outcry from some of the nearby neighbors complaining about the bawling and occasional break out of cattle, and the presence of manure smells. This situation was not unique to the University — it was almost a universal experience among colleges of agriculture across the country. The complaints of nearby residents, the increased value of land, either for other University needs or purchase by developers, and the growing need for more (sometimes also better quality land), resulted in most colleges acquiring and shifting their field operations to enlarged land units some distance away from the enveloping cities where they were located.

Thus, it was only natural that when staff positions were refilled and normal operations restored following the end of WW II, additional land outside of the environs of Lincoln was increasingly needed by the College of Agriculture. The lack of availability of suitable land and shortage of state appropriated funds for the necessary purchase were virtually insurmountable roadblocks to obtaining the additional land from privately held sources.

That a solution to the problem might lie in getting land which might be declared surplus to military needs following the close of the Korean War on July 27, 1953, was recognized early on by Lambert, Baker and Frolik, as Station Administrators, and by Carl A. Donaldson, Business Manager of the University. Lambert made the suggestion at a College of Agriculture staff meeting and arranged for a group of staff members to explore the Hastings Naval Ammunition Depot with respect to suitability of the land and buildings for the College. Inspections were also made of the Nebraska Ordnance Plant at Mead. A tentative decision was made to attempt to obtain land at the plant first declared surplus to the needs of the U.S. Government. It was recognized, also, that Hastings had the best land but that Mead was fairly satisfactory; also that the distance of 25 miles from Lincoln to Mead made the former much more desirable from the standpoint of required travel. However, resistance to moving the principal field operations to either location was expected, both externally and internally.

As time progressed, the thinking evolved from adding a unit of land to existing facilities, to developing a completely new field laboratory which would involve the disposal of a major portion of the then existing holdings, both owned and leased. The concept in-

---

That the College of Agriculture owns and rents land is so stated for convenience — actually legal documents involving all segments of the UN can be entered into only by the legal entity which is the "Board of Regents of the University of Nebraska."
cluded a large scale expansion of land holdings sufficient to take care of needs for experimental work for the existing staff and for a markedly larger staff in the future. At the same time it was recognized that there was need to retain some lands near or in Lincoln for intensive types of studies, such as those requiring day-to-day attention by staff members.

Another factor in retention of the then existing lands was that some experimental units such as the Dalbey section at Virginia, the 320 acre Rogers Memorial Farm eight miles east of Lincoln, and the 240 acre Horning Forestry Farm at Plattsmouth, must, under the terms of the respective conveyances, be retained by the University in perpetuity.

Probably the first information that Mead would be declared surplus was obtained by Donaldson when he called on the surplus property division of the U.S. Department of Health, Education and Welfare (DHEW) in 1959, and was told that Mead would likely be so listed sometime in 1960 (3). The mechanism for conveyance consisted of such facilities being made available through the Department of Health, Education and Welfare for educational purposes.

Donaldson’s visit to and subsequent reports from Washington activated the campaign on the part of the University to obtain land at Mead. Chancellor Hardin was fully supportive from the start. Carl Donaldson and George S. Round were also active in the efforts to obtain the facility. Lambert and Frolik were “in the middle” of the campaign, with Frolik continuing the efforts after Lambert left the University in June 1960.

Gaining Public Support for Application for Land at Mead

Various groups had to be supportive in order for the campaign to succeed. The Nebraska Congressional delegation consisting of Senators Carl Curtis and Roman Hruska, and Congressman Larry Brock, provided excellent support as soon as the University plan for Mead had been made known. State Senator Harold Stryker, 17th District, which encompassed the Ordnance Plant, was initially opposed to the University plan. He had been quoted on March 3, 1960 (21) as saying, “I will go on record as opposing the Agricultural College obtaining 8,000 to 10,000 acres . . . It would seem an experimental farm of 80 to 160 acres would be sufficient . . .” Later Donaldson, Frolik and Round visited him at his home near Rising City. They spread blueprints on the Stryker living room floor and explained the proposal in detail. Later at a meeting with a group of business men in Wahoo, reported in the Wahoo Newspaper on April 21, 1960, the Senator voiced no continued opposition (22). In fact, as time went on, he became an ardent supporter.

On April 21, 1960, a dozen Wahoo business men met with Senator Stryker to discuss the disposition of the Nebraska Ordnance Plant, including the pending application of the University. Among those present were Tom Ludi, publisher, and Derrel Ludi, editor, respectively, of the Wahoo Newspaper. It was reported in the Wahoo Newspaper “At the conclusion of the meeting almost everyone present held the view that the land in question should be placed back on the tax rolls of Saunders County and sold to individuals in tracts of 80 acres”. However, there was one person present (not identified) who took the opposite view, and spoke in favor of the University proposal (22).

A visit to Derrel Ludi by Frolik and Round did not appear to materially change his position. Attracting industry; restoring the open lands to family-sized farms, preferably giving priority to former owners; and getting the land back on the tax rolls were uppermost in his mind. He felt that 160 acres should be adequate for the University.

On May 9, 1960, Donaldson, Frolik, Round and Robert M. Koch, presented the University case for Mead to members of the Wahoo Lions Club and guests. Senator Stryker was also present (23). No opposition was expressed and, in fact, the group appeared to be fairly supportive.

A definitely favorable response was received when Donaldson and Frolik explained the proposal to members of the Fremont Kiwanis Club on June 23, 1960 (4). On the other hand, persons attending an open meeting at Mead, which was called for the purpose of explaining the University's proposal, were generally noncommittal or rather cool to the entire idea.

Leadership in support of the University plan, by William Vavak, farmer whose property adjoined the Ordnance Plant on the west, and the late Ralph Treptow of Ithaca, farmer and certified seed producer, was most effective in neutralizing opposition from people in the local area and in actually gaining the support of many. These two men deserve a special role of honor in the advancement of agricultural research and education in Nebraska.

Gaining Internal Support

Frolik's concept had no upper limits on how much land should be applied for, but he was advised that the Board of Regents would not stand still for applying for more than one-half of the total NOP area. In view of his subsequent support, it is likely that Richard Adkins of Osmond helped convince his fellow Regents that the acreage applied for should be as high as it was. It must also be admitted, in retrospect, that asking for even 8,000 acres was a rather daring move.

Following the directive on the upper limit of land that could be applied for, Frolik called a meeting of the College departmental chairmen to assess their respective interests in land needs. There was some reluctance to shifting most of the field research to Mead. Robert Koch, Chairman of the Department
Figure 1. This drawing shows proposed use of the Nebraska Ordnance Plant land at the time the application for transfer was prepared (July 15, 1960).

of Animal Husbandry, made a major contribution when he stated, "We (Animal Husbandry) will take the whole chunk." And he meant what he said. The effect on the other chairmen was immediate and salutary. Those having major departmental field operations soon visualized needs for considerable land at Mead. Subsequently, a bus trip was made to Mead by staff members with field operations, some of whom had also expressed reluctance to the move, principally because of the distance involved. However, there was never any out-and-out opposition on the part of the staff, and as time went on most did all in their power to make the Field Laboratory a success.

Preparing the Application to the U.S. Department of Health, Education and Welfare

The next and crucial step in acquisition was to get an application prepared for the Board of Regents to submit to the DHEW. A committee was appointed to assess needs and prepare an official application. Ralston J. Graham was appointed Secretary but lost that position at the first meeting of the Committee when he was elected Chairman. Graham worked full time to develop a plan and prepare the official application.

He soon recognized that he needed the assistance of an engineer in preparation of maps and other technical aspects of the application. Accordingly, Frolik assigned George M. Petersen, Professor of Agricultural Engineering, to devote full time to working with Graham. These two staff members did an excellent job of carrying out their assignment. Petersen got into the spirit of the assignment at hand and worked hand in hand with Graham in preparing the application. They searched far and wide to find every possible appropriate need for the facility, and then spent months in preparing and revising the official application. Although it cannot be documented, later University authorities were told numerous times by representatives of the DHEW that the University application was so good that they suggested it as a model for applications by other universities desiring surplus military lands.

Roadblocks and Gaining U.S. Government Approval

A few roadblocks surfaced as the program to obtain the Ordnance land proceeded. An early version of the application, dated May 1960, envisioned a rectangular area roughly encompassing all of the land south of the load lines (see Figure 1), of approximately 8,000 acres. But shortly before the application was to be submitted to DHEW, the Department of the Army turned over to the 5th Army Headquarters in Chicago, 968 acres of land in the southeast corner of the Plant, a tract which had been included in the University application. The land had been requested by Nebraska Adjutant General Lyle Welch for a rifle range for the Nebraska National Guard. The National Guard Bureau in Washington approved the application, making the range available to Reserve Armed Forces units as well (6).

The revised and final application, dated July 15, 1960 (2), was approved by the Board of Regents. To make up for the "loss" of the land to the 5th Army, the area being applied for was extended to the north, going beyond but not including the four load lines (see Figure 1). The application was delivered by Carl Donaldson to Dwayne Gardner, surplus property officer of the Nebraska State Department of Education, a necessary first step in attempting to get transfer of the land (7). Gardner approved and transmitted the application to the Kansas City office of DHEW. That office approved the application and transmitted it to the Washington DHEW office. After some minor changes in the application were agreed upon, DHEW/ Washington recommended approval to the U.S. General Services Administration (GSA) which made the final decision.

The GSA proved to be a tough barrier in the negotiations. Word came to the University, that GSA

1It speaks well for the former Department of DHEW and the GSA that the officials were cautious in disposing of U.S. property. They were protective of the taxpayers' interests.
would attempt to reduce the area to be transferred and would shift granting some of the remainder of the open lands to those occupied by concrete igloos, inert storage areas and load lines. Also, the revised area was to be reduced to 7,500 acres (8).

A meeting was held at GSA offices in Washington on January 12, 1961, for the purpose of attempting to resolve the differences. An "advance guard", consisting of Donaldson and Frolik, met with Lloyd Taylor of DHEW in Washington to assess the status of the application and to help determine the position the University should take. Taylor insisted that they stand their ground, repeatedly referring to the excellent program which had been presented and which, he insisted, should not be lessened in effectiveness by any shift in amount or quality of land being applied for. There had been some feeling in Lincoln that a compromise should be attempted with GSA in order to finalize the transfer without further delay. When Chancellor Hardin and Round arrived in Washington, Donaldson and Frolik strongly urged holding fast. Following discussion, Hardin concurred. The thought of agreeing to a possible compromise was thereby dropped.

In attendance at the final meeting with GSA to resolve differences were Senators Carl Curtis and Roman L. Hruska; representatives of DHEW; and Hardin, Donaldson, Frolik and Round of the University. Senator Hruska, who had been fully briefed on the University proposal, made a masterful presentation in support of the application. He informed GSA in no uncertain terms of the intention of Congress in supporting transfer of federal lands to universities via DHEW for educational purposes, and specifically spoke in behalf of the Mead application. After the Senators withdrew, the presiding GSA official said, "Now, let's get down to the serious business of deciding what will be transferred." He found not the slightest give on the part of DHEW or the UN on his desire to reduce the area being applied for (38). But on one point he did get a concession. The University had not applied for the four load lines, consisting of approximately 116 acres each, because of contamination problems and the large number of buildings, most of which were not useful for the field laboratory. Maintenance of the load line buildings had been considered almost prohibitive and the danger of liability, resulting from explosions of the contaminant TNT, was, at first, considered more than the University could be responsible for. Somewhat grudgingly, the UN agreed to accept the load lines in addition to the original land applied for.

University officials in Washington, D. C., in 1960 in the interest of getting the Nebraska Ordnance Plant land transferred to the University for use as a field laboratory. Here they discuss the newly completed application (copy on table) with the Nebraska Congressional delegation. Back row, from left: Regent Richard Adkins, Carl Donaldson, Congressman Don McGinley, Congressman Lawrence Brock, George Round and Elvin F. Frolik. Seated: Senator Carl Curtis, Chancellor Clifford M. Hardin, and Senator Roman L. Hruska.

293
On January 23, 1961, GSA officials announced that the application had been approved, subject to the University taking responsibility for the "contaminated" areas of the former Ordnance Plant (9) and temporarily withholding some "islands" of land and facilities in the area being transferred. This meant, in effect, that the University would take title to and be responsible for the load lines.

A "victory" luncheon was held at the Nebraska Center for Continuing Education on Saturday, April 19, 1962 (10). In attendance were representatives of GSA/Kansas City, DHEW/Washington and Kansas City; the Ordnance Ammunition Command and the Nebraska Ordnance Plant; the Corps of Engineers, U.S. Army, Omaha; the State Department of Education, Lincoln; and University officials. The transfer of the load line areas (which was not included in the grant which came via DHEW) was made official upon Carl Donaldson paying a silver dollar (polished up for the occasion) to the GSA officials. The mechanics for making the transfer were worked out at this meeting.

**Official Conveyances**

A joint conveyance of the land covered by the DHEW grant and the load lines by GSA was made to the University through Quit Claim Deed SA-VI-31, dated April 12, 1962.

A line drawing of the Ordnance Plant, along with the area transferred to the University in 1962, is shown in Figure 1 (14). Land areas on which the concrete magazine storage buildings (igloos) are located can be used only for grazing purposes, since use of modern farm machinery on such areas would be impractical. With present technology, the cost of removing the igloos would be prohibitive. In accordance with established procedures, the University received full title to the land covered by the 1962 federal grant at the rate of 5 percent per year. In 1982, upon completion of the 20 years required to complete the transfer, the University became the unconditional owner.

In 1966, the University applied for two additional tracts of land, with buildings, at the Nebraska Ordnance Plant. The first of these consisted of 640 acres located along the east side of the original grant, described as the S 1/2 of Section 21, T 14N, R9E and the N 1/2 of Section 28, T 14N, R9E, Saunders County, Nebraska. This tract had been granted to the State of Nebraska in 1963 for the purpose of establishing a vegetable training center. However, the program proved to be a failure due primarily to disciplinary problems with the inmates (13). The program was terminated and the land was returned to the U.S. Government. On October 3, 1966, DHEW approved the University's application for the section of land. A second tract was transferred on June 28, 1971 consisting of 112 acres. The latter constituted a completion of turning over to the University odd tracts which had been retained temporarily when the initial transfer had been made in 1962 (16, 24).

**Activation**

Acquisition was only the first step — the huge job of activation (with very limited funds) now faced the College of Agriculture. Much credit belongs to two men who were retained, initially, by the University for getting the program underway (15).

One of these was Warren W. Sahs, who, up to 1961, had been in charge of the University Foundation Seed Division and who was recalled from a temporary assignment with the Rockefeller Foundation in India to initiate the Field Laboratory program. He reported for duty at Lincoln as superintendent on September 1, 1962.

The other man was F. C. (Chick) Hastert, a chemical engineer, who had been Head Inspector at the Ordnance Plant throughout most of the period of its existence. He was hired by the University as facilities manager. His long experience and detailed knowledge of the Plant, along with his loyalty and initiative, made him extremely valuable in preserving and utilizing the physical plant and in disposing of surplus property in an orderly manner, with maximum returns to the University.

**Disposal of the Remainder of the NOP**

What happened to the rest of the Ordnance land and facilities? On December 13, 1961, the GSA sold at public auction 5,131 acres of the farm land and two industrial units (17). For the purpose of the sale, the farm land had been divided into 20 tracts ranging in size from 159 to 477 acres each. The land was purchased by 12 individual buyers at an average price of $250 per acre. Of the total area, 14 percent was purchased by local farmers, 29 percent by outside investors, and 57 percent by three dehydrator corporations (18). Hastert reported that only one person purchased his previously owned farm (19). Late in 1968 the Administration area at the north end of the original Plant was sold to private interests for small industry (1).

**Sale of University Lands to Help Finance the UN-ARDC**

There was considerable concern at the time the University was applying for the land at Mead that the amount of land made available to the College of Ag-

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*Title to a portion of load line 2, a railroad yard, and some other limited land and facility areas, totaling in all 112 acres, was retained by the U.S. Government to accommodate activities still underway. These areas were transferred to the University in 1971.

*The University has been fortunate to have Sahs in this position. He is equally at home at his office desk or in the field, including being able to adjust and operate any piece of farm equipment. He has the ability to get along with his fellow workers at all levels, and has excellent management capabilities.*
riculture would be excessive. To allay the concern on
the part of the DHEW, the University proposed, in
the application, to drop the leasing of 656 acres of
land in the southeast quadrant of the State and to
dispose by sale (subject to approval by the Legisla
ture), the 80-acre Univ. Fruit Farm and the 8.8-acre
tract at Two Rivers. The Regents also entered into a
"gentleman’s" agreement with the Legislature to sell
as much of the Havelock farms as could be spared
from research and educational activities and to use
the funds, so generated, for relocating research ac-
tivities to the Mead Lab. Disposal of such lands to
date is shown on the next page (20, 40).

Development and Utilization of the UN Field
Laboratory at Mead

Getting Started

When Sahs took charge of the development and
operation of the newly acquired land and facilities at
Mead, he was faced with a Herculean task, to say
the least. Here was a large tract of land which had been
developed as an ordnance plant. Some idea of the
extent of the structures can be gained by referring to
the list of land and facilities shown earlier in this chap-
ter, along with Figure 1. The load lines (that look like
ironing boards on the map) which the University did
not want but was forced into by GSA, posed a serious
problem with respect to upkeep and dangers resulting
from contamination with TNT powder. The concrete
magazine storage buildings (igloos) were of such heavy
cement construction that removal was prohibitive
from a cost standpoint. Many new buildings were
needed to accommodate research and educational
programs, permanent pastures had to be established,
irrigation had to be developed, and the existing phys-
ical plant had to be maintained in at least a reasonably
respectable condition. Extensive equipment had to be
obtained to do the farming and to conduct research
field operations.

A second and even more serious problem was that
financially the operations were started on not much
more than a "shoe string". The Legislature generally
took the position that development and operating costs
should come largely from sale of lands owned by the
University which became surplus with the obtaining
of the Mead Field Laboratory, and from income gen-
erated from the sale of personal property and agri-
cultural products produced at Mead. The original
philosophy was one of the State providing only start-
up money. Accordingly, the 1961 Legislature appro-

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10The open land had been leased by the Federal Government to
private operators but as the leases expired the University took over
operation of the land.

Although initially considered useless, most of the concrete bomb storage magazines (igloos) are now being used for other storage
purposes and livestock shelters. None of them has been removed.
### Sale of Lands to Help Finance the UNARDC

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Acres</th>
<th>Designation of Tract</th>
<th>Buyer/Recipient</th>
<th>Gross Proceeds</th>
</tr>
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<tbody>
<tr>
<td>1961</td>
<td>80</td>
<td>Univ Fruit Farm (26)</td>
<td>B &amp; R Corp.</td>
<td>$ 24,320</td>
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<td>1962 (29)</td>
<td>13.69</td>
<td>Portion of South Genoa farm</td>
<td>Sack Lumber Co.</td>
<td>250/acre</td>
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<td>1965</td>
<td>8.8</td>
<td>Two Rivers</td>
<td>Returned to Federal Government</td>
<td>None</td>
</tr>
<tr>
<td>1966 (27)</td>
<td>20</td>
<td>Portions of So. Genoa Farm</td>
<td>Kent &amp; Burke Co.</td>
<td>6,520</td>
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<tr>
<td></td>
<td>240.2</td>
<td></td>
<td>Francis J and Helen Brown</td>
<td>60,290</td>
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<tr>
<td>1970</td>
<td>223.9</td>
<td>Portion of UN Havelock farms</td>
<td>City of Lincoln (Mahoney Park)</td>
<td>321,744</td>
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<tr>
<td>1973</td>
<td>16.52</td>
<td>Portion of UN Havelock farms</td>
<td>City of Lincoln¹¹</td>
<td>None</td>
</tr>
<tr>
<td>1973</td>
<td>12</td>
<td>Tract along “O” St. originally part of Veterans Hospital land¹²</td>
<td>Dave Burhoop Realty (27)</td>
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<td>1973</td>
<td>55.97</td>
<td>Portion of UN Havelock farms</td>
<td>Golf Park, Ltd. (John L. Hoppe)</td>
<td>229,650</td>
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<tr>
<td>1973</td>
<td>35.51</td>
<td>Portion of UN Havelock farms</td>
<td>Golf Park, Ltd.</td>
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<td>1973</td>
<td>13.52</td>
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<td>Hub Hall</td>
<td>81,255</td>
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<tr>
<td>1973</td>
<td>5</td>
<td>Portion of UN Havelock farms</td>
<td>Sweeney-Burke-Hancock (Havelock Bank)</td>
<td>151,000</td>
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<tr>
<td>1975</td>
<td>5.44</td>
<td>Portion of UN Havelock farms</td>
<td>City of Lincoln (Mahoney Park)</td>
<td>11,970</td>
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<tr>
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<td>262</td>
<td>Portion of UN Havelock farms</td>
<td>Leavitt Bros.</td>
<td>400,400</td>
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<tr>
<td>1976</td>
<td>6 lots</td>
<td>Portion of Havelock farms (Castleton Addition)</td>
<td>Lincoln Real Estate</td>
<td>41,675</td>
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<tr>
<td></td>
<td>1 lot</td>
<td></td>
<td>Michaelis</td>
<td>6,812</td>
</tr>
<tr>
<td></td>
<td>1 lot</td>
<td></td>
<td>Spielman</td>
<td>6,880</td>
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<tr>
<td></td>
<td>1 lot</td>
<td></td>
<td>Thomas</td>
<td>6,211</td>
</tr>
<tr>
<td></td>
<td>1 lot</td>
<td></td>
<td>Brood</td>
<td>7,592</td>
</tr>
<tr>
<td>1977</td>
<td>8 lots</td>
<td>Portion of Havelock farms (Castleton Addition)</td>
<td>Lincoln Real Estate</td>
<td>66,800</td>
</tr>
<tr>
<td>1977</td>
<td>202</td>
<td>Portion of Havelock farms</td>
<td>John Breslow</td>
<td>361,924</td>
</tr>
<tr>
<td>1979</td>
<td>Outlot A</td>
<td>Portion of Havelock farms</td>
<td>Horizons (Rosement)</td>
<td>35,010</td>
</tr>
</tbody>
</table>

The proceeds less expenses from sale of the above lands were used by the University for improvements at the UNARDC.

¹¹Deeded to the City of Lincoln for the Northeast Diagonal right-of-way.

¹²12 acres had been conveyed to the UN by the GSA in 1951 on the customary 20 year arrangement (25). It was used by the Agronomy Dept. for crops research until sold by the University.
appointed $75,000 for the 1961-63 biennium for operations at Mead. The 1963 Legislature continued the $75,000 appropriation for the ensuing biennium and appropriated an additional $183,000 for development "... provided that this sum be returned later to the general fund out of proceeds obtained from sale of experimental lands now situated on the outskirts of Lincoln" (30).

**Overall Development**

Funding for development and operation of the Field Laboratory at Mead has never been adequate. Funds generated from the sale of other surplus real property by the University, state appropriations, receipts from sale of steel rails which were on the property13 and product sales have been utilized. Through the years still other funds such as contracts and grants which became available have also helped. Even so, in total Mead has always been operated on an austere budget.

The lists of principal physical facilities available and modified or added are shown in the following sections. In addition, 43 inert powder frame storage buildings were moved and renovated for use as animal shelters and other research operations. None of these buildings is now located on the original sites.

The approximately 100 igloos had been constructed by the Army with concrete floors, concrete walls up to two feet thick reinforced on three sides with mounds of dirt, and wooden frame roofs, so constructed that in case of an accidental explosion the force of the blast would go up through the roof.

The land in the igloo areas is used for grazing. Where sheep were used they would walk up on the roofs, eat the tar paper and sometimes make holes with their feet in the wooden roofing that remained; hence the dirt reinforcements on the sides had to be removed in order to deny the sheep access to the top of the igloos.

Although initially considered useless, most of the igloos are presently being utilized for storage purposes and for livestock shelters. None of them has been removed.

The power lines, 14 miles of hard surfaced roads, and 15 miles of graveled roads have been maintained by the Field Laboratory. Saunders County was invited to take over maintenance of the roadways but refused on the basis that the Laboratory was state/federal property for which the County was not responsible. Drainage ditches have been cleaned from time to time and weeds, which were a big problem to begin with, have been kept down to manageable conditions.

The entire water system installed by the NOP has been kept in working condition, along with the system being extended to provide water to 30 livestock pastures. An excellent irrigation system has been developed with the water being pumped into a 12 inch main which runs across the north end of the entire area and southward about one mile. It then empties through fire plug type outlets onto the field where needed. The integrated system can supply about 4,000 gallons of water per minute. Water is applied to growing crops by gravity along with seven center pivots, with a solid set installation, and with one lateral move irrigation system.

Security has been somewhat of a problem on the Laboratory. This is understandable in view of such a large area of land and the many buildings, with only two residences located on the property. The University employs two guards to police the area nights, weekends and holidays. The Saunders County Sheriff and his deputies, and the Nebraska State Patrol also cooperate in providing security as the occasion demands.

**Principal College of Agriculture Users of the Mead Lab**

The principal College of Agriculture users (Departments) of the Laboratory are shown by land and building assignments in Figures 1 and 2. The research, extension and resident instruction programs and accomplishments are included principally in the Chapters devoted to the Departments. However, to identify the use of the Field Laboratory, a brief summary of the Departmental activities is shown:

**Agricultural Engineering.** The Department of Agricultural Engineering utilizes the land and facilities at the Laboratory for projects ranging from traction and conservation tillage through till planting, herbicide and fertilizer application through center pivots, irrigation scheduling, insecticide application through pivots, automated gated pipe irrigation, automated solid set irrigation, drying and storage of grain, swine facility design, and animal waste management.

From 1963 to 1983 the Agricultural Engineering Department sponsored Tractor Power and Safety Day which was a most effective way to provide research results to farmers.

**Agronomy.** Operations at the Mead Lab were started by the Department of Agronomy in the south one-half of Section 30 (see Figure 2) in the spring of 1963. The Department, including the Foundation Seed Division, still utilizes this parcel of land.

The south half of Section 21 and the north half of Section 28 (all in a contiguous tract) were also assigned to Agronomy upon transfer of this tract to the University by the Health, Education and Welfare Department in the fall of 1966. This land has come to be known as the "Agronomy Section" and constitutes the center of operations at the Laboratory for the Department. The main structure on this area was at one time the Air Force Global Communications building and later the dormitory for the "trusty" inmates.

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13There were initially about 15 miles of railroad on the property, all of which have now been removed. The ties were utilized on the Laboratory lands for lot building and other purposes and the ballast was used for road surfacing.
Figure 2. This map shows 1987 uses of the ARDC land. Legal descriptions are shown by sections.
of the State Correctional Services Department.

In early years of agronomy operations roads were constructed and an irrigation system was developed.

There were five buildings on the Agronomy Section at time of transfer. In addition, five inert powder storage buildings were moved to the Section for various Departmental usages.

Excess water is carried in a southeasterly direction across the Section to a holding pond, located south of the headquarters compound, and on to a reservoir covering five acres located in the extreme southeast corner of the Section. The stored water is used for irrigation.

Programs operating in the Agronomy Section as outlined in the 1974 Report to HEW were: 1) plant breeding and crop improvement work on alfalfa, corn, perennial grasses, small grains, sorghum, and sudangrass; 2) crop production and management; 3) herbicide residual investigations; 4) soil fertility and management; 5) sorghum physiology and testing; 6) soil testing; 7) field crop variety evaluation; 8) Nebraska Crop Improvement Association varietal purity and seed quality trials; 9) irrigation water use; 10) use of ponds for water runoff control and; 11) chemical weed control.

In 1948 Warren W. Sahs, who was then manager of the Foundation Seed Division, arranged for the plantings of seed increases of corn and improved grasses on the Nebraska Ordnance Plant. When Secretary of Agriculture Ezra Benson terminated the Soil Conservation Service nurseries in 1952, the Foundation Seed Division assumed the responsibility of maintaining, harvesting, cleaning and distributing sizeable acreages of Nebr. 28 switchgrass, Nebr. 27 sandlove grass, and partridge pea, which the Soil Conservation Service Nurseries Division had established in the southwest corner of the Ordnance Plant.

In 1969 seed conditioning activities were moved from 3115 N. 70th Street, Lincoln, to loadline\(^1\) no. 3 at the Laboratory.

**Animal Science.** Feedlot pens for beef cattle nutrition studies were developed from 1964 through 1974. In 1964-65 inert storage buildings were moved and renovated for headquarters offices and a shop; a feed mill, constructed in 1972; bunker silos were built in 1970 and 1972; and the 120 head individual feeding barn was constructed in 1974.

Cow-calf herds are maintained to study factors relating to reproduction in beef cattle. Investigations are also carried out on the nutritional and hormonal factors relating to the reproduction in beef cattle.

A teaching herd is maintained to demonstrate economical systems of production and the effects of nutrition on hormonal secretion and reproduction.

Swine research includes breeding, nutrition, and reproductive physiology. Approximately 30 acres of land are devoted to this program. The development of facilities for swine research took place chronologically as follows: farrowing facility - 1967; headquarters complex including an office, showers, shop, machine and truck storage - 1968-69; outside lots - 1971; and the swine manager's trailer house - 1974.

Sheep were moved from the East Campus to Section 13 at Mead in the fall of 1968. Since there were no suitable buildings available, the sheep and necessary equipment were housed temporarily in four of the concrete igloos. Meanwhile construction was started on the present building on Section 25 (where the sheep were later moved). The main portion of the building utilizing 11 existing inert storage shells, is 200' X 60', with a 56" by 30' section in addition used for housing a feed mixer, storage space for storing supplies, and for an office. Necessary fencing of pastures, constructing of a feedlot, and installing of a water system were also completed.

Between 1968 and 1974 the sheep numbers at the Laboratory were increased from 50 to 150 Corriedale ewes, and from 40 to 250 Hampshire ewes.

The dairy operations are located on Section 23. The dairy unit headquarters, including the offices, laboratories, and a milking parlor was built during 1965-1966. Free stall barns for the milking herd and other barns for the young stock, dry cows, and maternity pens, were constructed by moving and renovating inert storage (wooden frame) buildings, to the headquarters location. In 1966 a unit manager's residence was constructed adjacent to the dairy unit. Five upright silos were added in 1967.

The only dairy cattle herd owned by the College of Agriculture is now located at Mead. Earlier there had been herds at four Stations and the School at Curtis. The young dairy animals were moved from the East Campus to Mead in the summer of 1965, and the cows in February 1966. The dairy herd at the North Platte Station was dispersed and the better animals moved to Mead in 1968. Similar action was taken with respect to the dairy cattle herd at the Panhandle Station in 1969. Herds located at the School of Agriculture at Curtis and at the Valentine Substation had been disposed of much earlier.

The aim at Mead is to maintain a herd of 100 holstein cows in milk the year around.

**Entomology.** In 1963 the Department of Entomology was assigned a former fire station located in Section 26, along with adjacent 20 acres of irrigated land. The building was remodeled into an excellent laboratory facility for corn insect research. An equipment storage structure was also developed from an inert storage building. In 1973 an additional 40 acres of land were assigned to entomology.

This entomology complex exemplifies an excellent model of the Field Laboratory concept, i.e., laboratories, offices, a greenhouse, and irrigated land are all located in one compact area.

**Horticulture.** In 1963 a frame building was moved to the southeast corner of load line 2, Section 24 as a

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\(^1\)The load lines are numbered 1 through 4 from west to east.
headquarters for the Department of Horticulture.

Principal projects carried on at Mead have been: 1) plantings of a large collection of woody landscape cultivars which might have use in highway landscaping; 2) evaluation of chrysanthemum cultivars; 3) studies on cultural practices in growing hybrid tea and grandiflora roses; 4) evaluation of species and cultural practices to be used in planting mixtures of wild flowers; and 5) evaluation of turf grass cultivars and lawn management practices.

Forestry (under the Department of Horticulture until 1974, and presently a part of the Department of Forestry, Fisheries and Wildlife). Early in the development of the Field Laboratory, the major portion of Section 26 was set aside for forestry studies. Inert powder storage buildings were moved to the area and renovated to accommodate the facility needs for conducting the forestry research projects.

Shelterbelt plantings were made in 1966 to determine the effect of the wind protection provided thereby on yields of wheat, soybeans, and grain sorghums. Provenance tree plantings were made in 1966 and 1967.

Agricultural Meteorology and Climatology (part of the Department of Horticulture until 1975, then the Department of Agricultural Engineering until 1979 at which time it became a Center). Work in this area started at Mead on Section 26 in 1966. The initial laboratory structure was renovated and enlarged in 1980-81. Initial work consisted of studying the effect of artificial windbreaks constructed from snow fencing. Various orientations of the windbreaks were used in making these studies.

The major objective of the present agrometeorological research is to improve the efficiency of crop water usage, along with studying the effects of climate modification on crop and animal production.

Veterinary Science. The Department of Veterinary Science started operations at the Mead Field Lab in the early 60's at the south end of load line 4, in Section 20. The purpose of the program is to provide Specific Pathogen Free (SPF) swine and cattle for research projects, and for use by farmers. The advantage of maintaining these basic herds at the Laboratory is that isolation from other animals, and from people who might carry the disease on their clothing, is more easily provided than it would be at most other locations.

The integrated energy farm of 157 acres is one of the newer developments at the Laboratory. The program involves a crop rotation of corn, soybeans, and sweet sorghum; a swine facility; a 200-gallon alcohol fermentation/distillation unit; a methane gas production unit; crop drying and processing facilities; and a solar unit of 100,000 silicon solar cells, with a 25 kilowatt peak output. The objectives of energy farms include: 1) demonstrate energy-saving irrigation practices; 2) use ethanol produced from sweet sorghum to power farm engines; 3) reduce tillage operations and fertilizer usage; 4) conserve soil and water; 5) demonstrate use of solar energy and methane gas to generate electricity for space heating in the swine facility; and 6) recover waste heat and carbon dioxide from alcohol fermentation. The hope is to demonstrate how usage of fossil fuels on farms can be minimized, and ultimately eliminated (39).

Users Outside of the College of Agriculture/IANR

At the time the application for the land at Mead was being prepared, an effort was made to include University units outside of the College of Agriculture. It was thought that including such additional programs would strengthen the application and make acceptance by the HEW/GSA more likely. The effort to interest such other units was unsuccessful. The only usages suggested were for the College of Agriculture. However, since the Laboratory became established, five units outside of the College of Agriculture have developed facilities and programs on the site:20

KUON-TV/NE ETV Transmitter Station, for KUON-TV/Nebraska Educational Television, is located in the center of Section 31.

UNL Museum. The University of Nebraska Museum is storing Ice Age and Tertiary fossils in one of the load lines. The first transfer of these valuable research materials consisted of 14 semi-truckloads of prehistoric fossil bones in their field casts, weighing a total of approximately 56 tons. C. Bertrand Schultz, former Director of the Museum, said in 1962: "We are going to have one of the finest research, collecting and storing facilities for Ice Age and Tertiary fossils in the country. . ." (31).

Behlen Observatory. The College of Arts and Sciences Department of Physics and Astronomy Behlen Observatory is located in a specially built silo. The Observatory located in the southeast corner of load line 3, Section 19, contains a 30" telescope.

UN Medical Center. Early in the development of the Laboratory, space was assigned to the UN Medical Center at Omaha in load line 4, Section 20, for research purposes. A herd of miniature swine which are fast maturing and economical to raise, was started in 1964 for studies on atherosclerosis. Initial funds for

20There was a sixth suggested usage which fortunately did not materialize. In the late 60's when the U.S. Atomic Energy Commission was casting about for locating a multimillion dollar giant particle accelerator, some Nebraska citizens strongly encouraged constructing the facility at the Mead Lab. This would have required a large amount of land and if installed would have ruined the Mead Lab for agricultural research and educational purposes. The AEC selected Illinois as the location for the accelerator. As this book goes to press, plans are underway to build a still larger particle accelerator which has been named the Superconducting Super Collider. It will have a diameter of 14 miles with an oval track of 52 miles. Estimated cost is $4.5 billion dollars. This time the Mead Center does not appear in danger of being taken over because the needed land area is much larger than the total of the Center. Also, the Lincoln Journal has stated that "Nebraska is not planning to submit a proposal . . ." (40).
Civil Engineering. In 1965 the University entered into a 10-year lease with the Corps of Engineers, U.S. Army, to construct a model of the Missouri River in a 50 X 100’ water tank in the north end of load line 4, Section 17. The structure is used to study erosion and sedimentation problems. The course of the river is built in the tank with movable two-foot sections which can be varied to duplicate the different bends in the river. Water is pumped through the “river” and walnut shells, ground to various sizes are used to duplicate sand, silt or gravel. Through these model studies the Corps can better design stabilization structures for the Missouri River.

The UNL Department of Civil Engineering is cooperating in the project, principally with respect to graduate student research and field trips for undergraduate students (34).

Special Programs

**Tractor power and safety day.** This event, which was moved from the East Campus to Mead in 1964, not uncommonly attracted 10,000 or more people. Over the years there were demonstrations of tractor safety practices, sound tests for tractor noise levels, new tractor models, hay and grain handling equipment, automatic irrigation and center-pivot irrigation systems, and management of livestock wastes. Tours of the demonstration areas and experimental plots were given with notables commonly giving speeches.

In 1984 the format of the program and the title were changed, with the new event being titled “IANR AG EXPO.”

**Other events and visitors.** Other events include hunting dog trials and state and national model airplane shows. Organized tours are provided for vocational agricultural classes, 4-H clubs, the Nebraska School of Technical Agriculture classes and other groups. Many unscheduled visitors come to the Laboratory to view the research underway.

**Wildlife and hunting.** The UNL Wildlife Club, sponsored by the Department of Forestry, Fisheries and Wildlife, helped develop a wildlife reserve on what had been the “burning ground” located east of the north end of load line 4 (not on a part of the University owned area).

Cooperation is carried on with the Nebraska Game and Parks Commission in encouraging wildlife on the grounds. The Laboratory includes a favorable environment for wildlife. For example, a large portion of Section 35, bisected by Silver Creek, is used lightly for research and education purposes because of the flood plain involved. There are a large number of volunteer deciduous trees along the Creek, along with weed patches and grazing areas. In addition, about 10 percent of the Laboratory consists of land formerly used for railroad drainage ditches and basin areas, groves of trees, plum thickets and osage orange hedges. The latter two date back to the 96 farms and farmsteads present prior to establishment of the NOP.

Pheasants, quail, deer, squirrels, rabbits, and some coyotes propagate on the grounds. The basin lagoons caused by the high water table provide a resting place for migrating ducks and geese in the fall and spring of each year.

Since 1967, hunting has been permitted, for a few weeks each year on a portion of the grounds. The Laboratory makes available 5,000 acres for hunting and the Nebraska National Guard provides an additional 1,000 acres located contiguous to the north side of Section 17. Hunters may use only shotguns and must check in and out at the hunting “shack” located near the headquarters. An average of 3,000 hunters come to the Laboratory each fall. They harvest 350 to 400 pheasants and a lesser number of quail, rabbits, and coyotes.

**Airstrip.** The Laboratory maintains a sod air strip, 100 X 3200’ in size, which is used by student pilots, commercial spray operators, and the Flying Farmers who come in for the various field days.

**Utilizing inmates of the Nebraska Penal Complex.** Inmates of the Nebraska Penal Complex helped a great deal in the early development of the Mead Laboratory. They were transported each morning from Lincoln and back that evening. Under supervision, they performed arduous tasks which others did not particularly want to do. These included cutting and hauling brush, removing trees from fences, cutting musk thistles, and disassembling frame buildings for the usable lumber.

In 1964 there was a good deal of enthusiasm in both the Nebraska Department of Institutions and in the University Department of Horticulture and Forestry when the S1/2 of Sec. 21 and the N1/2 of Sec. 28 were assigned to the former for the establishment of a vegetable farm training center. George Morris, institutions director, viewed the program as “... a self-supporting one to rehabilitate inmates from any state institution and provide an employment pool for a predicted vegetable-growing agricultural industry in Nebraska’s future.” J. O. Young, chairman of the Department of Horticulture and Forestry, who had actively supported Morris in his efforts to obtain the land and buildings, expressed pleasure over the assignment and stated: “Their large scale production (of vegetables) will help us in accomplishing demonstration and pilot operations”. The vegetables were to be canned for use at all state institutions (12, 36).
Included in the original assignment was a 60-person capacity dormitory in which Director Morris housed prison inmates to carry out the labor needed in conducting the vegetable project. Unfortunately the program ran into a discipline problem. In early October 1965 a State Safety Patrol report quoted "Mead inmates' tales of drinking parties, repeated thefts, unauthorized trips, and sex play." When the difficulties surfaced, Governor Frank Morrison ordered a shutdown of the entire operation which was completed by the end of 1965 (37). Subsequently, after the State had turned the land and buildings back to the federal Government, Morris was actively supportive in getting the tract assigned by the HEW/GSA to the University. The transfer was made in the fall of 1966.

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25. Donaldson, Carl A. June 20, 1951. Letter to Dean W. V. Lam-
Chapter 2. Northeast Station/UN Northeast Research and Extension Center

Contents

- Names of the Station ..................................... 303
- Administrators .......................................... 303
- Chief Administrators ................................... 303
- Other Administrative Officer ........................... 303
- Land and Improvements ................................. 303
- Early History ............................................ 304
- Isolation of Northeast Nebraska ......................... 304
- Early Attempts to Establish a Station .................... 304
- The Northeast Nebraska Experimental Farm Association .. 304
- Legislature Makes the Initial Appropriation - 1956 ....... 304
- What Constitutes Northeast Nebraska? .................... 305
- Organizational Changes .................................. 305
- Integrating Research and Extension ..................... 305
- Reorganizing To Make Extension More Effective ......... 306
- Program Scope and Accomplishments .................... 306
- Chronological Growth of the Northeast Station .......... 306
- Crops .................................................. 306
- Soil Fertility .......................................... 307
- Weed Control .......................................... 307
- Soil and Water Conservation ............................ 307
- Beef Cattle ........................................... 307
- Swine .................................................. 308
- Dairy ................................................... 308
- Farm Management ...................................... 308
- Forestry ................................................ 308
- Youth .................................................... 308
- Home Economics ....................................... 308
- Meritorious Faculty Award ................................ 309
- References ............................................. 309

Names of the Station

Northeast Nebraska Experimental Farm 1956-1958
Northeast Nebraska Experiment Station 1958-1964
Northeast Station 1964-1984
University of Nebraska Northeast Research and Extension Center present

Administrators

<table>
<thead>
<tr>
<th>Chief Administrators</th>
<th>Title</th>
<th>Period Served</th>
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<tbody>
<tr>
<td>Albert Dale Flowerday</td>
<td>Superintendent</td>
<td>1956-1964</td>
</tr>
<tr>
<td>Denzil O. Clegg</td>
<td>Area Supervisor &amp; Superintendent</td>
<td>1964-1966</td>
</tr>
<tr>
<td>Hugo J. Zimmerman</td>
<td>Acting Superintendent</td>
<td>1966-1967</td>
</tr>
<tr>
<td>Cal J. Ward</td>
<td>Supt. and District Extension Supervisor</td>
<td>1967-1970</td>
</tr>
<tr>
<td>Carl J. Ward</td>
<td>Supt. and District Extension Director</td>
<td>1970-1981</td>
</tr>
<tr>
<td>Carl J. Ward</td>
<td>District Director Research &amp; Ext.</td>
<td>1981-1984</td>
</tr>
<tr>
<td>John Witkowski</td>
<td>Acting Dist. Director Northeast Res. &amp; Ext. Ctr.</td>
<td>2/86-5/86</td>
</tr>
<tr>
<td>Donald B. Hudman</td>
<td>Dist. Director, Northeast Res. &amp; Ext. Ctr.</td>
<td>6/86-present</td>
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Other Administrative Officer


Land and Improvements (8)

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<th>Item</th>
<th>Year</th>
<th>Cost or estimated value when acquired</th>
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<tr>
<td>320 acre improved farm in southern Dixon County</td>
<td>1956</td>
<td>$ 70,000</td>
</tr>
<tr>
<td>Animal nutrition feed center</td>
<td>1967/75</td>
<td>$ 85,000</td>
</tr>
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<td>Beef research facilities</td>
<td>1956/67/75</td>
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<td>Cattle shed (2nd phase)</td>
<td>1963</td>
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<td>Feed storage &amp; drying facility</td>
<td>1956/73</td>
<td>$ 15,000</td>
</tr>
<tr>
<td>Haskell Office Building</td>
<td>1965</td>
<td>$164,900</td>
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<tr>
<td>Machine storage building</td>
<td>1973</td>
<td>$ 15,000</td>
</tr>
<tr>
<td>Residence</td>
<td>1967</td>
<td>$ 20,100</td>
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<tr>
<td>Silos (3)</td>
<td>1967</td>
<td>$ 15,100</td>
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<tr>
<td>Swine research buildings</td>
<td>1970</td>
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1The authors gratefully acknowledge the assistance of Cal J. Ward in searching the files at the UN Northeast Research and Extension Center to provide much of the information used in this chapter.
2When more than one year shown, the additional one(s), represents the date of additions and/or remodeling of the original structure.
3Nebraska Farmer- April 4, 1958, reported that construction started in the fall of 1958 - note that 1963 is shown above for the second phase.
Early History

Isolation of Northeast Nebraska

Historically, for years, many in northeast Nebraska felt somewhat isolated from the College of Agriculture at Lincoln. It was the feeling among farmers generally that much of the experimental work conducted at Lincoln and at the outlying stations was not applicable to northeast Nebraska conditions. Also, a disproportionate number of high school graduates were enrolling in the Iowa State University College of Agriculture at Ames rather than at the University.

Early Attempts to Establish a Station

Over the years several attempts were made by the citizens of that part of the state to establish an experiment station in northeast Nebraska. In 1943, State Senator Martin J. Mischke of Crofton, District 14, offered an amendment to LB 284 in the Nebraska Legislature to create an agricultural experiment station in Knox and Cedar counties (1). The proposed legislation, however, was not enacted. During the early fifties, requests were made from time to time to Dean Lambert and Associate Director Baker to establish such a station, but these requests were rejected on the basis of lack of funds to operate even the established stations.

The Northeast Nebraska Experimental Farm Association

The genesis of the Northeast Station took place on December 17, 1954 when a group of farm leaders, with representatives of the University present, met at West Point. An organization was discussed but evidently, according to the minutes, no name was agreed upon. The next meeting, on December 28, 1954, was referred to as “Meeting of Northeast Nebraska Experimental Farm Association”. Officers were elected as follows: Albert W. Watson, Wayne, chairman; Walter E. Chace, Pilger, vice chairman; Willard Burney, Hartington, secretary; and R. Chester Graff, Bancroft, treasurer. The group planned to raise funds through donations in sufficient amount to purchase a farm for University experimental purposes. They had a good start with gifts totaling $4,000 from soil conservation districts in Cedar and Wayne counties (3).

Members of this group organized fund drives in their respective counties for selling $25 memberships in the Association. Counties most active and effective in their sale of memberships were Cedar, Cuming, Dakota, Dixon, Stanton, Thurston, and Wayne. From its beginning in 1954 the Northeast Nebraska Experimental Farm Association has remained alive and active.

From 1957 through 1974 the Association held annual meetings on a rotational basis in the various member counties to receive reports on experimental work underway at the Station and to help plan research for the coming year. More recently these types of meetings have been dropped since it has been decided that the research information can best be presented through field days and field tours at the Station.

The Association continues to serve as a sponsor, liaison group, and fund-raising organization for the Station/Center. It represents an excellent example of a successful grassroots effort by the citizenry to obtain a University facility, to keep it supported financially and, to broaden its services to the people.

The Association had raised about $40,000 by early 1956 when Mr. and Mrs. C. (“Neil” for Cornelius) D. Haskell deeded a 320 acre improved farm, located in Dixon County, 1 1/2 miles east of Concord, to the University for the experimental farm. The gift was made as a memorial to Mr. Haskell’s parents, the late Mr. and Mrs. John D. Haskell. At the time the gift was made the farm was valued at $70,000. As a condition of the gift Mr. Haskell required that the Northeast Experimental Farm Association establish a fund in the name of Margaret T. Haskell to be used for interest free or low interest loans to male students from northeast Nebraska majoring in agriculture or engineering at the University (8). A further condition was that if the UN ever failed to utilize the farm as an experiment station, title would be transferred to Yale University, Neil Haskell’s alma mater. The gift to the University was expedited by Earl Cline, University attorney and former Regent. Cline and Haskell knew each other rather well as a result of having served together in the U.S. Army during World War I.

The farm was inspected by a representative staff group from the Station, who reported that it would be satisfactory for an experiment station (5). The Nebraska Farmer was somewhat on the optimistic side when it reported “It (the farm) is well equipped with buildings, having two large livestock barns, two granaries, two hog houses, four grain storage bins, scales, a water system, feed lots and a large two-story house” (6). Actually most of the buildings, though well maintained and fairly attractive in appearance, were rapidly becoming obsolete like many farm buildings of the period. They provided temporary shelter and working areas but, for the most part, were not suitable for use in a modern experiment station.

Haskell continued his financial support by matching $8,800 raised by the Association in 1959 for physical improvements. The Association continued its financial support by providing $4,000 in 1966 to assist in the purchase of three “airtight” silos, and in 1967, by donating, along with local pork producers and bankers, $22,000 for construction of a swine research facility (8).

Legislature Makes the Initial Appropriation - 1956

With much encouragement from the Association, the 1956 Legislature made the initial appropriation
for the Station. Richard E. Adkins of Osmond, member of the Board of Regents, provided strong support.

In 1956 Dale Flowerday, who was completing his PhD degree in agronomy, was hired as the first superintendent. He did a great deal of the manual work in getting the Experimental Farm into shape for conducting research. In the fall of 1959 a second faculty member was added. Walter Tolman, a former Extension livestock specialist, was placed in charge of the beef cattle work.

The University took possession of the farm on March 1, 1957 and started operations immediately. By early 1959, Superintendent Flowerday reported on experimental work which consisted largely of crop variety tests and nutrition investigations on the growing and finishing of beef cattle. Construction of cattle feeding facilities by Station personnel had been started in the fall of 1958 (7).

In 1958 the name of the Northeast Nebraska Experimental Farm was changed to the Northeast Nebraska Experiment Station. Although there have been two additional name changes since then, the one portion of the name which has been retained from the start is the word “Northeast”.

What Constitutes Northeast Nebraska?

The counties that constitute northeast Nebraska vary depending on whose definition is used. Even the Northeast Nebraska Extension District (the boundaries of which vary somewhat from time to time) and the area as defined by the Northeast Nebraska Experimental Farm Association are not fully synonymous. Perhaps the area as defined by the Association is most acceptable. Primarily, it consists of 13 counties in the northeastern corner of the state bounded by the state line on the north and east; by Knox, Pierce and Madison counties on the west, and by Madison, Colfax, Dodge and Burt counties on the south.

Although in 1965 Antelope, Boyd and Holt Counties were invited to come into the Northeast Nebraska Experimental Association, there are no records of association memberships in these counties. However, there were contributions made by some banks located in these counties in response to the swine building fund drive in 1966. These counties were included in the Northeast Extension District as it was rearranged in 1967. These three counties have been served by Northeast Station specialists through extensive on-farm experiments on row crop and forage production on the irrigated sandy soils (9).

Colfax, Dodge and Washington counties were included in the Northeast Experimental Farm Association as originally designated. These counties were also in the Northeast Extension District prior to 1967. Washington County never actively participated in the Northeast Nebraska Experimental Association. However, Directors of the Association from Colfax and Dodge remained active. People from the two counties attended field days, tours, and came to the Station individually to see research projects and to consult with researchers. Staff headquartered at the Northeast Station frequently participated in public meetings held in Colfax and Dodge counties (9).

Northeast Nebraska is characterized by having deep loess soils, which for the most part are highly calcareous, and a largely rolling topography known as the “buckskin” hills. It is a heavy livestock producing area. It is largely rural with only four towns, West Point, Wayne, South Sioux City, and Norfolk having populations greater than 3,000. Irrigation development is limited.

Organizational Changes

Integrating Research and Extension

The Northeast Nebraska Station provided a fertile field for the integration of research and extension. The initial concept for the Station, as shown by the following statement taken from the Articles of Incorporation of the Northeast Nebraska Experimental Farm Association, was: “...to promote and encourage the operation of said farm and the dissemination of information for the benefit of citizens and land owners of the State of Nebraska involved in the operation of farming and agricultural land with emphasis on Northeast Nebraska problems. . .”

Northeast Nebraska has the distinction (of all off-campus Stations) of being the first to have a joint administrative appointment of an Extension and Station staff member. On March 1, 1964 Denzil O. Clegg, already extension area supervisor, was also appointed Station superintendent. Full district responsibilities for Extension, as well as for administering the research work at the Station, came when Cal J. Ward (after an educational leave) came back to his position in 1967 as district extension supervisor and was also appointed superintendent of the Station. Much credit is due to these two men for successfully pioneering a new concept and maximizing the value of research and extension services to the people. The organization and programs administered by them have served as a model, eventually adopted by all of Nebraska.

The Northeast Station and the Northeast Extension District were also chosen as a pilot area for a district wide two-way radio system to aid in communications between extension agents in the county extension offices and personnel stationed at the Northeast Station. This project, initiated by Extension Director John L. Adams, enhanced the cooperative efforts of county extension agents and specialists at the Station. This system, installed in late 1967, placed radios in all counties in the Northeast District except Boyd (which could not be reached feasibly), at the Northeast Station and in several mobile units used by the specialists when in the field.

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4Initially the Association also included Washington County.
Reorganizing to Make Extension More Effective

Starting in the 60's, there was a manifest need both in Nebraska and nationally to provide for a higher level of agricultural and home economics expertise to the clientele. An approach to solving this problem was favored on a trial basis, first by Extension Director Edward W. Janike and later by his successor, Director Adams. The concept consisted of transferring to one central location all Extension personnel of the smaller, contiguous counties. In 1963, Denzil Clegg was appointed as area extension supervisor, to attempt to form such an organization involving Cedar, Dakota, Dixon, Thurston, and Wayne Counties. The undertaking was only partially successful. For a time all of the home economists for the five county area were headquartered at the Northeast Station. However, not all of the agricultural agents were ever transferred to the central location as area agents because many people were opposed to losing their county agents.

In time most of the five counties regained their home economics agents and, meanwhile, retained their county agricultural agents. The growth of the Northeast Station has been on the basis of the District — not the five county area. Very recently a modified form of the old area concept has again taken root, this time known as the Quad County Area encompassing Dakota, Dixon, Thurston, and Wayne Counties. This organization consists basically of Extension agents headquartering in their respective counties but each one specializing in subject matter and programs. Each works primarily in his/her specialized field throughout the area rather than handling all programs within one county. A similar arrangement has been adopted in other locations around the state.

Program Scope and Accomplishments

Chronological Growth of the Northeast Station

Unofficial reports state that outstate testing plots were conducted on the present Northeast Station in 1956, the year before the University was given formal possession of the land. Crop production research began when the Station started operations on March 1, 1957. This work was done by Flowerday and researchers from the East Campus.

Beef research was added in 1958. This work was also under the direction of Flowerday and staff members from the East Campus until Walter Tolman was employed to conduct beef research at the Northeast Station in 1959.

The Agronomy program was expanded with the appointment of Ulverd Alexander in 1964 and Eugene Schwartz in 1965.

Major changes occurred in March 1964 when Clegg assumed the additional duties of superintendent of the Northeast Station. A significant expansion in staff at the Station occurred March 1, 1965 when the Haskell Office Building was completed and occupied (9). Don Kubik, area extension dairyman; Hugo Zimmerman, area extension farm management specialist; and area extension agents in home economics, Myrtle Anderson, Mary Jo Doyle, and Anna Marie (Kreifels) White, along with Clegg, moved into the new headquarters building (9).

Howard Gillaspie, Dixon County Extension Agent, who had officed in Allen, moved to the Station July 1, 1965 and Dick Gavit, extension forester, moved from Pierce to the Station in August of that same year.

The next program expansion came in November 1965 when Robert Fritschen was added as swine specialist with a joint appointment of 30 percent research and 70 percent extension.

Changes were made in geographical boundaries and administrative assignments on July 1, 1967. Geographically the area served by extension agricultural specialists was changed from the five Northeast counties (Cedar, Dakota, Dixon, Thurston and Wayne) to the newly created thirteen-county Northeast District.

In 1969 Wayne Fisher was added as agricultural engineer on a joint Extension/Research appointment (10). Two additional staff members were added by 1974. Both of these were full time extension appointments. One of these was Gladys Stout who came to the Northeast Station in 1970 to organize and supervise the federally funded Expanded Food and Nutrition Program in Cedar, Dakota, Madison, and Thurston Counties. The other new appointee was Phil Menke who was employed beginning September 1, 1972 as an extension livestock development specialist. The latter program was partially funded by livestock industry funds with the objective of further developing the livestock industry in Nebraska.

On April 1, 1974 with leadership provided by Senator Jules Burbach of Crofton, and with strong support of the Northeast Nebraska Farm Association, the Nebraska Legislature approved an amendment from the floor to add $40,900 to the University budget to add two additional faculty positions at the Northeast Station. These funds provided for the initiation of a new program in entomology and for the restoration of an agricultural engineering position which had been “frozen” due to University fund shortages.

Crops

One of the early crop projects at the Northeast Station was an oats drill box survey started in 1957. It showed that only 30 percent of the farmers were planting oat cultivars recommended by the College, none were planting Nebraska certified seed, and contamination with weed seed was common (11). As a result of the educational work conducted, by 1958 the farmers who were planting recommended cultivars had increased to 40 percent, and the number of weed seeds was reduced from 409 per pound in 1957 to 307 in 1958 (12).
Crop and varietal (cultivar) testing has been an important segment of the research program at the Northeast Station. Evaluation of crops new to this part of the State have included castor beans, sunflowers, high amylose corn, and crambe along with other members of the mustard family. Flax, which had been used in the earlier years but was no longer being grown, was also included in these tests. Extensive cultivar testing done with spring small grains, corn, soybeans, and alfalfa. Cultivar testing to a lesser degree has also been carried out with wheat, rye, sorghum, red clover, sweet clover and sweet potatoes.

The value of cultivar testing was shown by Ulverd Alexander when he reported on March 15, 1965 that corn hybrids tested varied in yield from 56 to 101 bushels per acre, and sorghum hybrids from 54 to 95 bushels per acre.

Over the years there has been considerable emphasis in both research and extension on cultural practices, such as planting dates, planting rates and row spacing.

Large crowds attended the field days held in conjunction with chrysanthemum cultivar trials. In 1961 the Omaha World-Herald reported: "The Concord planting is one of the largest hardy mum breeding projects in the world". However, due to higher priority needs, the chrysanthemum tests were dropped in 1966.

Soil Fertility

As a basis for future field research, and in cooperation with the Soil Conservation Service, an intensive survey and detailed map was made of the land on the Station. The work was started in 1958, with 290 acres being mapped that year (13).

From the start the subject of "Fertilizers — how much, what kind, and placement" has been of much interest to farmers. Extensive research on soil fertility and management has been conducted both at the Station and on farmer fields throughout the District. Meetings have been held at the plots and the data obtained, along with soil tests, have been used in making recommendations on fertilizer use. Research findings have also been presented annually at fertilizer dealer meetings.

In the earlier years Alexander compared broadcast vs row application of phosphate on corn, effect of sulfur on corn and alfalfa, and rates and time of application of nitrogen on various field crops (14). George Rehm continued the work of using fertilizers on major cultivated crops, which had been started by Alexander, and extended the research to sandy soils as the use of center pivot irrigation increased, especially in Pierce, Madison, Antelope, and Holt counties. Rehm also intensified the studies on use of starter fertilizers on crops grown under various conservation tillage practices (15).

Research on use of chemical fertilizers on brome-grass and warm season pastures was started by Flowerday and continued by Rehm. Most of the yield data were taken by mechanically harvesting plots, but some grazing trials were also conducted.

Weed Control

The first weed work at the Station consisted of a 1965 field demonstration on the use of atrazine on corn (16). Weed research was started by Eugene Schwartz in 1966. In 1969, Russell Moomaw greatly expanded the work. He did research on use of various herbicides singly and in various mixtures on all major crops. He studied rates, time of application, combinations of mechanical and herbicide controls, and use of herbicides in conjunction with various conservation tillage practices.

Soil and Water Conservation

Soil and water conservation constituted one of the major interests of the Northeast Experiment Farm Association as shown by the fact that the Cedar and Wayne Soil Conservation Districts jointly provided $4,000 for the initial fund drive for the establishment of a Station (3). Terraces and waterways were built on the Station land with the assistance of the Soil Conservation Service.

Till planting demonstrations were established in 1957, with meetings being held at the fields at the time of planting and again as the crops neared maturity. Extensive research was conducted on disk-and-plant, and no-till planting of corn including planting in alfalfa and brome-grass sod.

In 1968, Wayne F. Fisher and others started experimental work on steep backslope terraces with tiled waterways. Comparisons were made of the effectiveness of these types of terraces with conventional terraces, with unterraced land as a check. The study was continued until 1974.

Beef Cattle

In accordance with the economic importance of and interest in beef cattle, a research program was started by Flowerday during the second year of the station's existence. The major thrust of this research has been to improve the efficiency of feedstuffs which are available to northeast Nebraska farmer/feeders.

According to a College news service release of March 4, 1959, a cattle feeding experiment was started on March 10, 1958 to compare corn with grain sorghum. Other early work included comparison of baled alfalfa and pelleted alfalfa hay (4).

Walter Tolman, who came to the Station in 1959, was in charge of the beef cattle research and extension work from then until 1974.
Much of the beef cattle research through the 1960's was concerned with protein needs of growing and finishing cattle, addition of enzymes to feedlot rations, effects of diethylstilbestrol and synovex on feedlot cattle, the value of silage from severely drought damaged corn, and grain roughage ratios for both growing and finishing cattle (8).

Extensive research on storing, processing, feeding and supplementing high moisture corn was begun in 1969 and continued for several years thereafter.

During the early years, information on beef cattle research was made available to the public principally through meetings, field days and tours at the Station. By the middle sixties, Tolman was working closely with the northeast Nebraska and county feeders' associations and commonly participating in their tours and educational meetings. He also distributed a mimeographed newsletter on feeding.

Swine

Robert Fritschen started research on swine housing and management in 1968. The major thrust was to determine the degree of modification of the environment that was needed for optimum production. Other experiments included determining the proportion of the floor that should be slotted, floor surface, and ventilation patterns and rates.

The Nebraska modified open front swine finishing building, widely adopted throughout Nebraska and other north central states, was developed from the research information developed at the Northeast Station (8).

Other swine research included work on bleeding pig disease, odor levels, continuous light, feet and leg problems, bone breaking strength as related to growth rate, and tail biting (8).

Fritschen worked extensively with pork producers in northeast Nebraska. Results of his research were reported in various publications of the swine industry. Many visitors, including groups coming by chartered buses, came to the Station to view the swine facilities and to discuss their problems with the swine specialists. Knox County Agent Oscar Thomas, and later a number of other county agents, arranged regular times when Fritschen and other specialists would be in their county extension offices to conduct individual consultations on swine problems.

Dairy

In 1962 Don Kubik was assigned to northeast Nebraska as area extension dairy agent. Early dairy programs had to do primarily with record keeping and basic management. Later emphasis was placed on building and equipment changes; still later on registered cattle; and finally as the second generation of producers became involved, on business organization (8).

On-farm demonstrations included higher energy feeding early in lactation, magnet feeders, worming, forage testing, ration building, and reproductive herd health.

Farm Management

Hugo J. Zimmerman joined the northeast five-county area staff in Wayne in 1963 (9), moving to the Northeast Station in 1965. From the time of his arrival in Wayne until July 1, 1966, he served as an area agent in farm management. His primary program thrusts were on record keeping, general farm management and marketing.

Forestry

The Northeast District Forestry program began in 1958 with Richard Gavit being located in the Pierce County Extension office and assigned responsibility for the northeast part of the state. He was employed with a combination of funds from the Cooperative Extension Service and the State Forester's Office. The objective of Gavit's work was to improve the forestry resources in the District. His major emphasis was on the Clarke-McNary tree program, a source of seedling trees for farmstead or field windbreaks; wildlife plantings; woodlots; recreation; and production of Christmas trees.

Youth

In 1969 Roy Stohler was transferred from Madison County extension agent to the Northeast Station to work half time as area agent (for the five county area), to give leadership to and assist in conducting the various county and multi-county youth programs, and half time as Dixon County extension agent.

Stohler initiated a series of 4-H project camps at the Northeast Station. These were usually two day events with intensive training in any one of a number of subjects such as dairy, swine, weeds, and sheep. Attention was also given to recreation.

Stohler assisted county agents with leader training, multi-county events, and provided an effective liaison with the state 4-H Youth and Development Department on the East Campus.

Home Economics

In 1963, three home economists, Myrtle L. Anderson, Mary J. (Doyle) Gross, and Anna Marie (Kreifels) White, were located in a temporary area extension office in Wayne and assigned the home economics program responsibility in the five northeast counties (Cedar, Dakota, Dixon, Thurston and Wayne). Moving to the Station in 1965, they worked as a team of three, dividing up the subject matter and organizational responsibilities. All three worked in all five counties performing the informal educational functions for both youth and adults.
Meritorious Faculty Award

Robert D. Fritschen received the USDA Superior Service Award in May 1979.

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Chapter 3. North Platte Station/UN West Central Research and Extension Center

Contents

Administrators ........................................ 309
Chief Administrators .................................. 309
Other Administrators ................................. 310
Names ................................................. 310
Land and Improvements ............................... 310
Overall Development .................................. 310
Subject Matter Fields ................................ 311
Swine ................................................. 311
Poultry .............................................. 312
Dairy Production ..................................... 312
Horses ............................................... 312
Sheep ................................................ 312
Veterinary Science ................................... 312
Field Crops ......................................... 313
Soils and Soil Moisture ............................... 313
Outstate Testing ..................................... 313
Weeds ................................................ 313
Range and Pasture Management ..................... 314
Horticulture and Forestry ............................ 314
Irrigation ............................................ 314
Entomology ......................................... 314
Agricultural Economics .............................. 314
Agricultural Communications ...................... 315
Extension Activities ................................. 315
Cooperation with USDA .............................. 315
Sandhills Agriculture Laboratory, and the Gudmundsen Sandhills Laboratory .......................... 316
Staff Recognitions ................................. 316
References ......................................... 317

Administrators (1, 13)

Chief Administrators

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Period Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>William P. Snyder</td>
<td>Superintendent</td>
<td>1903-1934</td>
</tr>
<tr>
<td>Leslie L. Zook</td>
<td>Superintendent</td>
<td>1935-1946</td>
</tr>
<tr>
<td>James C. Adams</td>
<td>Superintendent</td>
<td>1946-1952</td>
</tr>
<tr>
<td>Leslie L. Zook</td>
<td>Acting Supt.</td>
<td>1952-1953</td>
</tr>
<tr>
<td>James C. Adams</td>
<td>Superintendent</td>
<td>1953-1965</td>
</tr>
<tr>
<td>Myron G. A. Rumery</td>
<td>Acting Supt.</td>
<td>1965-1966</td>
</tr>
<tr>
<td>Leslie F. Sheffield</td>
<td>Superintendent</td>
<td>1966-1971</td>
</tr>
<tr>
<td>Leo E. Lucas</td>
<td>Supt./District Ext. Director</td>
<td>1972-1975</td>
</tr>
<tr>
<td>R. Gene White</td>
<td>Supt./District Ext. Director</td>
<td>1976-1979</td>
</tr>
<tr>
<td>Lavon Sumption</td>
<td>District Director, Res. &amp; Ext.</td>
<td>1981-1984</td>
</tr>
<tr>
<td>Lavon Sumption</td>
<td>Dist. Director, West Central Res &amp; Ext. Center</td>
<td>1984-present</td>
</tr>
</tbody>
</table>
Other Administrators

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Period Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Neal Baxter</td>
<td>District Extension Director</td>
<td>1970-1972</td>
</tr>
<tr>
<td>Donald B. Hudman</td>
<td>Assoc. Dist. Director Res. &amp; Ext.</td>
<td>1981-1984</td>
</tr>
<tr>
<td>Donald B. Hudman</td>
<td>Assoc. Dist. Director, West Central Res. &amp; Ext. Center</td>
<td>1984-5/86</td>
</tr>
<tr>
<td>Delwyn D. Dearborn</td>
<td>Assoc. Dist. Director, West Central Res. &amp; Ext. Center</td>
<td>5/87-present</td>
</tr>
</tbody>
</table>

Names

<table>
<thead>
<tr>
<th>Name</th>
<th>Period Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Platte Substation</td>
<td>1904-19521</td>
</tr>
<tr>
<td>North Platte Experiment Station</td>
<td>1952-1966</td>
</tr>
<tr>
<td>North Platte Station</td>
<td>1966-1984</td>
</tr>
<tr>
<td>UN West Central Research &amp; Extension Center</td>
<td>1984-present</td>
</tr>
</tbody>
</table>

Land and Improvements (1)

Following is a list of major acquisitions of lands and buildings, losses, and modifications of use of land and improvements:

<table>
<thead>
<tr>
<th>Year Acquired (or lost)</th>
<th>Item</th>
<th>Cost or Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1904</td>
<td>1,920 acres of land (3 miles south of North Platte)</td>
<td>$16,107</td>
</tr>
<tr>
<td>1906</td>
<td>Superintendent's residence</td>
<td>$3,500</td>
</tr>
<tr>
<td>1906</td>
<td>Horse barn</td>
<td>$2,300</td>
</tr>
<tr>
<td>1911</td>
<td>Rooming and boarding house</td>
<td>$8,000</td>
</tr>
<tr>
<td>1914</td>
<td>Office &amp; Laboratory Building</td>
<td>$7,000</td>
</tr>
<tr>
<td>1914</td>
<td>Dairy barn</td>
<td>$10,500</td>
</tr>
<tr>
<td>1920</td>
<td>Horse barn</td>
<td>$20,000</td>
</tr>
<tr>
<td>1920</td>
<td>Poultry plant - residence, buildings and equipment</td>
<td>$11,200 (16)</td>
</tr>
<tr>
<td>1934</td>
<td>Transfer of land to NPPD, and transfer of 305 acres of land to the UN by NPPD</td>
<td>(N.A.)</td>
</tr>
<tr>
<td>1957</td>
<td>New Office &amp; Laboratory Building</td>
<td>$162,000</td>
</tr>
<tr>
<td>1960</td>
<td>Closed the Boarding House</td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>Boarding house razed</td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>Veterinary Science Diagnostic Laboratory</td>
<td>$52,263</td>
</tr>
<tr>
<td>1969</td>
<td>W. P. Snyder Building (addition to the Office and Laboratory Building)</td>
<td>$98,549</td>
</tr>
<tr>
<td>1981</td>
<td>The Gudmundsen Sandhills Laboratory, Whitman - consisting of 12,810 acres.</td>
<td>Gift from Abbie &amp; Pete Gudmundsen to the UN Foundation</td>
</tr>
</tbody>
</table>

In addition, there have been many improvements such as installation of irrigation wells, land leveling, road construction and installation of a domestic water system. Many minor buildings have been erected, including barns, poultry houses, sheds, shops, feed storage and handling facilities, and residences. Twelve residences were built, the last one in 1944.

Overall Development

The North Platte Station has the distinction of being the oldest off-campus station (now Center) in the state. In his inaugural address of 1903, Governor John H. Mickey recommended that an agricultural substation be established in the western part of the state (14, p 180). A bill calling for the establishment of such a substation was passed by the Legislature and signed by Governor Mickey on April 8, 1903 (1, p 1). It required that the substation be located west of the 100th meridian. A number of towns competed for the location. North Platte won, with the community contributing $8,000 towards the purchase of the land. A tract of 1,920 acres of land was purchased for a total cost of $16,107. The north line of the tract is located three miles south of the town of North Platte (1, p 1).

W. P. Snyder, formerly animal husbandman on the Lincoln campus, was appointed superintendent of the substation, September 1, 1903. Rumery (1, p 3) stated: “In the beginning, department heads at the Lincoln Station were given joint responsibility with the superintendent for planning the experimental work . . . In 1906 by action of the Board of Regents, the substation became an independent department and the superintendent elevated to the rank of a department head . . . The Lincoln department heads . . . continued in an advisory capacity.”

Section 4 of the Legislative Act creating the station reads: “The object of the experiment station shall be to determine the adaptability of the arid and semiarid portions of Nebraska to agriculture, horticulture and forest tree growing, such as the production of grain,

1There is some question as to which year, 1903 or 1904, should be designated as the first year of the Station. The superintendent, W. P. Snyder, was appointed effective September 1, 1903 and an irrigation well was dug that fall. However, farming operations were not started until 1904. We have chosen 1904 because anniversary celebrations at the Station have been held in years based on 1904.
grasses, root crops and fruits of the kinds commonly grown in such latitudes of other states, also the most economical methods of growing such crops without irrigation” (1, p 2). It is noteworthy that the Act did not include livestock nor irrigation. Also, the Act specifically stated “station” although it took 49 years for the University to convert the term from “substation” to “station”.

In 1904, the substation had underway experiments on dehorning steers; amount of corn which can profitably be fed to growing pigs while on alfalfa pasture; and on oat, barley, emmer, and spring wheat varieties, (15, p 15-17).

The University complied to a high degree with the directive in the Act for work on field crops, grasses, horticulture, and forestry. All major classes of livestock and poultry were also added in the early years. The first irrigation well was dug by hand in 1903. There was a gradual shift of emphasis from dry land farming to irrigated land, although both are still included in the research today. Work on beef cattle on a major scale was slow in developing. Range and ranch management were among the late comers in the research/extension programs.

The Station programs have gradually become more specialized. Programs on dairy cattle, chickens, sheep, and horses were eliminated. The main emphasis today is on ranch and range management, swine, the field crops grown in the west central portion of the state, horticultural crops, forestry, and irrigation. There has come to be a greater depth in the research and extension programs with the addition of an entomologist, agricultural economist, communication specialist, and veterinary scientists added to the staff.

The addition of Extension personnel at the off-campus stations and the initiation of joint Research/Extension appointments have constituted one of the most significant developments of the period covered by this 100 year history. North Platte constitutes a good example of what was accomplished. In 1960 there were no joint appointments, and, in fact, no Extension staff headquartered there.

It took 58 years for the first Extension staff member to be headquartered at the North Platte Station. J. F. Vallentine started his work there in 1962. The first joint appointments made in 1966 were: Leslie F. Sheffield, superintendent; Donald Clanton, animal science; and J. F. Vallentine, range management. Leo E. Lucas was appointed in 1972 as Superintendent of the Station and Director of the West Central Extension District. By 1974 appointments were divided as follows: joint Research/Extension - 10; 100 percent Extension - 6; 100 percent Station - 4; joint Extension/NE Forest Service - 1; and 100 percent Conservation and Survey Division - 1.

The amalgamation of Research and Extension staff and programs at North Platte, instead of having all Extension administrative and specialist staff for the District headquartered at Lincoln, has been helpful to the county Extension staff members and programs in the District. The overall IANR program in the District has also been strengthened.

**Subject Matter Fields**

**Beef Cattle**

In earlier years, Snyder had done some work on wintering and fattening beef cattle (1, pp 166-175). However, beef cattle research did not really get underway on a major scale at the Station until July 1930 when Marvel L. Baker joined the staff. It was during that year that barns, sheds and feedlots were constructed, providing for the first time facilities needed for beef cattle (1, p 165).

The first beef cattle breeding herd was established in 1905. The purebred Shorthorn herd started in 1919 was sold in 1931-32. One of the principal uses of the herd had been to provide a source of bulls for the surrounding area. With the increase of number of privately owned purebred herds, and the decrease in importance of Shorthorns in the area, the need for the Station providing purebred bulls had decreased (1, pp 9-10).

A Hereford herd, started in 1924, was later used in the beef cattle breeding research program and moved to Fort Robinson in 1950 (1, p 10). The first mention of beef cattle feeding/management research was made in 1920 (1, p 9). From 1930 until 1966, beef cattle research was concentrated on management and nutrition, involving a vast array of methods of processing and feeding nearly all kinds of roughages and concentrates produced in the area. Various kinds of protein supplements and silages were also studied.

When Donald C. Clanton came to the Station in 1966, a change was made in type of research conducted. Less emphasis was placed on finishing cattle. A cow herd was reestablished, numbering 250. Nutrition studies were made on winter range, backgrounding in the feed lots, and carrying cattle on irrigated pastures. Nonprotein nitrogen supplement was used in range studies. Different types of silage and supplementation for silage feeding were also included (1, p 10).

With the acquisition of the Sandhills Agricultural Laboratory (SAL) at Tryon in 1972, still another shift in research took place. More emphasis was placed on experimentation which had direct application on ranches. Irrigated pasture and range nutrition were emphasized (1, p 110).

**Swine**

Swine research was started at the North Platte Station in March 1904 with the establishment of a Duroc-Jersey herd. The herd has been used to some extent for demonstrational purposes, to supply boars to the surrounding area, pigs for 4-H Club members, but primarily to provide animals of uniform type, breed-
ing and quality for investigational work.

Swine research has been emphasized throughout the life of the Station. Feeding and management studies, under the leadership of David Murray Danielson since 1958, have included artificial rearing and growing and finishing pigs for market. From the start, alfalfa has played a major role in the studies. The investigators have fed alfalfa to swine as "... pasture, stewed, ground and loose hay, as well as dehydrated meal and pellets" (1, p 19).

In 1936, the Duroc-Jersey herd was committed primarily to breeding research, with the surplus pigs being used for management and nutrition studies. The herd was made a part of the North Central Swine Breeding Laboratory program, involving a number of other states and the USDA (1, p 20).

**Poultry** (1, pp 14-18)

Poultry (chicken) work was started in 1919. Disease problems beset the early investigations and brooding chicks artificially was in its infancy, with coal burners used for heat. Maintaining uniform temperatures was virtually impossible. In spite of the problems encountered, the Station provided many hatching eggs, baby chicks, hens, pullets and cockerels of several breeds to commercial producers.

Marvel Baker took over the poultry project in 1934 and was successful in establishing several lines of good egg producing Leghorns and White Rocks. Because of lack of funds, Mrs. Baker and the Baker children donated many hours of labor to the poultry project.

The Nebraska Flock Testing Project was started in 1932, with the assistance of Joseph H. Claybaugh, extension poultryman from the East Campus. In this program each entrant furnished 100 eggs to the Poultry Department at Lincoln where the eggs were hatched and the department, in turn, sent the chicks to the North Platte Station where they were brooded and grown. A field day was then held at the end of the season, where the entrants and others had an opportunity to gain much firsthand knowledge in chicken production.

From 1952 to 1960, research was devoted to breeding studies from which important information was obtained on inbreeding and hybridization. Following an administrative decision to conduct all Station poultry work at the East Campus, poultry research at North Platte was discontinued in 1960.

**Dairy Production** (1, pp 11-13)

Dairy work was started with an appropriation of $17,500 by the 1913 Nebraska Legislature. The Station’s new Holstein-Friesian herd was to be used in demonstrating management, feeding, and breeding practices. From 1946 on, M. G. Rumery was in charge.

Throughout most of its existence, the herd had a reputation for high milk production. Beginning in 1948, the herd was included in a regional project to study the improvement of dairy cattle through breeding. An analysis of the production records indicated that the high degree of inbreeding may have delayed genetic progress. Research also included management and nutritional studies.

Based on an administrative decision to concentrate all Station dairy cattle at the Field Laboratory at Mead, the herd at North Platte was dispersed in August 1968, with the better animals being moved to Mead.

**Horses** (1, p 13)

Initially power for field and livestock work at the Station was provided by draft horses and a few mules. In time the Station developed a herd of purebred Percheron horses. With tractors replacing horses, the herd was dispersed in 1948 (a considerable period of time after most farmers and ranchers had made the shift). A herd consisting initially of five Half-Morgan mares and a purebred Morgan stallion was started in 1945 and dispersed in 1953 (1, p 13).

**Sheep** (1, pp 13-14)

Sheep feeding experiments were started in 1910, with the emphasis in the early years as with other animals, on alfalfa. The feeding experiments were continued over the years. Later purebred flocks of Corriedale and Southdown were established. Surplus rams and ewes were sold to farmers, 4-H members, and to students enrolled in vocational agriculture in high schools.

The sheep work was closed out with the dispersal of the purebred herds in 1966. Some of the animals were transferred to the Department of Animal Science at Lincoln, and some to US MARC.

**Veterinary Science**

Funds were provided by the 1967 Legislature, with Norbert Tiemann as Governor, for constructing and equipping a veterinary science laboratory building which was completed in 1969. Support for a veterinary science program at North Platte had been expressed by the Nebraska Stock Growers Association at their 1966 annual meeting (1, p 20) and by the Nebraska Veterinary Medical Association in 1965 and 1966 (3).

Robert Dahlgren, the first veterinarian to join the North Platte staff, had major responsibility for ordering and installing much of the equipment in the new building. Dahlgren resigned March 31, 1969. He was replaced by R. Gene White who joined the staff on January 1, 1969 to serve as coordinator of the diagnostic work when the Laboratory was opened April 1, 1969. Clair M. Hibbs took over this responsibility when he joined the staff in 1969, at which time White began devoting his time principally to field work.

Over the years one staff member has operated the diagnostic laboratory while another has been involved
principally with field investigations of disease problems, working with producers and veterinarians.

Extensive use has been made of the diagnostic laboratory, with the number of samples submitted for analyses totaling 868 in 1969, and increasing to 3,966 in 1972.

Investigations have included: calf scours, toxicities, Clostridium infection, swine nutrition, swine and cattle anthelmintics, and pink eye. Respiratory vaccines have been evaluated and surveys made of the incidence of bovine virus diarrhea (BVD) virus and infection bovine rhinopraecitis (IBR) virus. Van den Heuvel showed that capillary action is not important in soil moisture losses and that soil moisture is lost principally through transpiration.

Field Crops (1, pp 23-25, 27-28)

Varietal (cultivar) trials of field crops have been conducted since the origin of the Station in 1904. The tests were started with oats, barley and spring wheat. Local Turkey Red winter wheat was introduced in the trials in 1911, with winter wheat long since completely replacing spring wheat. Corn variety testing and selection started not too long afterwards. Since those early years, work has been added on sorghum, rye, alfalfa, grasses, and proso millet.

All of the field crop work until 1936 and much of it since has been in the area of production efficiency research, along with varietal testing and some selection. Numerous investigators have been involved and much useful information has been developed. The breeding work has been rather limited. From 1936 to 1943, Orrin J. Webster conducted breeding work on corn and sorghum. Following his departure, there was no field crop breeder located at North Platte until 1958, when Paul T. Nordquist reactivated the sorghum breeding work. He still continues in that capacity.

More and more the Station staff have cooperated in conducting tests with and for the plant breeders at Lincoln. Up to 1972, the North Platte staff had cooperated in releasing 12 grain sorghum hybrids, 6 forage sorghum hybrids, and one sorghum sudangrass hybrid.

Soils and Soil Moisture

Starting with the classical work of W. W. Burr on soil moisture\(^2\), the North Platte Station has conducted studies on soil management, including conservation of soil moisture. Extensive studies have been made of summer fallowing and importance and management of crop residues in increasing moisture storage and conservation. The importance of herbicides in fallow programs has been ascertained.

Effects of crop residues have been studied in detail. The investigators reported that "The presence of straw mulch, as such as occurs in stubble mulch farming systems, has no effect on the plant growth and development if it does not reduce soil temperature" (1, p 26). This was an important finding in view of the extensive adoption of crop production regimes, which leave part or all of the previous crop residue on the surface of the soil.

Water intake studies have been made including the effects of perennial grasses in rotations. Extensive studies have also been made on the effect of chemical fertilizers on crop yields, including inter-relationships with soil moisture/irrigation and on the effect of nitrogen fertilizer levels on protein content of wheat.

Various perennial grasses and annual field crops have been evaluated with respect to their performance on saline sodium alkali soils.

Outstate Testing (1, pp 27-28)

The outstate testing program (a segment of the state program subsequently renamed the area agronomy program) was started at the North Platte Station in 1947. Its purpose was to evaluate field crop varieties of grain crops and forages, and chemical fertilizers under the wide variety of environmental conditions that exist in the state. Most of the tests were conducted on farms. Philip H. Grabouski was in charge from 1957.

Initially, the agronomist at North Platte conducted experiments throughout west central Nebraska and the panhandle. In 1967 an agronomist was stationed at the Panhandle Station to assist in conducting outstate testing programs and reducing the area serviced from North Platte to the west central portion of the State.

These programs have provided much information on varietal performance and value of chemical fertilizers across the State. The results have been sought after by farmers, ranchers and agribusiness.

Weeds (1, pp 29-31)

Glenn Vienhmeier started the weed investigations at North Platte in 1944 with studies on the herbicide 2,4-D. He continued weed studies until 1955 when Henry R. Keyser was hired to devote full time to the program. Keyser was replaced by Russel Nash in 1958. Since 1958, the project has been under the leadership of Gail Wicks.

Although Wicks has followed a broad spectrum of research, he has emphasized weed control in reduced tillage systems. This program has resulted in something all agricultural researchers dream about, a breakthrough in farming practice made possible by their research. In this case it was ecohallow, a practice which has gained rapid adoption in west central Nebraska. The ecohallow system of crop production consists of a three year rotation: wheat - corn or sorghum - fallow, with wheat planted that fall. It is a system of farming with emphasis on controlling weeds and conserving soil moisture with a minimum disturbance of crop residues and soil. Weed control is obtained between

\(^2\)He showed that capillary action is not important in soil moisture losses and that soil moisture is lost principally through transpiration.
These men guided crop research at the North Platte Station for more than half a century. From left are Robert E. Ramig, agronomist from 1948 to 1961; Harry Weakly, 1923 to 1950; L. L. Zook, 1919 to 1953; W. M. Osborne, 1913 to 1914; and W. W. Burr, 1906 to 1912.

harvesting one crop and planting the next one with sweep tillage and use of herbicides. It is estimated that in 1984, there were one million acres in Nebraska under the ecofallow system of production.

Range and Pasture Management (1, pp 28-31)

Range management work was started at the Center with the appointment of John F. Vallentine in 1962. He served until 1968. He was replaced by James T. Nichols in 1969, who was placed on a joint Extension/Research appointment (1, pp 28, 29).

Nichols, in cooperation with Donald C. Clanton and others, has been working on range and irrigated pastures. In the beginning, the investigations were carried on at the Station, but with the acquisition of SAL in 1972, much of the range and pasture research was moved to that facility.

Horticulture and Forestry

Horticulture and forestry have received major emphasis at the Station. The first report of work in these areas was published in 1913 (9). Research as reported in the bulletin, covered the attempted growing of 30 species of trees, shrubs and ornamentals, without irrigation. Siberian elm (commonly known as Chinese) and Russian Olive proved to be adapted species, and are grown to this day, although both have some serious shortcomings. In 1914 the work was expanded to include many more species.

Plant breeding was added to the research program when Glenn Viehmeyer joined the staff in 1943. Over the years he released 60 cultivars of chrysanthemum, and six of penstemon. He also did breeding and selection work on roses, strawberries, and tomatoes.

Roger D. Uhlinger joined the staff in 1968. During his tenure at the Station, which terminated in 1972, he released three chrysanthemum, two penstemon and two carnation cultivars.

An extension forester added to the staff in 1966, has conducted educational work on trees in the country and in towns and cities. He has helped organize rural fire districts and distribute Clarke-McNary trees, and has worked with 4-H Clubs (1, pp 31-35).

Irrigation

Irrigation work was started at the Station with the digging of the first irrigation well by hand in 1903. Experimental results on pump irrigation were published in 1928, 1932, and 1936. An important consideration in the publications was “Would irrigation pay?”

Intensive studies on irrigation were initiated when Bertrand R. Somerhalder came to the Station in 1949. This increased emphasis on irrigation research rather paralleled the increase of irrigation on farms. One of Somerhalder’s important findings was that sprinkler irrigation efficiency was higher than that with gravity irrigation. Intensive studies on consumptive water use by a series of crops were made with a buried pipe system.

By 1957 the early irrigation wells, drilled to a depth of 30 to 60 feet and yielding approximately 300 gallons of water per minute, were replaced with wells drilled to a depth of 185 to 200 feet and yielding 1000 gpm with not over 20 feet of drawdown.

The coming of center pivot sprinklers and automation constitute important developments in the success of irrigation in Nebraska (1, pp 36-38).

Entomology

Kenneth Pruess was the first entomologist stationed at North Platte in 1957. He worked first on the pale western cutworm. Later he determined that the moths of the army cutworm oversummer in the high elevations of the Rocky Mountains. He also worked on corn borer and the western corn rootworm. Pruess was transferred to Lincoln in 1965.

Following Pruess’ departure, there was no entomologist stationed at North Platte until 1970, at which time John B. Campbell accepted a joint Extension/Research position at the Station. His extension program is across-the-board in entomology. His research is on livestock insects, including work on the horn fly, cattle grub, lice, and cooperatively with the USDA on use of synthetic juvenile hormones for fly control.

Agricultural Economics (1, pp 40-41).

Robert E. Perry, on a joint Research/Extension appointment, was the first agricultural economist located at the North Platte Station. He joined the staff at North Platte in 1969 and retired in 1984. In co-
operation with Perry, Leslie F. Sheffield, who served as superintendent from 1966 to 1971, carried on a study of the costs and returns of center pivot irrigation.

In 1970, Perry (in cooperation with A. W. Epp at Lincoln) made a survey on the costs and returns on sandhills ranches. Perry also studied the economics of irrigated pastures. Other economics studies included the use of center pivot irrigation on sandhill ranches, ecofallow, and rotational systems of grazing.

Agricultural Communications

The first communications specialist at North Platte was Neal Baxter starting as information specialist in 1967. He was succeeded by James L. Peters in 1969, who still holds the position with the title of communications specialist in keeping with the name of the Department of Agricultural Communications on East Campus. Peters has responsibility for editing circulars and bulletins, for maintaining an inventory of publications used for distribution to the lay public, and for expediting subject matter to the mass media.

Extension Activities

Historically, the North Platte staff have been close to the people. Farmers, ranchers and others have always felt welcome to visit the staff members on an individual, informal basis, and to inspect the experimental work underway. In addition research findings have been made available to the public through a large array of publications and the mass media.

Probably no other district station or department at Lincoln has held more meetings and demonstrations than North Platte. There have been many "feeder days", "crop field days and tours", "annual chrysanthemum days", "annual spring crop days", "crop and irrigation field days" and "tours", "horticulture open houses", "beef cattle research days", "flower and garden clinics" and other types of meetings held at the Station. The golden anniversary of the Station was duly observed with a speaking program and barbecue on June 24, 1954. Byron T. Shaw, Administrator of the Agricultural Research Service, USDA, Washington D. C., was the principal speaker. Ten years later, on June 17, 1964, the 60th anniversary was also observed with a formal program. This time Theodore C. Byerly, Administrator of the Cooperative States Research Service, USDA, Washington, D. C., gave the main address.

The new $162,000 office and laboratory building was dedicated in September 1957 (11). A Veterinary Science Diagnostic Laboratory and an addition to the office and laboratory building (renamed the W. P. Snyder building) were completed in 1969. On May 1, 1969, dedication ceremonies were held with an open pit barbecue and band concert (12).

There has always been a close affinity between the Station staff and the North Platte community. Many of the staff members have served in various capacities in local civic organizations.

Cooperation with USDA

The North Platte Station has the distinction of having the second USDA staff member stationed at the University on a cooperative agreement. The first one was Alvin Keyser on the East Campus, with the initial appointment having been made in 1904-05. The second was W. W. Burr, Office of Dry Land Agriculture, USDA, who was stationed at North Platte, beginning in 1909-10. Other staff members who were on USDA appointments while at the North Platte Station were Robert E. Ramig, Darryl Smika, Harry E. Weakly, Orrin J. Webster, and Leslie L. Zook.

In 1947 cooperation was carried on with the District USDA Soil Conservation Service in construction of contour terraces (1, p 25). Viehmeyer was leader of a domestic plant exploration project in 1963, which was financed by the USDA, Office of Plant Introduction and carried out in the Rocky Mountains - Southwest Desert - Great Basin Area. The USDA was also involved through the Bureau of Animal Industry when the purebred Duroc-Jersey swine herd was made a part of the North Central Swine Breeding Laboratory in 1936 (1).
Sandhills Agricultural Laboratory (SAL) and the Gudmundsen Sandhills Laboratory

SAL was a long time being born. There was a manifest need for an experimental facility in typical sandhills for conducting grazing, range, nutritional, and cattle management studies. Fort Robinson, which became operative in 1950, did not satisfy this need. It was primarily a cattle breeding research operation, and moreover, it was located on the hard lands of northwest Nebraska, which area was not representative of the large sandhills area of the state.

Responding to the requests of sandhills ranchers, Lambert of the College, Frolik of the Station, and Thomas W. Dow of the animal husbandry department, proceeded to develop plans for a sandhills experiment station. In 1958 the U.S. Forest Service agreed to make 10,000 acres of rangeland in the Niobrara Division of the Nebraska National Forest available for the station (4). A number of nearby ranchers who had grazing rights on various sized portions of the Forest reserve agreed to surrender their rights to sufficient areas of range land to make the establishment of a station possible.

The College administrators succeeded in getting the Comptroller of the University, Joseph Soshnik, Chancellor Clifford Hardin and, in turn, the Board of Regents to include funds for the proposed station in the 1959-61 biennial budget request. The request was for a start-up of $190,000 with the ultimate total cost to be $796,500. Bruce Snyder, prominent Paxton farmer and rancher, speaking for the Nebraska Stock Growers Association, appeared before the Legislature’s Budget Committee, in April 1959, in support of the request (5). The effort proved to be unsuccessful because the necessary funds were not forthcoming from the Legislature.

The concept, however, did not die with the turn-down by the 1959 Legislature. The coming of center pivot irrigation into the sandhills accentuated the need for the station. In 1967, Merlyn Carlson, Lodgepole, through the Research Committee of the Nebraska Stock Growers Association, outlined a proposal for a research ranch in the North Platte area (10).

With Howard Ottoson as Director of the Agricultural Experiment Station working with ranchers and the North Platte Station staff, it was decided to modify the original plan by developing a sandhills agricultural laboratory as a satellite of the North Platte Station, thereby virtually eliminating the need for additional academic staff. A proposal, along these lines, made to the 1969 Legislature was rejected even though the Nebraska Stock Growers Association had raised funds as an inducement to the Board of Regents and to the Legislature to help establish the laboratory. A second budgetary request to the Legislature, made in 1971, was approved (6).

The site selected for the laboratory consisted of 3,280 acres of land in northeastern McPherson County near Tryon, 38 miles north of North Platte. The land consisted of two parcels, one owned by Mr. and Mrs. Fred Smith, and the other by Mr. and Mrs. Fay Thompson of Tryon. The land was leased by the University from these owners for a period of 10 years. The broad objectives of the research at the SAL “...related to the optimum use of soil and water for supplementary feed production, adapting the use of the feed in a ranching situation, and the evaluation of some ranch management systems presently being used.” (8)

SAL operated successfully for the 10-year lease period when all but 143 acres were turned back to the owners. The 143 acre area which had been broken out of native grass to conduct irrigation research was retained temporarily in order to complete experiments already underway. In 1986 it was planted back to perennial grasses and returned to the owners. With this final step, the University closed out its operations at Tryon.

About the time the SAL lease expired, the University received, via the University Foundation, the 12,810 acre Gudmundsen ranch located in Grant, Hooker and Cherry counties with the ranch headquarters near Whitman. This was a gift from Abbie and Pete Gudmundsen. The new facility was named the Gudmundsen Sandhills Laboratory (GSL). It is an excellent ranch with three wet meadows and a carrying capacity of 650 cows/calves. The range/ranch research operations were shifted from Tryon to Whitman, the new facility being utilized as a cow/calf operation.

The IANR assumed management of the GSL on May 1, 1981. Donald C. Clanton has served as project coordinator (nonresident general manager) since that time. The GSL is administratively attached to the West Central Research and Extension Center. However, in addition to faculty from that Center, others from the Panhandle Research and Extension Center as well as a number from Departments on the East Campus, are

(Continued on page 317)

Staff Recognitions

Staff who have received recognition based principally on their work at the Station have been:

<table>
<thead>
<tr>
<th>Name</th>
<th>Type of Recognition</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leslie L. Zook</td>
<td>Honorary Doctorate University of Nebr.</td>
<td>1955</td>
</tr>
<tr>
<td>Viehmeyer, Glenn</td>
<td>Nebraska Legislator</td>
<td>1967-68</td>
</tr>
<tr>
<td>Rumery, Myron G.</td>
<td>Nebraska Legislator</td>
<td>1975-82</td>
</tr>
<tr>
<td>Campbell, John B.</td>
<td>USDA Distinguished Service Award</td>
<td>1983</td>
</tr>
<tr>
<td>Wicks, Gail A.</td>
<td>USDA Distinguished Service Award</td>
<td>1984</td>
</tr>
</tbody>
</table>

(Continued on page 317)
Chapter 4. Panhandle Station/UN Panhandle Research and Extension Center

Contents

<table>
<thead>
<tr>
<th>Section 1. Main Station</th>
<th>317</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 2. Northwest Agricultural Laboratory, Alliance</td>
<td>325</td>
</tr>
<tr>
<td>Section 3. High Plains, Agricultural Laboratory, Sidney</td>
<td>327</td>
</tr>
</tbody>
</table>

Section 1. Main Station

Contents

Names of Station ........................................ 317
Administrators ............................................ 317
Chief Administrators ................................... 317
Other Administrators .................................... 318
Lands and Principal Improvements ...................... 318
Establishment of the Substation ....................... 319
Principal Eras ............................................. 319
The Knorr/Holden Era of 1910-1934 .................... 319
The superintendents .................................... 319
The experimental programs ............................. 320
Getting the research information to farmers .......... 321
Summary ................................................... 321
The First Lionel Harris era, 1935-1956 ................ 321
The changed philosophy ................................ 321
Research .................................................. 321
Extension .................................................. 321
The Second Lionel Harris Era, 1957-1971 .............. 322
A period of progress .................................... 322
Addition of satellites to the Panhandle Station ..... 322
Joint Station/Extension appointments ................ 323

The present Panhandle Research and Extension Center consists of the main Station at Scottsbluff (formerly known as the Panhandle Station), and two satellites, the Northwest Agricultural Laboratory at Alliance (formerly the Box Butte Experiment Station) and the High Plains Agricultural Laboratory at Sidney. The two present satellites are treated separately as sections in this chapter.

Names of Station

Scotts Bluff Experimental Substation 1910-1956
Scotts Bluff Experiment Station 1956-1966
Scotts Bluff Station 1966-1973
Panhandle Station 1973-1984
University of Nebraska Panhandle Research and Extension Center 1984-present

Administrators

Chief Administrators

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Period Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frederick &quot;Fritz&quot; Knorr</td>
<td>Superintendent</td>
<td>1910-1916</td>
</tr>
</tbody>
</table>

1The authors gratefully acknowledge the assistance of John L. Weihing in assembling much of the material used in this section.

2 Also known as the Scottsbluff Experiment Farm.
James A. Holden  Superintendent  1917-1934
Lionel Harris  Acting Superintendent  1935-1938
Lionel Harris  Superintendent  1938-1971
John L. Weiheing  District Director, Res. and Ext.  1981-1983
Robert D. Fritschen  District Director, Panhandle Res. & Ext. Center  1984-1986
Burton A. Weichenthal  Acting District Director, Panhandle Res. & Ext. Center  7/86-12/86
Robert D. Fritschen  District Director, Panhandle Res. & Ext. Center  1/87-present

Other Administrators
Lloyd W. Andersen  Asst. Supt. and Asst. District Director  1971-1972
Lloyd W. Andersen  Assoc. Director of Sta. & Extension District I  1973-1978
Robert D. Fritschen  Assoc. Director of Sta. & Extension District I  1979-1981
Burton A. Weichenthal  Assoc. Director of Sta. & Extension District I  1982-1984
Burton A. Weichenthal  Assoc. Director  1984-7/86
Burton A. Weichenthal  Assoc. Director  1/87-present

Lands and Principal Improvements (2, 31, 32, 33)

<table>
<thead>
<tr>
<th>Date Acquired</th>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910-11</td>
<td>Residence, mess hall, office/laboratory bldg., barn, machine shed(^3)</td>
<td>$7,000</td>
</tr>
<tr>
<td>1915</td>
<td>Dairy stable</td>
<td>$600</td>
</tr>
<tr>
<td>1918</td>
<td>800 acres of native grassland, 6 mi. N and 3 E of Mitchell in Sioux County. Land had been made available in 1911.</td>
<td>No cost. Patent from U.S. Pres. Woodrow Wilson to the UN.</td>
</tr>
<tr>
<td>1922</td>
<td>Storage Shed</td>
<td>$600</td>
</tr>
<tr>
<td>1925</td>
<td>Farm Foreman residence</td>
<td>$3,600</td>
</tr>
<tr>
<td>1930</td>
<td>Farm Foreman Asst. residence</td>
<td>$2,600</td>
</tr>
<tr>
<td>1931</td>
<td>Addition to Supt. residence</td>
<td>$2,000</td>
</tr>
<tr>
<td>1931</td>
<td>160 acres of land with one domestic well and one irrigation well, 6 miles E of Mitchell</td>
<td>$8,500</td>
</tr>
<tr>
<td>1933</td>
<td>Potato cellar (razed in 1952)</td>
<td>$2,000</td>
</tr>
<tr>
<td>1935</td>
<td>Irrigation Foreman residence</td>
<td>$2,000</td>
</tr>
<tr>
<td>1938</td>
<td>Temporary labor house (for graduate students)</td>
<td>$2,000</td>
</tr>
<tr>
<td>1938</td>
<td>Barns and sheds: dairy units, milking parlor, bull shed, grain room, open shed &amp; factorium</td>
<td>$21,900</td>
</tr>
<tr>
<td>1952</td>
<td>Potato research and storage laboratory</td>
<td>$36,900</td>
</tr>
<tr>
<td>4/17/1952</td>
<td>Same land as shown above in 1909</td>
<td>No cost. Quit Claim Deed from State of Nebr. to UN.</td>
</tr>
<tr>
<td>1956</td>
<td>Admin. &amp; Laboratory Bldg. (8,600 square feet of space)(^4)</td>
<td>$195,483</td>
</tr>
<tr>
<td>1972</td>
<td>Feed mill</td>
<td>$65,160</td>
</tr>
<tr>
<td>1973</td>
<td>Greenhouse</td>
<td>$10,700</td>
</tr>
<tr>
<td>1973</td>
<td>204 acres of land (with campus improvements) of former Hiram Scott College, one mile north of Scottsbluff(^5)</td>
<td>Gift from Scottsbluff-Gering Pay-roll Development Foundation</td>
</tr>
<tr>
<td>1975</td>
<td>Machine storage and shop buildings</td>
<td>$99,189</td>
</tr>
<tr>
<td>1980</td>
<td>Storage building</td>
<td>$37,246</td>
</tr>
<tr>
<td>1980</td>
<td>Service building</td>
<td>$75,717</td>
</tr>
<tr>
<td>1983</td>
<td>40 acres of land, 6 mi. E of Mitchell</td>
<td>$80,000</td>
</tr>
<tr>
<td>1983</td>
<td>Service building</td>
<td>$23,800</td>
</tr>
</tbody>
</table>

\(^3\)Presence of these buildings confirmed through photograph taken in the fall of 1917 (16).
\(^4\)Named the Lionel Harris Building, August 9, 1971.
\(^5\)Headquarters building named J. C. Elliott Bldg. in 1976.
Establishment of the Substation

The establishment of the Scotts Bluff Experimental Substation involved the cooperation of three agencies, the U.S. Department of Interior, Bureau of Reclamation; the USDA, Bureau of Plant Industry; and the University of Nebraska.

On April 3, 1909 the Nebraska Legislature passed HR 18 which provided for the establishment of a substation to be located west of the 102nd Meridian (1, pp xxiv to xxv). On June 17, 1909 the U.S. Bureau of Land Management withdrew the SE 1/4 of Section 21, Twp 23, Rge 55 from the Public Domain, to be used for the establishment of a substation (2).

In accordance with the overall agreement, the Bureau of Reclamation provided the land (1, p xxvii) which was turned over to the USDA since the latter agency was to be in charge of the Substation (1, p xxv).

Initially, the Bureau of Reclamation also provided $5,000 for buildings and the University provided $2,000 for permanent improvements with the understanding that the USDA and the University would provide necessary continuing funds after that time (3, p xxx). A Memorandum of Understanding was entered into between the USDA, Bureau of Plant Industry, and the University on March 10, 1910 (1, p xxviii). The Substation was organized in 1910 (3, p xxix).

Ownership of the above land was transferred by the U.S. to the State of Nebraska on Feb. 8, 1952 (2).

Beginning in 1911, an additional 800 acres of land was made available by the Bureau of Reclamation at no cost to the Substation. This land, known as the University Pasture Area, is located in Sioux County, six miles north and three miles east of Mitchell.

On May 3, 1918 President Woodrow Wilson granted a patent for the above land to the “Regents of the University of the State of Nebraska ... for dry land agricultural experiments ... in the event the lands cease to be needed or used for the purposes above mentioned the same shall revert to the Government of the U.S.” (4). This tract of land has never been broken out of native grass.

Principal Eras

The history of the Panhandle Station falls into these four principal eras:

1) The Knorr/Holden era of 1910 to 1934 when the Substation was operated almost as a field station of the USDA.

2) The first Lionel Harris era of 1935 to 1956 when the Substation operated primarily as a University unit, but with limited integration with staff on the East Campus, primarily because of limited office and laboratory facilities.

3) The second Lionel Harris era of 1957 to 1971 during which period (made possible through the erection of the Lionel Harris office and laboratory building in 1956), cooperative research with the East Campus staff was greatly increased, and a physical home was provided on the Station for Extension administrators and specialists. A few staff members were placed on joint Station/Extension appointments with Larry Axthelm being the first appointed in 1967. Chester I. Walters, District Extension Supervisor, was appointed assistant superintendent of the Station in 1967.

4) The Weihsing/Fritschen era of 1971-to present, with Weihsing being the first administrator to be appointed jointly on Station and Extension budgets. This was the period of further integration of the two Divisions with the number of joint appointees increasing until the present time when the ratio of the total staff so appointed has reached 85 percent.

A second major advancement was made with the acquisition, in 1973, of 204 acres of land and elaborate improvements located north of Scottsbluff through a gift from the Scottsbluff-Gering Payroll Development Foundation of a major portion of the campus of the former Hiram Scott College.

The Knorr/Holden Era of 1910-1934

The superintendents:

Frederick “Fritz” Knorr was born in Breslau, Germany, and immigrated to the U.S. at the age of 7. He held baccalaureate degrees from the University of Minnesota and Colorado A&M College. After leaving Nebraska he farmed for a few years in California and taught at Modesto Community College from 1923 to 1943. He died on September 23, 1970, two days short of his 95th birthday (5).
Under Lionel Harris as superintendent, research at the Scotts Bluff Station was fully merged with that on East Campus.

James A. Holden was born in Nephi, Utah, and at about the age of eight moved with his parents to Mexico. While living there he became fluent in Spanish, a capability which he retained the rest of his life. He graduated from Utah State Agricultural College at Logan. While an undergraduate, he gave his home address as Colonia Diaz, Mexico, and went under the nickname of “Mexie”. Later when he came to Nebraska the nickname was shortened to “Mex”. While at Logan he lettered in football four years and managed the baseball team for two years (6).

Holden was a capable superintendent; however, he made no secret of the fact that he was not interested in having East Campus staff members carrying on cooperative research at the Scotts Bluff Substation. H. O. Werner recalls that E. Mead Wilcox, agricultural botanist and plant pathologist, was the first staff member from Lincoln to work with Holden. Werner started in 1932. Werner stated that it was not until Harris arrived on the scene that he could do satisfactory work at the Substation. Holden and Phil Sheldon, Scotts Bluff county agent until 1930 and publisher of the Business Farmer, did little to cooperate, sometimes putting out conflicting recommendations (7). R. W. Goss, plant pathology, set up experiments at the Substation in 1924, but after two years gave up trying to work with Holden*. Holden continued as Superintendent until his death on December 6, 1934 at the age of 52.

The experimental programs. Both Knorr and Holden geared the research on the Substation closely to the principal problems facing the farmers of the North Platte Valley. Holden held the philosophy that nothing should be done on the Substation that a farmer couldn’t do. He especially did not want the Substation to be a “show place”. He turned down the opportunity to get federal funds to line irrigation canals with concrete because this was something farmers could not afford to do (7).

Earliest work at the Substation included field experiments on both dry and irrigated land. The west portion of the Substation was devoted to dryland agriculture under the direction of Max Pfafender, who was appointed to the staff in 1910 by the USDA, Office of Dryland Agriculture (7 & 8). It does not appear that too much came from the dryland research, and it was terminated somewhere around 1930 (7).

The major thrust of research from the start and to this day has been on irrigated agriculture. Knorr’s first Station publication, dated May 1, 1914, dealt with irrigated crops, reporting on work started in 1910. The studies had to do primarily with soils, crops and crop varieties, and irrigation practices and management. Field crops included in these initial studies were alfalfa, sugar beets, wheat, oats, barley, corn and potatoes (8).

There were plantings of apple, plum and pear trees; small fruits; shade trees; and ornamentals (13). The first fruit orchard was planted by Knorr in 1911, and the second by Holden in 1923. From 1930 to 1950, Harris continued to replant trees as they were killed out in “Holden’s” orchard. Although from time to time some fruit would be harvested, it soon became apparent that fruit growing in western Nebraska was not economically feasible (20).

In his second Station bulletin, Knorr reported on irrigated gardens, including recommendations on 30 vegetable crops. All of the species he worked with are included in seed catalogs today except for artichoke (Jerusalem) (9).

In 1932, fundamental studies were started by Leslie Bowen, USDA, Bureau of Agricultural Engineering on water usage by crops. His findings formed the basis upon which irrigation scheduling recommendations were subsequently developed (2).

The crop rotation experiments of the Substation constituted almost classic research. Thirty-one different rotations were started in the spring of 1912, with three more being added in 1920. The length of the rotations varied from one (continuous cropping) to seven years.

*The senior author recalls R. W. Goss telling him that it was not uncommon for Holden to toss into the wastebasket unopened letters sent to him by Goss and Werner.
The essential features of a good rotation, as viewed by Holden, were 1) include alfalfa, sweet clover or some other leguminous crop; 2) apply barnyard manure; 3) plant small grain only for the establishment of a legume; and 4) include a cultivated crop such as potatoes, corn or sugar beets. He listed the advantages of a good rotation as: 1) save labor; 2) make for better use of water; 3) lessen damage from diseases; 4) lessen damage from hail; 5) lessen effect of low markets through diversification; and 6) facilitate the keeping of livestock (10).

Livestock production was emphasized early, especially as it complemented the cropping systems. When reporting on swine research conducted from 1912 through 1916, Holden dwelt on alfalfa pasturing experiments, hogging down corn, and drylot feeding experiments. The latter included various combinations of corn, sugar beets, mangels, alfalfa hay, cull potatoes and ground barley (11). Sheep and dairy cattle were also included in the Substation research (2).

Getting the research information to farmers. The Substation carried on an active program of getting research information to farmers, through bulletins and circulars, the media, and field days. Farmer visits were encouraged. An event started during this early era, an annual field day, is still carried on today, although under a different name and with a considerably changed format. A program of the event of Holden's time (exact date not given and not known—probably 1924 to 1930), was entitled “Experiment Farm Picnic”. The program was started at 9:00 a.m. and lasted until 6:00 p.m. “For the men” there were field inspections of cultivated crops, sweet clover being pastured with steers and sheep, hog pasturing tests, and lamb feeding experiments. There were demonstrations and a baby scoring contest “for the women and children”, and a poultry culling demonstration and inspection of the dairy herd “for everybody”. There were also races of various kinds, divided into classes by type, age, and sex of the participants. The Mitchell band presented a concert at the noon lunch, (12). Earlier, the annual picnics had included concessionaries and barn dances in the evenings (7).

The Board of Regents authorized discontinuance of the Scottsbluff Irrigation School in 1922 (14). No other information on the “School” could be found in the records. Summary. Harris summarized the first 25 years of research at the Substation as follows (15):

“The results of this (Substation) work have helped to shape and guide the irrigation farming in the state and in other irrigated areas. In some instances the problems were attacked as they arose, in others, the problems were foreseen, and a body of information obtained before they became acute”.

The First Lionel Harris Era, 1935-1956

The changed philosophy. Lionel Harris, with a baccalaureate degree from Brigham Young University, and a master's degree in agronomy from Utah State University, joined the Substation staff as a federal appointee in the summer of 1930. Superintendent Holden told Harris he wouldn't trust anyone else to be in charge of the crop rotation studies, least of all someone just out of college, so agronomist Harris turned his attention to vegetable research. It is for this reason that Harris carried the reputation among many that he was a horticulturist by training (7).

Harris was appointed acting superintendent of the Substation in 1935, following the death of Holden in December 1934.

Harris remained on a full Civil Service appointment until 1947 when he was placed on a joint USDA/University appointment, followed by the University assuming his entire salary in 1957 (17). There was no animosity whatsoever between the two agencies—the USDA had been trying for some years to close out smaller stations, and cooperated most willingly in transferring operation of the 160 acres of land and improvements to the University in 1948 (16) or 1949 (18), and in shifting, in full, administration of the Substation to the University.

The philosophy of cooperation with the University changed with Harris’ appointment as acting superintendent and then superintendent. Harris was most receptive to and promoted maximum cooperation with the staff located on the East Campus. He and his wife, Lea, were gracious hosts to all of the East Campus staff visiting or working at the Substation. Harris also initiated and pursued, to the fullest extent, cooperation with Extension. Thus, Harris’ appointment as chief administrator can be characterized as commencing the “era of good feeling” with respect to the rest of the College of Agriculture.

Research. By 1956 the resident staff consisted of Superintendent Harris, three agronomists, one soil scientist, one irrigation engineer, and one horticulturist. Harris listed cooperative research underway at the Panhandle Station in 1956 with the following number of staff members located on the East Campus (including USDA, ARS staff): animal husbandry - 1, agronomy - 12, dairy - 1, entomology - 1, horticulture - 1, plant pathology - 1, and veterinary science - 1, a total of 18. In addition, experiments were being conducted cooperatively with two USDA staff members headquartered in Colorado (16).

Physical improvements constructed during this era are listed earlier in this Chapter. The Administration and Laboratory Building, constructed in 1956, constituted a landmark, almost a dramatic one. The old office/dormitory building was primitive, small and scarcely the place for scientists to carry on their work — the new building helped to make the Substation into a modern, respectable institution (16).

Research accomplishments up to 1956 were listed...
and highly marketable varieties; 2) determined that spindle tuber virus causes potatoes to degenerate or 'run out', and devised ways of averting its destruction; 3) developed crop rotation systems which showed the value of farm manure and alfalfa in maintaining soil productivity, and reducing damage from root knot nematode diseases of sugar beets, control of bacterial blight in beans, and scab on potatoes; and 4) helped establish a potato seed certification program which opened the way to substantial marketings in the southern U.S. and in some northern states."

"Current research" in 1956 included studies on irrigation practices and scheduling; lamb feeding; dairy cattle breeding; potato and tomato breeding; numerous insects and aphids; plant diseases; soils including use of fertilizers and cropping systems; and breeding of a number of field crops including oats, barley, grass, corn, field beans, alfalfa and safflower. Forty acres of irrigated land were being devoted to the production of grass and legume seed to be used by the Soil Conservation Service for conservation trials (16).

**Extension.** Three offices in the Administration and Laboratory Building were designated for use by Extension personnel. The first two Extension staff members to use these facilities in 1956 were Chester L. Walters, Extension Service district supervisor; and Clifford Ashburn, extension farm management specialist. This physical arrangement was important in helping to establish a bridge between the Station and Extension; however, all appointments were strictly in one Division or the other. It was another eight years before the first joint appointments were made. The Panhandle Station has the distinction of being the first outstate station to provide offices for Extension personnel.

One of the major problems of the area, at the time, was the abandonment each year of several hundred to several thousand acres of deteriorated land. A program was started by Extension in 1954 under the direction of Clifford Ashburn to attempt to correct this situation. One phase of the program consisted of establishing development farms which could serve as demonstrations of practices developed through research to solve the problems involved. The first such farm was established on sandy land northwest of Morrill. It was hoped that others would be added.

Cooperation of the Substation with other phases of Extension, including the county agents, was greatly increased. The Substation continued the holding of field days, was receptive to having farmer visitors, and distributed publications and utilized the media in disseminating research findings.

**The Second Lionel Harris Era, 1957-1971**

**A period of progress.** Under Harris as superintendent, we witnessed the era of good feeling, and now in the second period of his administration, we see the era of progress. With the new Administration and Laboratory Building having been completed and the firm relationship having been established with Extension and the Station researchers located on the East Campus, rapid growth in the research and extension programs followed almost automatically.

When the 50th anniversary of the Station was observed with a program on July 21, 1960 (19), the resident staff consisted of nine persons, six with Station appointments (including three USDA personnel); three with Extension appointments; and none with joint Station/Extension appointments. Additionally, soils experiments were being carried on cooperatively with four USDA staff members stationed in Colorado (19).

The amalgamation of research programs with those on the East Campus and with those directed by USDA personnel headquartered in Colorado was becoming so complete, that it was no longer possible to clearly separate what credit should go to whom and for doing what. This, of course, represents ultimate success in research organization — the synergistic advantage of groups working together with little duplication and making maximum progress.

In a presentation of significant research findings in 1960 involving, but not limited to, work at the Scotts Bluff Station, 12 of the reports were written by staff members headquartered on the East Campus, and 8 by Panhandle Station resident staff (19).

The areas mentioned in the research accomplishments of 1960 (19) included reports on experimental work on Ranger alfalfa, controlled irrigation, bench leveling, rotations, zinc deficiency, maximizing corn yields, 40 years of potato production and breeding research, potato psyllid and tuber flea beetle, safflower, plant diseases, soil and water conservation, crop processing and storage, farm power and machinery, hormone implants in beef cattle, dairy cattle breeding, swine breeding, lamb feeding trials, sugar beet production, and cultivated crop yields following brome-grass (19).

Extension received little attention in the Golden Anniversary recognition publication of 1960. The one exception was that Clifford Ashburn, Extension Farm Management Specialist, reported on minimum tillage demonstrations and on grain storage and drying facilities (19).

**Addition of satellites to the Panhandle Station.** During the 60's, the Panhandle Station was increasingly encompassing all College of Agriculture research in the Panhandle portion of the state. In 1963 what had been the Box Butte Experiment Station was made a satellite of the Panhandle Station, with the name of the former being changed to the Northwest Agricultural Laboratory (NWAL). In 1967, another satellite, the High Plains Agricultural Laboratory (HPAL), was added to the Panhandle Station. This unit, a portion of the old Sioux Ordinance Depot located six miles north of Sidney, consisted of 2,400 acres of dryland pasture and cultivated land.
Joint Station/Extension appointments. The first joint Station/Extension appointment made at the Panhandle Station was that of Louis A. Daigger, soils specialist, on July 1, 1964. In 1966 Harris, who had previously been a full time Station employee and Charles R. Fenster, who had been a full time Extension employee, were also placed on joint Station/Extension appointments. By the end of fiscal 1971, the Panhandle Station resident staff numbered 13 persons, of whom eight held joint Station/Extension appointments; two held Extension appointments; and three held Station appointments. Of the latter, two were full time USDA appointees for whom joint appointments with Extension would not have been feasible.

Staff numbers and areas of specialization. The disciplines and number of staff in the various categories in 1971 were: agronomy, including crop management and soils - 4; ag economics - 1; ag engineering - 2; entomology - 1; forestry - 1; horticulture - 1; livestock - 1; and plant pathology - 1. It will be noted that there was considerably less emphasis on livestock than there had been in earlier years. The dairy herd, started in 1915 largely for demonstrational purposes and used for breeding research beginning in 1949, was moved to the Mead Laboratory in 1969. The only livestock specialist left at the Station in 1971 was Robert H. Hatch with 10 percent time on research and 90 percent on extension.

There were some important innovations in areas of research during this period. D. F. Burzlaff\(^6\) initiated and conducted for a considerable number of years a range research program on the 800-acre native grass area. Research on dryland crop production received additional emphasis with the starting of operations of the HPAL at Sidney in 1967. Charles Fenster was transferred from the NWAL at Alliance to the Panhandle Station in 1967.

Death comes to Lionel Harris. Following retirement on July 31, 1971, Lionel and his wife, Lea, moved onto a 160 acre irrigated farm in Scotts Bluff County. Although not in good health, Lionel did the farming, including lamb feeding. Also he collected a vast amount of material on the Scotts Bluff Station for the purpose of writing a history. Unfortunately, he died on September 18, 1975 without doing any of the actual writing. The outline he had prepared and the material he had collected awaited the writing by someone else.

The Weihing/Fritschen Era, 1971-present

The new superintendent. John L. Weihing was appointed superintendent of the Scotts Bluff Station in 1971, over 60 years after the Station was started, being the fourth person to hold that position. Weihing had an excellent background for the assignment. He knew western agriculture, having been born and raised on a farm at Rocky Ford, Colorado, and had graduated from Colorado State University. He had served as a UNL staff member in both the UN Agronomy and Plant Pathology Departments, holding a master's degree in agronomy and a doctorate in plant pathology both from UNL. He had done considerable research work and had served as an Extension specialist.

Station and Extension fully integrated, administratively. Weihing was appointed superintendent of the Station and director of Extension District I (Panhandle) in 1971. This was the first time at the Panhandle Station that both administrative positions were held by the same person. However, the appointment still gave the impression of one person holding two jobs. That point was clarified in 1973 when the name of the Station was changed from Scotts Bluff to Panhandle (21) and the title of the position to "Director of the Station and Extension District I". The implication was clear — research and extension were unmistakably combined into one overall program for the Panhandle portion of Nebraska. As logical as this arrangement seems today, it took various steps and 63 years to make it a reality.

The gift of the former Hiram Scott College campus. The groundwork was now laid organizationally to provide maximum research and educational services within the limits of available resources. At this point, the Panhandle program received another important impetus, the addition of a major portion of the defunct Hiram Scott College\(^6\) campus (approximately 204 acres of land and improvements). The generous gift was proffered by the Scottsbluff-Gering Payroll Development Foundation, but required Legislative action for acceptance. Senator Terry Carpenter led the effort in the 1973 Legislature to gain approval. Governor Exon vetoed the first bill, LB 179, because he stated that more planning was needed on usage of the property. The veto was sustained. Senator Carpenter then introduced a second bill, LB 275, somewhat different in its coverage in that it provided for the facility to be used for agricultural research and extension. To obviate moving of the UNSTA from Curtis to the Hiram Scott College campus (concerning which there had been considerable discussion) Senator Richard Lewis of Holbrook won approval of an amendment which provided that the School remain at Curtis. Both the amendment and the Bill were passed (22, 23). The UN Board of Regents formally accepted the gift in a meeting held on December 6, 1973. In a surprise visit to that meeting, Governor Exon expressed support for acceptance, explaining that he had opposed an earlier bill because it "... was oriented to a program of instruction in rural health" (24).

In 1974, the newly acquired tract, a short distance north of Scottsbluff, became the new Panhandle Sta-
tion headquarters. All of the land and buildings at the Mitchell location were retained and that facility was renamed the "Scotts Bluff Agricultural Laboratory". In 1976, the headquarters building at the Hiram Scott location was named the J. G. Elliott Building. All of the buildings and land at both locations are still fully utilized.

**USDA departs the Panhandle Station.** Periodically, the USDA attempted to close out small federal stations and small research units at university locations. Such attempts were typically resisted by local citizens and Congressional delegations from the states involved. In 1965, Secretary of Agriculture Orville L. Freeman made such an attempt. The federal segment at the Panhandle Station was among the 43 operations slated to be closed. Subsequently, a compromise was reached at a conference of Freeman, representatives of the Budget Bureau, and Senators from the Appropriations Committee, whereby projects costing a total of $2,985,800 or more "escaped". Among those being retained was the federal segment of the Panhandle Station (25).

Federal support of the Station and Civil Service appointees were still continued for some time. However, in fiscal 1972, the federal staff was down to two agricultural engineers; in fiscal 1973, one; in fiscal 1974, none; and none since. Thus the Station which had been started in 1910 largely as a federal operation, and which had gradually been converted to being primarily a University operation, had now lost the last vestige of direct USDA financial support, including personnel.

**Classroom teaching.** In 1972 arrangements were made for a number of Scotts Bluff Station staff to do some classroom instruction at Nebraska Western College. The instruction consisted of four introductory courses: crop science, soil science, production economics and farm management, and animal science and livestock evaluation. Each course was taught once every two years. The instructors had "counterparts" on the East Campus so that the agricultural courses, taught at Nebraska Western, were virtually identical to the corresponding courses taught at Lincoln. Credits earned were fully transferable to the UNL. Thus a student taking these courses, and other appropriate courses at Nebraska Western, could take the first two years at Scottsbluff and then transfer to the UNL College of Agriculture without any loss of credits or time.

The arrangement was terminated in 1982 (2, 28).

**Broadened areas of research and extension.** During the Weihing/Fritschen era, specialists were added in weed science, range management, machinery systems, agricultural meteorology, forestry, veterinary science, swine, 4-H Youth Development, and communications. Maximum effort was concentrated on: 1) weed, disease, and insect problems of field crops; 2) plant microclimate studies to determine interactions between climate, and insect and disease problems; 3) irrigation research; 4) tillage methods; 5) range management; 6) beef and swine production, including development of the diagnostic laboratory; 7) production, breeding and processing of potatoes; 8) fertilizers including manure; 9) field crop breeding and production; 10) development of dryland cropping systems for western Nebraska; 11) irrigation water management; and 12) supplementation and utilization of forage and grain resources in livestock production (23, 26).

**Continued progress.** Cooperative research with East Campus staff members continued to increase. County agents now felt truly a part of the overall IANR Panhandle operation. The amount of research generated continued to improve both in quantity and quality. This added information, plus the closely integrated organizational structure, significantly strengthened the educational work conducted by the county agents.

In spite of budget reductions in the 80's, the Center continues to make significant contributions to the agricultural and home economics interests of western Nebraska. An important project is one having to do with short duration grazing (SDG). The SDG concept has evolved over several hundreds of years in Europe, and has been adopted in other parts of the world. The system utilizes a number of pastures, over which grazing is controlled in terms of intensity, duration, frequency, and time. It is a somewhat complex system but properly used it offers considerable promise (32, 99th report, pp 18-19).

Recently the Center, in response to interest in western Nebraska in commercial production of vegetables, has significantly increased its research and educational efforts in vegetable production and processing (32, 100th annual report, p 20).

A good deal of effort is also going into research on sugar beet transplanting.

**High Achievements**

John L. Weihing served in the Nebraska Legislature from 1987 to the present.

Robert B. O'Keefe served as president of the Potato Association of America 1980-1981.

**References**


17. IANR personnel records. UNL.


Section 2. The Northwest Agricultural Laboratory

Contents

Names of Station ............................................. 325
Administrators .............................................. 325
Land and Improvements ................................... 326
Origin and Development .................................. 326
Research .................................................... 326
Getting the Information to the Public .................. 327
Future of the Laboratory .................................. 327
References ................................................ 327

Names of Station

Box Butte Experimental Farm 1929-1958
Box Butte Experiment Station 1958-1967
Northwest Agricultural Laboratory 1967-present

Administrators

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Period Served</th>
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<tbody>
<tr>
<td>John Pospisil</td>
<td>Supervisor</td>
<td>1930-1933</td>
</tr>
<tr>
<td>George Schmid</td>
<td>Supervisor</td>
<td>1933-1940</td>
</tr>
<tr>
<td>Robert Pahl</td>
<td>Supervisor</td>
<td>1940-1944</td>
</tr>
<tr>
<td>Kerwin Jantz</td>
<td>Acting Supervisor</td>
<td>1944-1/1946</td>
</tr>
<tr>
<td>C. R. Wiese</td>
<td>Caretaker</td>
<td>1/1946-3/1946</td>
</tr>
<tr>
<td>Harold W. Chapman</td>
<td>Supervisor</td>
<td>5/1946-1950</td>
</tr>
<tr>
<td>Jackson Davidson</td>
<td>Supervisor</td>
<td>1950-1952</td>
</tr>
<tr>
<td>Robert B. O’Keefe</td>
<td>Superintendent</td>
<td>1952-1957</td>
</tr>
<tr>
<td>Paul Ehlers</td>
<td>Superintendent</td>
<td>1957-1967</td>
</tr>
<tr>
<td>Jason Webster</td>
<td>Laboratory Manager</td>
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</tr>
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<td>Bill Mundt</td>
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<td>1974-1983</td>
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<tr>
<td>Allan Mann</td>
<td>Laboratory Manager</td>
<td>1983-1985</td>
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<tr>
<td>Emery Dempsey</td>
<td>Acting Manager</td>
<td>1985-present</td>
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</table>

1 Most of the material included in this section has been adapted from a more detailed write-up prepared by Charles R. Fenster which, for reasons of space, had to be condensed. It is expected that Fenster will have his complete manuscript published elsewhere.

325
### Land and Improvements

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<th>Item</th>
<th>Cost</th>
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<td>$9,600.</td>
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<td>1930</td>
<td>Residence, machine shed, barn, chicken house, potato cellar, and domestic well (Constructed by Box Butte County). Cost not available.</td>
<td></td>
</tr>
<tr>
<td>1934</td>
<td>Laboratory and residence for technician (Constructed by Box Butte County). Cost not available.</td>
<td></td>
</tr>
<tr>
<td>1945</td>
<td>Laboratory converted to residence for technician (N.A.)</td>
<td></td>
</tr>
<tr>
<td>1952</td>
<td>N ¼ Sec 17, T 25N, R 48W, Box Butte County, NE (Made available by Box Butte County)</td>
<td></td>
</tr>
<tr>
<td>1959</td>
<td>Dryland bench terracing</td>
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<td>1963</td>
<td>Laboratory</td>
<td>$9,847</td>
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<td>1967</td>
<td>Greenhouse</td>
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<td>1981</td>
<td>Rebuilt the greenhouse</td>
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<tr>
<td>1968</td>
<td>Irrigation well no. 1</td>
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<td>1968</td>
<td>Irrigation well no. 2</td>
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<td>1968</td>
<td>Bench leveling and land leveling for irrigation (N.A.)</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>Metal machine shed</td>
<td>$4,000</td>
</tr>
</tbody>
</table>

### Origin and Development

The Northwest Agricultural Laboratory came into existence largely as the result of the efforts of Box Butte County agricultural leaders who expressed themselves strongly on the need for an experimental facility to conduct studies on production of crops on dryland in that part of the state. The Experimental Farm became a reality through the cooperative action of the Box Butte County Commissioners and the State Legislature (1,2,3,4,6).

In 1929 the Legislature passed the enabling act for establishment of the Box Butte Experimental Farm, which read in part: “The object of the experimental substation shall be to determine the most economical method of producing potatoes, grains, grasses, root crops, or fruit, the most adapted varieties of each, and to especially study the rotation and cultivated practices advantageous in controlling various diseases of seed potatoes, and to develop, for distribution among the growers, improved strains and varieties of these crops.” Later the purpose of the Laboratory was changed to read: “... shall be to advance agricultural, horticultural, and irrigation interests of the State of Nebraska, and specifically those agricultural problems particular to western Nebraska” (LB 332).

On September 24, 1929, Box Butte County purchased a quarter section of land, as listed above, for the Laboratory (9). In accordance with construction plans developed by the College, the County built and paid for the initial improvements. The Legislature appropriated $10,000 to the University for operations, with the expectation that the operation would be largely self-supporting.

In 1952 the Box Butte County Commissioners made additional 320 acres, the N ¼ in the same section as the original quarter was located.

In 1967, through authorization granted by the Nebraska State Legislature, Box Butte County deeded the above three quarters of land to the University, (LB 498), (5), with the proviso that “... when such land is not used as an experimental farm and Station by the University of Nebraska, such land shall revert to Box Butte County, Nebraska”.

Initially, the Farm was under the management of a committee from the East Campus, with representatives from the Departments of Horticulture, Plant Pathology, and Agronomy, and with a resident supervisor carrying out the day to day operations. In 1967 Fenster's headquarters was moved to the Panhandle Station.

In 1967 the Laboratory was made a satellite of the Panhandle Station at Mitchell. Since that time operations at the Laboratory have been in charge of a resident manager.

### Research

The first studies indicated were on crop rotations under dryland conditions. These studies over the years have indicated that wheat should not be grown two years in succession, that wheat alternated with summer fallow resulted in a higher production of grain for the two year period than with wheat grown both years. Control of weeds on land planted continuously to wheat has been found to be virtually impossible.

Work on potatoes has been emphasized from the time the Station was established. For many years the breeding project and production studies were under the direction of H. O. Werner, and more recently under Robert O'Keefe. Potato disease research was conducted initially by R. W. Goss who was succeeded...
by William B. Allington. Methods were developed for storing seed potatoes until planting time in early June without the use of expensive refrigeration. Initial stocks of new potato varieties have been produced at the Station for distribution to farmer-growers.

In 1956 Charles R. Fenster was appointed to a newly created position at the Farm to study the total management system for winter wheat production.

Recommendations concerning crops and varieties (cultivars) are kept current. Safflower studies were conducted by Laren Robison from 1962 to 1965.

Research has also been conducted on soil and moisture conservation and erosion through the stubble mulch tillage system, ecofallow, and time of planting winter wheat.

Larry Axthelm carried out experiments on maximizing irrigation efficiency with a limited amount of water. He obtained favorable results with center pivot and automatic solid set sprinkler systems, and by storing water in the entire root zone of the soil prior to the period of high crop usage.

From 1970 to 1978, considerable work was done on vegetable production under irrigation.

Long term forestry projects have included adaptability of Ponderosa pine, Scotch pine, green ash, Rocky Mountain juniper, and Eastern red cedar. There is also a planting of Ponderosa pine with seed from various sources (part of a regional study) (8).

Getting the Information to the Public

Extension and extension-type activities have always been an important phase of the Laboratory's programs. These have consisted principally of field demonstrations, field days, personal contacts with farmers and other types of meetings.

Future of the Laboratory

On February 12, 1986 Director Fritschen wrote to Clifford Bartels, chairman of the Box Butte County Commissioners: (Because of budget cuts) ... "we will be forced to reduce our research at the Northwest Ag Lab to a minimal level ... if economic circumstances do not improve within five years to a level where we could reinstate a viable research program, we would reevaluate the situation and determine what the Box Butte County officials would want to do" (10).

On June 3, 1987 Director Fritschen stated: "We are at a minimal level now at NWAL with a phased reduction targeted to 'zero' involvement in 1990. The exception will be the plantations. The integrity of these tree studies must be maintained, regardless of who operates the farm. We have the assurance of county officials that they will honor this need (11)."

References
2. Nebraska Farmer. Apr 19, 1930. Nebraska has new experiment station. Lincoln, NE.
3. UN AES report (with special reference to the substations). Col of Agric, UN, Lincoln.
5. Soshnik, Joseph, Corporate Secty, UN. Nov 20, 1967. Letter to County Commissioners of Box Butte Co. Lincoln, NE.
7. Box Butte County Commissioners (Record D) Report. Sep 24, 1929. Alliance, NE.
9. Minutes of the meeting of the Box Butte County Commissioners. Sep 24, 1929. Alliance, NE.
10. Fritschen, Robert D. Feb 12, 1986. Letter to Clifford Bartels, Chm, Box Butte Co Commissioners. Panhandle Res & Ext Ctr, IANR, UNL, Scottsbluff, NE.
at able to the University of Nebraska the East Campus.

members headquartered at the agricultural research and educational purposes (1). which had been part of the University farm equipment, industrial equipment, and tools with estimated value of $90,000.

In addition the Government transferred to the University farm equipment, industrial equipment, and tools with estimated value of $90,000.

Origin and Development

The work of the Cheyenne County Rural Area Development (RAD) Committee, largely through its crops committee, was instrumental in getting the laboratory established. The officers of this crops committee were Ralph Spearow, president; Ray Cruise, vice president; and Harold Tremain, secretary. In May 1962 representatives of the committee, accompanied by County Agricultural Agent Ivan Liljegren and Senator George Fleming, made a trip to Lincoln to ask for Dean Frolik’s support for the establishment of a field research laboratory (2). On June 15, 1962 a delegation from the East Campus conferred with members of RAD at Sidney and toured the Sioux Ordnance Plant as a possible site (3).

The need for the field laboratory was underscored in 1964 when there was a severe outbreak of black stem rust, wheat streak mosaic, and crown and root rot of wheat in the panhandle portion of Nebraska. In the same year it was announced that the Department of Defense was phasing out the Sioux Army Ordnance Depot. The RAD Committee immediately explored the possibility of utilizing some of the land and facilities for an “experiment station”. After being given some assurance by Don Bradford, Department of Defense, and Colonel C. Williams that asking for some of the land was in order, Frolik and others toured the Depot and tentatively decided upon the 2,250 acres to be requested. In June 1966 Charles Fenster, of the University, and Don Yost, of the Soil and Conservation Service, made a soils map of the area to be requested. Based on the map and personal inspection, members of the Department of Agronomy at Lincoln approved the proposed site for experimental purposes.

In 1965 the Legislature approved a bill introduced by Senator Fleming to establish the experiment station. Next RAD committee representatives appeared before the Budget Committee of the Legislature to obtain supporting funds for operating the “new station”. The budget developed by Donald Hanway, Chairman of the Agronomy Department, was not approved in full but $100,000 was appropriated for the purpose.

In the spring of 1966, the UN Board of Regents made application to the U.S. Government via the Department of Health, Education and Welfare for 2,250 acres of land, improvements and equipment to be used for experimental purposes. Subsequently, an additional 160 acres of land with a 42 X 114 foot building needed for headquarters operation was added to the request (3). There was also a well and pump house on this added land.

After extended negotiations, the Government issued an interim use permit for the University to initiate operations (the deed was issued August 1970). On April 17, 1967, Ray Cruise and Colonel Williams drew a symbolic furrow on what had now been named the High Plains Agricultural Laboratory (HPAL) (4). Thus, after much effort, and time and travel expenses by the members, RAD had succeeded in getting the Laboratory established.

When the RAD Committee was terminated on July 1, 1971, Director John L. Weihing of the Panhandle Station prevailed upon the members to become the advisory group for the HPAL. Many of the original RAD members are still active on the advisory group today.

Administratively, HPAL has always been under the supervision of the director of the Panhandle Station (Center). However, from the beginning, Lionel Harris delegated this responsibility to Charles R. Fenster who

<table>
<thead>
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<th>Name</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ken Barton</td>
<td>Manager</td>
<td>6/1974-6/1980</td>
</tr>
<tr>
<td>Tom Nightingale</td>
<td>Manager</td>
<td>6/1980-present</td>
</tr>
</tbody>
</table>

Land and Improvements

On April 7, 1967, the U.S. Government made available to the University of Nebraska 2,410 acres of land, which had been part of the Sioux Army Depot, for agricultural research and educational purposes (1). On the land were:

14 igloos, round in shape with inside ground level diameters of 50 feet, constructed of reinforced concrete covered with three feet of soil and 2 warehouse buildings, each 50 X 220 feet.
1 headquarters building, 42 X 114 feet.

In addition the Government transferred to the University farm equipment, industrial equipment, and tools with estimated value of $90,000.

On-site Administrators (1)

<table>
<thead>
<tr>
<th>Name</th>
<th>Period Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Nightingale</td>
<td>6/1980-present</td>
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Administratively, HPAL has always been under the supervision of the director of the Panhandle Station (Center). However, from the beginning, Lionel Harris delegated this responsibility to Charles R. Fenster who
had worked closely with the RAD Committee throughout the period of procurement and whose assistance had been invaluable in getting the land transferred from the Government to the University.

**Research**

Under Fenster's guidance a research program was initiated immediately upon the University's obtaining possession of the Sioux Army Depot property. Emphasis has always been placed on the efficient use of soil and water and optimizing crop yields under the semiarid conditions prevailing in the High Plains. The research program has grown in extent and depth since its inception, and today is recognized internationally for its many and continuing accomplishments.

The principal areas of research and findings have been:

1) No-till with crop residues left on the surface in a wheat-fallow rotation has been shown to be advantageous with respect to conservation of soil and water. Soil erosion was minimal with 50 percent ground cover consisting of crop residues.

2) The Laboratory has been an important site for conducting wheat varietal (cultivar) tests for local use and for regional, national and international nurseries.

3) Much of the research on cultural practices and nearly all of the proso millet varietal improvement for Nebraska have been conducted at the Laboratory.

4) Sorghum breeding trials have been conducted at the Laboratory in order to select lines which are adapted to the cool spring conditions, the hot, dry weather of midsummer, and the cool weather when the grain is filling and ripening.

5) Many crops have been tested as possible alternatives to presently grown crops. Of the many tested, pearl millet, chickpeas, foxtail millet and sunflower have shown some promise.

**Extension**

Field days have been held at the Laboratory annually in June to view fall planted crops and in August for spring planted crops. In addition, field days have been held annually for special interest groups. All experimental plots are labeled so that visitors can come to the Laboratory at any time and observe the research underway. The Laboratory is used annually by Extension staff to train personnel of other agencies such as the Soil Conservation Service and Natural Resource Districts.

**References**

1. High Plains Agricultural Laboratory annual reports. 1966-1984, incl. AES, Col of Agric/IANR, UNL.
2. Sidney Telegraph. May 23, 1962, NE.
4. __. Apr 17, 1967.

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**Chapter 5. South Central Station/UN South Central Research and Extension Center**

<table>
<thead>
<tr>
<th>Contents</th>
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<td>Supt. and Dist. Ext. Director</td>
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<td>Youth Development</td>
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²The South Central Station came into existence by action of the Board of Regents, February 16, 1970. However, the District Extension Headquarters was established in Clay Center in July 1968.
Lands and Buildings

July 1968
Leased an old store building in Clay Center.

1970
Started field operations on the Section of U.S. Meat Animal Research Center (USMARC) land assigned to the University. Described as Sec 17, Twp 7N, Rge 7W, Clay County, Nebraska.

1971
Moved into the new USMARC Office and Laboratory Building.

1972
Construction of field service building. Cost: $40,000.

1977
Occupied the new University Office and Laboratory Building on USMARC on 0.55 acres of land adjacent to the USDA office and laboratory building. Cost of construction $25,000.

1982
Construction of machine storage building. Cost $36,000.

Origin and Development

Interest has existed in establishing an agricultural experiment station in south central Nebraska for many years. For example, LB 284, introduced by Senator D. S. Anderson, Lexington, during the 1943 session of the Nebraska Legislature provided for "... establishment of an irrigation experimental station, under the state university, within the limits of Gosper, Phelps, Kearney and Adams counties" (1). The bill, however, did not pass.

As a part of the joint effort put forth by the USDA and the University to obtain a major portion of the Naval Ammunition Depot at Hastings for a federal meat animal research center, Dean Elvin F. Frolik had obtained unofficial approval from the USDA officials for assignment of 640 acres of land to the University, for the purpose of crops, irrigation and forestry research (see Part VI, Chapter 8). The South Platte United Chambers of Commerce which had urged the establishment of an agricultural experiment station in their area for many years strongly supported the establishment of a meat animal research center at Clay Center. They correctly foresaw the opportunity to incorporate a state supported station once the federal research facility was established.

On July 1, 1968 in anticipation of establishment of the South Central Station, Extension established a headquarters for the South Central District in a rented store building in Clay Center (13). Early transfers of staff already on appointment to that location were Charles L. Stonecipher, district extension supervisor; Robert Mulliner, irrigation specialist, both in 1968; and Larry Barber, extension forester, and Paul Miller, farm management specialist, both in 1970 (4).

On May 2, 1968 the Clay Center Regional Extension and Experiment Station Planning Committee, appointed by Frolik and chaired by Stonecipher, transmitted to Frolik their preliminary proposal. The Committee made recommendations with respect to budgetary needs, location of University operations, a staffing pattern, and setting up of an advisory committee (5). The report of the Planning Committee was updated in April 1970 (6). An Advisory Committee (consisting of interested citizens living in the District) was established in 1969 and is still functioning.

In accordance with the earlier unofficial agreement, a section of land described as Section 17, Twp 7N, Rge 7W, Clay County, Nebraska, on the former Naval Ammunition Depot, south of State Highway No. 6, was made available to the University under a cooperative agreement with the USDA (2). This particular tract was selected to provide easy access and to give the public an opportunity to observe the experimental plots as they drove by. On February 16, 1970, the Board of Regents approved "Establishment of an entity to be known as the University of Nebraska South Central Station ... at Clay Center" (3).

On February 17, 1970, Stonecipher, who had been the District Extension Supervisor, was placed part time on Station appointment. This change in his appointment represented the first step in officially integrating research and extension programs in the South Central District.

The first new positions added to the staff, by transfers, were those of Stanley D. Farlin, extension livestock specialist, and Kenneth D. Frank, soil specialist, both in 1970. By 1974 the staff had grown to 12 people.

On May 6, 1969, Frolik wrote to Keith Gregory, director of USMARC, asking for permission for the University to construct an office/laboratory building adjacent to the USMARC headquarters building. On November 3, 1969, R. E. Hodgson4, director, Animal Husbandry Research Division, ARS, USDA, Beltsville, Maryland replied, giving full approval to Frolik’s request stating that "A spot has been reserved in the main headquarters complex for your facility” (8). On February 2, 1974, the Board of Regents approved a 30-year lease with the U.S. Government for a 0.35 acre tract of land for construction of the South Central Station headquarters building (14). University attorneys had advised that the U.S. laws authorizing the lease did not permit leases in excess of 30 years, but that there were no statutory or constitutional provisions which would prohibit the University from making improvements on Federal land held by the University under a revocable permit or lease (9, 10).


5The relationships between the University and USMARC have always been, and continue to be, excellent. Thus in his letter, Hodgson included the statement: “As you know, Elvin, we are in full support of having a University facility at MARC”. Getting approval from the USDA for University requests for land and permission to construct buildings have been largely a matter of formality.
The Board of Regents included in their budgetary request to the Governor and to the Legislature, an item of $500,000 for the 1973-75 biennium for the construction of an office/laboratory building for the South Central Station (5). Construction was started in 1976 and completed in the fall of 1977, with a total cost of $625,000.

Serving the Clientele (11, 12)

The South Central Station serves the 20 counties which comprise the District. Extension and research are closely integrated. Of the 12 positions listed for the Station in 1985, nine were joint research-extension positions, including that of Director Stonecipher. Three of the positions were exclusively Extension and there were no full time Research Division appointments.

Research conducted at the Center is primarily of an applied nature, geared to helping solve the principal agricultural problems of the District. In 1974 the Station utilized 320 acres of the section of land available to the University (4). The livestock research is done in conjunction with RLHUSMARC, and all research is coordinated with that carried on by Research Division scientists at Lincoln and at the other off-campus Centers. Field experiments also serve as demonstrations for educational programs. With respect to extension, the specialists are able to concentrate their efforts on a limited (District) area, thus making their assistance to the county staffs and to the clientele generally more readily available and more applicable to local conditions than is possible on a state-wide basis.

Modern educational equipment and programs are utilized to the maximum. Two-way radios are available in the Center headquarters, in the automobiles of staff members and in the county extension offices. Thus, responses to questions coming to the county offices on which the county staff need specialist assistance can usually be made promptly.

The Agricultural Computer Network (AGNET) system provides District specialists and county staff members with information on short notice on most agricultural and home economics problems. Access to the computer by telephone enhances the effectiveness of the system.

Fields of Specialization (11, 12)

By 1974, the Station had 11 and one-half positions, the half-time position being accounted for by the fact that Helen D. Solt had administrative responsibilities for Home Economics in two districts, South Central and Northeast. These staff people provided leadership in the following fields of specialization:

Crop Production

This area of work was under the direction of Gary M. Dornhoff and Kenneth D. Frank. The program was devoted primarily to growing crops under irrigation. Major emphasis was placed on corn and sorghum with some work on soybeans, alfalfa, wheat and popcorn. Areas of research included hybrid and variety (cultivar) performance, soil fertility, weed control, cultural practices, plant populations, row spacing, and dates of planting. The program included off-Station trials.

Irrigation

Approximately one-half of the irrigated land in Nebraska lies in the South Central District. Studies included methods of maximizing production with minimum amounts of water and labor costs. Solid-set and tow-line sprinklers and gravity systems with reuse pits were under study. An automatic surface irrigation system with reuse was also included.

Plant Diseases

Benjamin L. Doupnik gave principal attention to diseases of corn and sorghum, including leaf blights, root and stalk rots, and Goss’s Wilt. Some work was also done on diseases of other crops and on relationships between plant diseases and cultural practices.

Insects

Emphasis was placed by Leroy L. Peters on insects of economic importance in the District, especially corn rootworm, corn borer, and greenbug on sorghum.

Livestock

Haven B. Hendricks cooperated with RLHUSMARC in making research results available to people living in the District. The program focused on improving reproduction management of swine.

Forestry

Educational programs were conducted by Larry R. Barber on tree diseases and insect control, windbreak establishment, timber appraisals, and Christmas tree production. The forester assisted in Clarke-McNary tree distribution and helped homeowners and communities plan tree planting activities.

Agricultural Economics

Paul E. Miller conducted programs principally on farm management, including enterprise costs, costs of production of various crops, analysis of general farm records, machinery costs, credit, financial management, and estate planning.
**Home Economics**

The programs of Home Economics received major consideration in the South Central District. Home Economist Helen D. Solt devoted one-half time to supervisory work with extension home economists in area and county offices in the District. Programs included extension clubs, housing, food processing, health, and clothing.

**Youth Development**

Work was done by C. Dean Johnson with extension agents and 4-H leaders in the District to develop and implement educational activities for 4-H members. Junior leadership was emphasized.

**References**


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**Chapter 6. UN Southeast Research and Extension Center, Lincoln**

<table>
<thead>
<tr>
<th>Contents</th>
<th>Names of Center (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extension Supervisory District V 1967-1969</td>
</tr>
<tr>
<td></td>
<td>Extension Supervisory District V, Southeast Extension Headquarters 1969-1979</td>
</tr>
<tr>
<td></td>
<td>Southeast Extension &amp; Research Center 1979-1984</td>
</tr>
<tr>
<td></td>
<td>University of Nebraska Southeast Research &amp; Extension Center 1984-present</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chief Administrators</th>
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</tr>
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<tbody>
<tr>
<td>Name</td>
<td>Title</td>
<td>Period Served</td>
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<tr>
<td>Verdon H. Peterson</td>
<td>District Director</td>
<td>1970-1971</td>
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<tr>
<td>Walter E. Spilker</td>
<td>Acting Dist. Director</td>
<td>1972</td>
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<td>Loyd L. Young</td>
<td>District Director</td>
<td>1972-1984</td>
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<tr>
<td>Loyd L. Young</td>
<td>District Director, UN Southeast Res &amp; Ext Ctr</td>
<td>1984-present</td>
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</tbody>
</table>

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<th>Other Administrators (1)</th>
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<tr>
<td>Ethel H. Saxton</td>
<td>District Supervisor (Home Extension)</td>
<td>1967-1971</td>
</tr>
<tr>
<td>Elizabeth A. Birnstihl</td>
<td>District Supervisor (Home Economics), and Assoc. District Director</td>
<td>1975-1983</td>
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<td>Assoc. Director</td>
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| Staff (1, 2) | On February 20, 1978, William A. Gustafson was placed on a joint Station/Extension appointment with the same one-fourth/three-fourths arrangement as Penas. Director Loyd L. Young remained on a full time Extension appointment until January 1, 1981 at which time his appointment was split three ways: six percent on Station, seven percent on Nebraska For- |

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7. Pearson, Marcia S. Fall 1972. AES Qtrly. Col of Agric, UNL.
11. South Central Station. (Undated, about 1973.) Brochure. CES and AES, Clay Center, UNL.
12. __. (Undated, about 1979). Brochure. CES and AES, IANR, UNL, Clay Center, NE.
ester's office support, and 87 percent on Extension. It will be noted from the above that the Southeast Center staff was considerably later in becoming directly involved in Station work and at present has substantially less such involvement than is the case with the other Research/Extension Centers. The reason is geographical - the Center staff have ready access to the Departmental staff on East Campus.

**Locations on East Campus** (1)

1967-1970  Agricultural Hall  
1971-1984  Animal Husbandry Hall (renamed Miller Hall in 1972)  
1984-present  Miller Hall and Mussehl Hall

**Origin and Development** (1, 2)

On July 1, 1967 Extension, for administrative purposes, reorganized the state from four to five districts. This was the origin of District V (Southeast District), encompassing 23 counties. The boundaries remain the same today. To begin with, the District Staff consisted of Verdon H. Petersen, district extension supervisor, and Ethel H. Saxton, district supervisor (home extension). In 1970 Petersen's title was upgraded to district director (1, 2).

Specialist staff were listed for the first time for the Southeast District in 1971. The initially appointed five specialists covered youth development (urban); farm management; soils; and horticulture.

The Center has utilized the services of a Citizens Advisory Committee since 1973.

**The Unique Role of the Southeast Center**

The Southeast Center is somewhat unique in the IANR organization. Since the principal offices of the Center headquarters are located on the East Campus, it does not have the separate geographical identity that the other four Centers have. However, it serves officially in a role similar to that of the other Centers.

By being located on the Lincoln Campus of the IANR, the Southeast staff have more ready access to the East Campus researchers and Extension specialists within the Departments. Understandably, clientele recognition of the difference between District and State organizations is lower than in the other Districts. This could be considered a disadvantage. On the other hand, the unique location also has obvious advantages such as the staff being able to maintain closer rapport with the Extension staff within the Departments; of being able to confer on a day-to-day basis with researchers and to observe ongoing experiments at Lincoln and Mead; of having ready access to excellent library facilities; and of being able to participate more actively in University programs generally.

**References**

1. NE Coop Ext Service personnel. For the period 1967-1985. IANR, UNL.  
2. Young, Loyd L. Dec 8, 1981. Personal communication. IANR, UNL.

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**Chapter 7. Fort Robinson Beef Cattle Research Station**

**Name**

Thoughout its existence this research facility was known as the Fort Robinson Beef Cattle Research Station.

**Superintendents**

Russell L. Davis  1948-1954  
Robert M. Koch  1954-1957  
James E. Ingalls  1957-1966  
John Rothlisberger, Acting  1966-1967  
R. Dean Humphrey  1967-1972

**Other Staff**

Other staff members who were employed at Fort Robinson during the period 1948 to 1972 were:

Silas C. Eittireim  1955-1968  
Cecil R. Luckett  1966-1967  
Walter W. Rowden  1959-1964  
James N. Wiltbank  1958-1965

In addition there were a number of USDA staff who played a major role in the operations and research programs. These included T. C. Byerly and, subsequently, Ralph E. Hodgson, directors of the Animal Husbandry Research Division, USDA, Beltsville,
Maryland; and those who served as regional coordinators, NC-1 Beef Cattle Breeding Research: Leslie Johnson, Keith E. Gregory, and Larry V. Cundiff. Lavon J. Sumption, of the University staff at Lincoln, also had major involvement in the research program.

Location

Fort Robinson is situated on the White River in northwest Nebraska, with the headquarters being located about four miles northwest of Crawford. The former U.S. Army Post consisted of 21,405 acres of land. Included were the Headquarters Unit consisting of 11,764 acres and the Wood and Timber Unit, consisting of 9,641 acres, the latter being located northwest of the Headquarters Unit and separated from it by the privately owned James ranch (5 and 13).

Early History

Fort Robinson has an interesting history (17). It was established to quell Indian outbreaks which were occurring at the time. The first camp was established alongside the Red Cloud Indian Stockade on the White River on March 8, 1874, being officially designated as Camp Robinson on March 29, 1874. It was named after Lt. Levi H. Robinson whom the Sioux Indians had killed at Cottonwood Creek in Wyoming in February of that year. In the fall of 1874, permanent log buildings were erected at the present headquarters site (4 and 13).

Land was acquired for the reservation by Executive Presidential Orders issued on November 14, 1876, June 28, 1879, and November 4, 1879 respectively (13).

Fort Robinson was most famous in its early history for the fact it was there that Chief Crazy Horse, the Indian hero of the Battle of the Little Big Horn where General Custer made his last stand, was bayoneted to death by a U.S. soldier. Other famous Indian chiefs who were a part of the early history of the reservation were Dull Knife, Red Cloud and Spotted Tail. The history of Dull Knife at Fort Robinson is a particularly sad one because it was there that he and his small band of Cheyennes made their tragic break for freedom(1, 17).

From the end of the Indian campaigns until after the end of WW I, Fort Robinson was garrisoned by the Cavalry and Field Artillery (1). From November 22, 1919 until 1949, it was the nucleus of the Army’s Remount Service.

Meanwhile from May 25, 1928 through October 10, 1931, the Fourth Field Artillery Battalion (Pack) was stationed there (13). The Fort was also the home for two other Army programs during WW II, namely the Dog Reception and Training Center (K-9) established on October 3, 1942, and the 3,000 man Prisoner-of-War-Camp activated on March 15, 1943 (1).

The Fort Robinson Military Reservation was transferred to the Bureau of Animal Industry, USDA, on July 1, 1948. The Fort was cooperatively managed by the U.S. Army and the USDA. When the Army liquidated its remount activities at the Fort in the fall of 1949, the USDA became the sole occupant and manager.

What the USDA received was the 21,405 acres of land with some 175 buildings (13). Included in the Headquarters area were a parade ground and swimming pool. There was also a rather posh officers’ cabin located in the Wood and Timber unit. Also included were 294 horses, which count dropped to 55 by November 1, 1948 (2).

On April 29, 1949, the Bureau of Animal Industry, in cooperation with the University, established the Beef Cattle Research Station at Fort Robinson, with major emphasis on beef cattle breeding investigations. The agreement between the two agencies called for the Bureau to furnish the land, the University to provide the cattle, and the two jointly to furnish scientific staff, labor, supplies and equipment (13).

The research program was a part of NC-1 “Improvement of Beef Cattle Through Breeding Methods”, a cooperative project of the 12 North Central State Experiment Stations, plus Oklahoma State, and the USDA, organized under funds provided by the federal government under the Research and Marketing Act of 1946 (13). Although the scientific interchange and planning by the staff members from the other states was always valuable, Koch (7) has pointed out that the amount of regional research funds going into the project was “... really pretty small”.

In 1947, under the same federal act, 38 states, the Territory of Hawaii, and the USDA organized to initiate a comprehensive beef cattle breeding study to develop methods of improving the efficiency of existing beef breeding stock (13). In the years which followed, this national project was used as the basis for the statement which was commonly made that 38
states were cooperating in the Fort Robinson program.

Initially, the research at the Fort was devoted solely to the genetic improvement of beef cattle, and this remained the central core of the program throughout the life of the Research Station at the Fort. As the years went along, however, some research was also added in nutrition and physiology - principally as these factors are interrelated with breeding experiments.

The Fort Robinson Indian Wars Revisited

Almost from the start of the Beef Cattle Research Station, a controversy developed between the USDA, University of Nebraska, many ranchers, and the park/resort/recreational interests. Also, throughout, there were some purebred cattle breeders who opposed the practice of the Station selling surplus bulls - a mechanism used to make the superior germplasm resulting from research available to the public. Some of the private breeders objected to the sales on the grounds that they constituted unfair competition to private enterprise.

Attempts at joint occupation of the Fort did not alleviate the situation, in fact, with joint occupancy the controversy worsened. Although the battles were mostly of words (there was only a slight amount of physical violence), the running feud was reminiscent of the fighting that took place between the U.S. Army and the Indians during the latter part of the nineteenth century in and near the Fort.

On February 26, 1949, the Omaha World-Herald reported that Dean W. V. Lambert had written U.S. Senator Hugh Butler, asking that in addition to beef cattle breeding, horse breeding research be conducted at Fort Robinson to service “... the hundreds of riding clubs in the U.S.” Lambert also stated that the million dollar veterinary laboratory (located on the premises) could be used for cattle disease research. He apparently received the concurrence of Senator Butler who reported that he, in turn, had the support of Senator Wherry of Nebraska and Senator Murray of Montana in his proposed “amendment” (12).

Marvel L. Baker pointed out, in the early years, support was not universal even among cattle producers. He noted that “A few well-established or ‘reputation breeders’ were afraid that any change posed a threat to them” (24, p 342).

The Alliance (Neb.) Daily Times Herald, Gene Kemper editor and publisher, provided rather complete coverage of Fort Robinson from the inception of the Beef Cattle Research Station until the research operation was closed in 1971. As differences and gradually controversies between the two major interests developed, the newspaper editorially strongly supported the park interests, with not uncommonly acerbic comments on the research operations and interests (6).

In July 1952, the WNUGC1 tabled a previous suggestion that Fort Robinson be utilized as a Junior College of Agriculture (6, July 15, 1952). In December 1952, State Senator Monroe Bixler of Harrison asked the Nebraska Forestry, Fish and Game Commission to consider how it might utilize Fort Robinson (6, Dec 15, 1952). Jack Lowe of the Sidney Telegraph disagreed that Nebraska should add another State Park at Fort Robinson (6, Jan 15, 1953).

According to Baker, Governor Val Peterson (1947-1953) “... played an equivocal role ...” in the matter of transferring the land to the State of Nebraska (24, p 344). Such a transfer was widely and correctly interpreted as favoring park interests.

In January 1953, Senator Monroe Bixler reported “... Gov. Robert Crosby has promised to write Congressman A. L. Miller and lend state support to the latter’s bill that would transfer Fort Robinson’s ownership to the State of Nebraska” (6, Jan 15, 1953). It was reported in the same article that the College of Agriculture consistently opposed the transfer. This was correct, for the College staff recognized the value of the shield of USDA ownership — once the property was in the hands of the State, there were bound to be incursions if not a complete takeover by other than research interests. The Alliance (Neb.) Daily Times Herald maintained that State ownership would not limit the use of the land (6, Jan 24, 1953). State Senator Terry Carpenter was quoted as saying “it was ... an imposition by Chancellor R. G. Gustavson to interfere” (6, Jan 24, 1953). State Senator Arthur Carmody thought that the beef research center constituted the best use that could be made of Fort Robinson (6, Mar 10, 1953).

In time the bill, to transfer the land to the State of Nebraska, was introduced in the U.S. House of Representatives by Congressman Miller (24). Baker’s account of this matter indicates that Senator Hugh Butler opposed the transfer (24, p 344). It was assumed that, with the transfer, pressure could be brought in the State Legislature to dictate use of the property (24, p 343).

In testimony before the Legislature, Harold C. Cook hinted that there might be uranium in the northwestern portion of the state. E. C. Reed and George C. Condra of the University seriously questioned the possibility2. R. G. Gustavson testified “... if uranium should be found ... it would be placed in the hands of the federal government ... and that the program (beef cattle research) might be jeopardized ... if the...
Little bluestem is an important grass at Fort Robinson. In 1969 the Legislature declared little bluestem the official state grass of Nebraska.
pincipal interests, in spite of the controversy which was well underway by the time he was appointed superintendent.

In an editorial appearing on November 18, 1954, The Alliance (Neb.) Daily Times Herald expressed pleasure editorially at the new Chancellor Clifford Hardin's recommendation that the USDA make available to the Nebraska Historical Society, on a long term lease basis, certain facilities at the Fort (6, Nov 18, 1954).

Hardin's 1954 recommendation for joint usage came to fruition on November 2, 1955 when a revocable permit was granted by the USDA to the State of Nebraska Game, Forestation and Parks Commission to develop a recreational site on approximately 77 acres of Fort Robinson grounds. Improvements included barracks, a swimming pool, and tennis courts. The 1955 State Legislature had appropriated $130,644 for the State Historical Society with James C. Olson as secretary (later president of the University of Missouri), and the Game Commission, to remodel buildings for a museum and to develop tourist facilities, respectively (6, Dec 8, 1955). The Fort Robinson Museum, a branch of the Nebraska State Historical Society Museum, was first opened to the public on June 3, 1956 (17). The first day of operation at the Fort for the Game, Parks and Forestation Commission was September 20, 1957 (in time to accommodate the fall hunting season). In addition, the Trailside Museum, a University State Museum branch was dedicated July 3, 1961. All of this indicated that joint usage had been firmly established.

Paul Gilbert, director of the Parks Commission, died while in office. He was succeeded by Melvin Steen who served as Director from July 1, 1956 to April 22, 1970. Both men were much in favor of a park development at Fort Robinson. Also, Steen was not known to shy away from controversy. The conflict which developed with the beef research staff, men who were equally devoted to their work, was perhaps inevitable.

On May 13, 1959, it was written editorially "... the Gustavson regime at the University were determined that nothing but cattle and degreed cowboys with test tubes be allowed on the place ... Before the carnage could be stopped, a hospital building worth at least $200,000 was demolished and a barracks building ... went down too" (6, May 13, 1959). Soon thereafter it was stated editorially "The Nebraska Stock Growers Association ... (passed) a resolution saying all Fort Robinson facilities are being fully utilized" (6, June 22, 1959).

It was stated in an editorial (6, Nov 24, 1959) that at the instigation of T. C. Byerly of the USDA, Melvin Steen was transferring John Kurtz to the new Fort Kearny State Park. Just what happened to the proposed action is not known but Kurtz remained in charge of Park interests at Fort Robinson State Park until September 10, 1968.

On November 9, 1959 the former Officers' Cabin in the Wood Reserve was destroyed by fire of unknown origin. Ingalls had reported earlier that the Cabin had been a fire hazard and was "surplus" to the experimental program. Mel Steen had also said that the Game Commission did not want the Cabin (6, Nov 23, 1959).

Dean W. V. Lambert left the University in 1960 to accept a position with the University of Illinois in India near the Himalayan Mountains. On April 11, 1960 (6) it was editorially stated that Gustavson "wanted no one else around the place" (Fort Robinson), that Lambert "... was the chief architect for carrying out his orders ..." and that Marvel Baker apparently concurred. "... we trust that he (Lambert) will take along any other Gustavson 'thinkers' remaining at the College of Agriculture. The Himalayas are just about the distance they belong from Fort Robinson".

However, the Fort Robinson Beef Cattle Research Station also received favorable publicity. For example, in the Congressional Record of June 21, 1961, Senator Roman L. Hruska spoke favorably of his visit to the Station and included, in the Record, welcoming remarks which had been made by James E. Ingalls, superintendent. No mention was made of other programs underway at the Fort (8).

At a meeting at Fort Robinson in 1962 Forrest Lee, Brownlee rancher and chairman of the Research Committee of the American National Cattlemen's Association, stated: "I wonder if the people who want this station used entirely for recreation realize how much more expensive their steaks would be if there were no research" (6, June 4, 1962).

In March 1962, Gov. Frank Morrison asked the Secretary of the Interior to transfer 77 acres of land at Fort Robinson to the State of Nebraska. This was for the use of the Game Commission which had been operating at the Fort under a 90-day revocable permit. In time a favorable response to the request was carried out.

For a period of time after being appointed associate director of the Station in 1955, the senior author of this book "escaped" getting directly involved in the Fort Robinson controversy. One of the main reasons was "peace" brought about by Chancellor Hardin's 1954 promulgation of the policy of joint usage. For some years thereafter, the controversy consisted principally of skirmishes among the various agencies on location. But Frolik's turn was coming. At a meeting of ranchers and others in Crawford, held on February 16, 1963, Ralph E. Hodgson announced the efforts underway by the USDA, supported fully by the University, to establish a large meat animal research center at the former U.S. Naval Ammunition Depot near Clay Center, providing adequate land could be secured. He was candid in stating that such a move would mean closing the research station at Fort Robinson.

The reaction from the audience was immediate and spirited. Ranching interests, which up to that time had been generally favorable to the Research Station but
often remained mute, came to sudden life. Ranchers who did not wish to lose the Fort Robinson Research Station were very pointed in their criticisms of what they believed was taking place. Hodgson had the advantage of having temporarily lost much of his hearing as a result of having flown from Lincoln to Clay Center, Holdrege and Crawford in a small non-pressurized plane. That left Frolik as the ranking USDA/UN administrator present which cast him in the principal role of rebutting. He received the roughest verbal treatment of any that he ever received at a public meeting — had arrows still been in vogue, they surely would have been sharply pointed and barbed.

Staff members of the animal husbandry department, after 15 years of helping to build and participate in the research program at Fort Robinson, were understandably distressed at the thought of termination. However, the Department staff, after considering the much greater potential for research at Clay Center, including work on swine and sheep as well as on beef cattle, wrote Dean Frolik on February 20, 1963, in full support of establishment of the new center. As Koch has said, “It’s kind of like taking away your apple and then giving you a bushel back” (7, p 12).

On February 18, 1963 (6) it was asked editorially in the Alliance (Nebr. Daily Times Herald: “Why . . . if the USDA has had its eyes on the Hastings site since 1959 . . . has a feed mill costing well over $100,000 been recently added on the rim of the former parade ground . . . and why . . . was a permanent sales ring built on the Fort to run competition with private enterprise and sell station bulls against purebred breeders . . . ?”

Also stated in the same editorial, “If the people of Crawford and all western Nebraska didn’t know before, they learned it firsthand Saturday. Now they no longer must take the opinion of this newspaper, which since 1949 has felt and often said that the USDA has been a selfish neighbor, a terrible housekeeper, a bumbling merchant and an unworthy caretaker of the hallowed ground that is Fort Robinson.”

With USMARC at Clay Center becoming a reality, the first shipment of cattle from Fort Robinson to the new research facility took place in the spring of 1966. Nebraska ranchers continued to express their desire for retaining the Fort Robinson Research Station in spite of the U.S. Meat Animal Research Center at Clay Center (USMARC). They were supported in their efforts to retain a segment of the beef cattle research at the Fort by a number of research personnel in other states. Petitions were also circulated for the retention, but the effort was unsuccessful.

The donnybrook at the Fort continued even after it was well known by all that the research program would be transferred to Clay Center. In August 1965, a small group of high level public officials including, among others, Secretary of Agriculture Orville Free-
man and Governor Frank Morrison, met to "... de-accelerate the 'War at Fort Robinson'..." Senator George Gerdes of Alliance was appointed head of a "Committee of Appeal" to "... settle irritating differences arising from the conflict of beef research... with tourism" (6, Aug 12, 1965).

The Committee of Appeal became the Fort Robinson Advisory Committee with Senator Gerdes continuing as chairman. Other members were: Elvin F. Frolik of the University who served as secretary; H. E. Rodenhiiser and James Thornton of the USDA; Phil C. Sorenson, lieutenant governor; and J. D. Strain, Game, Forestation and Parks Commission (14). The Committee, at the initial meeting on September 11, 1965 (14), recommended that suggestions and complaints involving the Fort be channeled through the Committee. However, in a subsequent meeting on June 1, 1966 (16), the committee stated "it is essential... that all suggestions, problems and/or complaints of all Federal and State employees be directed to the superintendents..."

The Committee considered, among other charges (mostly appearing in the press), that the flagpole had been cut down (actually it was lowered by 10 feet to a remaining height of 80 feet because of damage to the top 10 feet) (15); failure to always fly the U.S. flag seven days a week (denied by the research staff) (15); not cooperating fully in permitting Boy Scouts to participate in flag-raising ceremonies (16); and possible conducting of livestock operations too close to park facilities (14). On a more positive note, the Committee also gave consideration to an orderly transfer of research operations from Fort Robinson to Clay Center (14). Senator Gerdes worked long and hard to "contain" the "second war of Fort Robinson", but he and the rest of the Committee were only partially successful in their efforts.

The last bull sale was held at Fort Robinson on October 29, 1971 (10) and the last of the cattle were moved to USMARC December 28, 1971.

Those involved in the controversy, of over 20 years duration, and now deceased are: Marvel Baker, Russell Davis, George Gerdes, Paul Gilbert, R. G. Gustavson, James Ingalls, Gene Kemper, W. V. Lambert, A. L. Miller, and Melvin Steen. Monroe Bixler is living in Nevada. Robert Koch continues his beef cattle breeding research at USMARC. Retired from their former positions are T. C. Byerly and Ralph Hodgson, USDA; Clifford Hardin, UN; Gov. Frank Morrison and Dean Elvin F. Frolik. John Kurtz now operates his own fishing and recreational facility at Long Pine, Nebraska.

In spite of the prolonged controversy and the many problems, all seems to have turned out well. The USDA now has a far greater meat animal (including hogs and sheep) research facility and programs at Clay Center than would ever have been possible at Fort Robinson. Moving many of the cattle to Clay Center gave the breeding research program close to a 20 year earlier start than would have otherwise been possible. Ranchers in Nebraska have been able to turn to truly typical sandhills research centers with the authorization of the Sandhills Agricultural Laboratory at Tryon by the 1971 Legislature, which in turn has been replaced by the excellent 12,810 acre Gudmundsen Sandhills Laboratory located in Grant, Hooker and Cherry counties. (See Part VI, Chapter 3 for further details).

The dream of a historically rich park/resort/recreational center at Fort Robinson has been realized. The Game and Parks Commission received from the U.S. Government the entire Headquarters Unit and in addition purchased the adjoining James ranch. Thus, the Fort Robinson State Park now consists of close to 22,000 acres. Included are the Fort Robinson Museum, a branch of the State Historical Society; and the Trailside Museum, a UNL State Museum branch. The Fort Robinson brochure for 1985 listed a wide variety of facilities and activities (11).

Research

Relationship to Work at Other Stations

As is true of much agricultural research of modern times, no one program is an island unto itself. Cooperation among workers is maximized through regional and national projects. This was especially true of the Fort Robinson Beef Cattle Research Station because it was basically a cooperative interstate, USDA venture. Also the research was supported by the federal Research and Marketing Act which, by definition, involves more than one State. Finally, the fact that Fort Robinson research was closed down and the work moved to USMARC at Clay Center resulted in an overlap of the research programs at the two research operations. Thus, the research programs discussed in this chapter are not based exclusively on work done at Fort Robinson.

Objectives

Koch (18) outlined the research program at Fort Robinson as:

1) Studies on heredity of beef cattle to aid in the development of the most effective breeding practices for improving carcass quality and productive efficiency.

2) Research on reproductive problems to find ways of increasing calf crop.

3) Nutrition-management studies on wintering, summer grazing and fattening phases of beef production.

Selection and employment of breeding regimens which utilize hybrid vigor were the two main avenues...
of approach on carrying out 1) above. The objective in 2) was to increase the percentage of cows that wean calves with an additional objective of trying to get cows bred so that a high percentage of the calves would be dropped at the optimum time, during the first three weeks of the calving season. Emphasis in 3) was on level and type of protein supplements for calves wintering on native range. Effects of hormone implants on production were studied along with evaluation of effects on carcass quality. Studies were also conducted on the level of dried beet pulp that can be used in fattening rations.

As a part of a broad project carried out by the Animal Science Department, cattle at Fort Robinson were also utilized in studying dwarfism and hydrocephalus.

Research Findings

Selection. Results (19, p 1, 2) reported for this phase of research covered the period 1960 to 1978, with all of the cattle having been transferred to Clay Center by December 1971. The foundation Hereford cows came from 14 different herds and were the progeny of 130 different bulls. There were three lines maintained, consisting of approximately 150 cows and 6 sires for any given year. A control line (unselected) was established after all of the cattle had been moved to Clay Center.

The results were summarized as follows (19, p 2): "The evidence from this experiment indicates selection is effective in making slow (one-half to three-fourths percent per year) but steady changes in growth traits. Growth measured at birth and during the postweaning period was more highly heritable than growth from birth to weaning. Growth in one period was positively genetically correlated with growth in other periods. The genetic increase in growth rate was associated with increased calving difficulty and with increased efficiency of gain."

Heterosis. The heterosis experiment was started in 1957 with the breeds utilized being Herefords, Angus, and Shorthorns. The work was completed at Clay Center in 1976. Conclusions drawn from the research were as follows (19, p 5): "Results... indicate that heterosis can increase weight of calf weaned per cow in the breeding herd by 23 percent. More than half of this advantage depends on use of crossbred cows. Compared to straight-breeding, rotational systems of cross-breeding sustain high levels of heterosis from one generation to the next. Greater heterosis is maintained by a three-breed rotation than by a two-breed rotation. The increase in heterosis observed for the three-breed rotation compared to the two-breed rotation is proportional to differences in expected heterozygosity relative to F1 crosses."

Increasing the percentage calf crop. Wiltbank, et al (22), found that low energy intake by Hereford cows, ranging in age from 5 to 11 years prior to calving, resulted in a delay of estrus and a decreased conception rate. In subsequent experiments (23), with two-year old Angus and Hereford heifers nursing their first calves, it was found that both pre-calving and post-calving low energy intake lowered the pregnancy rate.

Nutrition/Management (20). The conclusions reached from studies of protein supplements were:

a) The protein supplied by one pound per head daily of a 10% protein supplement does not meet the protein needs of calves on winter range in northwest Nebraska.

b) Two pounds daily per head of a 20 percent protein supplement, one pound of 40 percent protein supplement, and four pounds of alfalfa were equally effective.

c) Cost is the major factor in selecting a protein supplement.

d) Relatively large winter gains were followed by somewhat reduced summer gains. Therefore, it is desirable to consider total gains (winter and summer) in selecting the method of wintering calves.

Hormone implants with stilbestrol, and with progesterone and estradiol benzoate, increased gains significantly. These implants were effective during either the grazing or feedlot periods. One implant in either the grazing or the feedlot phase seemed to be as satisfactory as an implant in both phases. Non-implanted steers required 10 days longer to reach choice slaughter grade, but did have a higher carcass grade than the implanted steers. Differences in feed requirements were not statistically significant. Degree of marbling was significantly higher in non-implanted steers than those which were implanted.

References
1. Ft. Robinson, Nebraska. (Mimeo)
6. The Alliance (Nebr.) Daily Times Herald.
Chapter 8. The Roman L. Hruska U.S. Meat Animal Research Center (RLHUSMARC)\(^1\)

Contents

Names of the Center .................................................. 341
Administrators ................................................................ 341
Staff ............................................................................. 341
Land and Improvements .................................................. 341
Land .............................................................................. 341
Improvements ................................................................. 341
How It Came About ....................................................... 341
The NAD at Hastings ..................................................... 342
Cancellation of Early Plans of the USDA ......................... 342
Clay County Wants Land Returned to Farmers ............... 342
The USDA Plans are Reinstated ..................................... 342
Clay County Comes to the Support of the Proposed Center ................................................................. 343
Congressional Support - Establishment of the Center ..... 344
The Center Becomes Operational ................................... 345
Financial Support ............................................................ 345
Research ....................................................................... 345
Agricultural engineering ............................................... 345
Animal health ................................................................ 346
Genetics and breeding ................................................. 346
Meats .......................................................................... 346
Nutrition ....................................................................... 346
Production systems ..................................................... 346
Reproduction ................................................................ 346
Postdoctoral and Other Visiting Scientists ....................... 346
Reactions of the Clientele ............................................. 346
Staff Recognition .......................................................... 346
The UN South Central Research & Extension Center ..... 346
References .................................................................... 347

Names of the Center
U.S. Meat Animal Research Center (USMARC)\(^2\) 1964 - 10/78 (17)
Roman L. Hruska U.S. Meat Animal Research Center (RLHUSMARC) 10/78 - present

Administrators
Keith E. Gregory, Director 1966 - 1977
Robert R. Oltjen, Director 1977 - present

Staff
Presently, the staff consists of 35 scientists, all located at the RLHUSMARC, except for Gordon E. Dickerson who is headquartered in the Department of Animal Science at Lincoln. Robert M. Koch is the only scientist paid by the University who is stationed at the Center — all other scientists are employed by the USDA, ARS. Including the scientists, there are approximately 260 employees at the Center.

Land and Improvements

Land (1, 19).

<table>
<thead>
<tr>
<th>When Acquired</th>
<th>No. of Acres</th>
<th>How Acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 10, 1964</td>
<td>10,236</td>
<td>Transferred from GSA to USDA, ARS</td>
</tr>
<tr>
<td>Aug 16, 1966</td>
<td>ca 25,000</td>
<td>Transferred from GSA to USDA, ARS</td>
</tr>
</tbody>
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Improvements

There were various buildings and other improvements on the land when acquired, most of which were of little value with respect to the planned research programs. There were approximately 800 igloos\(^3\) located across approximately 25,000 acres of land which

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\(^1\)The authors gratefully acknowledge the assistance of Robert M. Koch and Robert R. Oltjen in providing material for this chapter.

\(^2\)Basically this is a federal facility. All of the land and improvements used for meat animal research are owned by the USDA/ARS, which administers the Center. There is, however, very close liaison and cooperation with the University.

\(^3\)The igloos are concrete structures built by the Naval Ammunition Depot (NAD) for storing ammunition. They were spaced far enough apart so that in case of an accidental explosion in one igloo, the others would not have been affected. Although a small number of the igloos, in strategic areas, have been removed, the cost of removal generally, for land to be used for agricultural purposes, is prohibitive.

341
meant that land so occupied could be used only for grazing.

Improvements which have been added are:

Office laboratory building and animal laboratory building for intensive investigations - completed in January 1971.
Abattoir, meat research facility and livestock engineering research facilities, completed in the fall of 1977.
Experimental feedlots for 6,500 cattle and 2,500 sheep.
Necessary animal and service buildings.
Irrigation facilities on 5,000 acres of land.
Establishment of 30,000 acres of perennial grasses, divided into 200 pastures, with necessary fencing and watering facilities.

How It Came About

The NAD at Hastings

Like the Research and Development Center at Mead, the Meat Animal Research Center (MARC) at Clay Center owes its existence to WW II. As was the case with the Mead facility, MARC came into existence only after considerable opposition and turmoil - in fact, at one point, only days separated holding of 10,236 acres of land from transfer by the Defense Department to the General Services Administration (GSA) for sale to private buyers.

The story goes back to WW II when the Hastings Naval Ammunition Depot (NAD) was established. It encompassed 48,752 acres in a contiguous triangular shaped area, with 6,000 acres in Adams County and the remainder in Clay County (8). The headquarters area was established on Adams County land close to Hastings. From the start, Clay County residents felt that they had not been treated fairly in the establishment of the NAD. They felt Hastings reaped most of the benefits and Clay Center, along with the rest of Clay County, had made the big sacrifice with respect to number of farms acquired and land removed from taxation.

In 1959, the Department of Defense announced that it was closing the NAD at Hastings (1).

Cancellation of Early Plans of the USDA

The first interest in acquiring land from the Naval Ammunition Depot at Hastings by the U.S. Department of Agriculture/Agriculture Research Service (USDA/ARS) appears to have come from a number of Divisions, other than the Animal Husbandry Research Division. The first interest was expressed by the Division of Engineering. For lack of funds, among other reasons, no requests or plans were submitted. About this time Byron Shaw, administrator of the ARS, asked the Divisions for their recommendations on the need for new facilities for future research and to propose how new and existing facilities could be used to consolidate staff into centers of excellence for interdisciplinary research. Responding to this request, Ralph E. Hodgson, director of the Animal Research Division, and his staff developed plans to establish a major meat animal research center on the NAD (16).

In 1962, Pender Jennings, commanding officer of NAD, was quoted as saying "...the USDA had planned a livestock research station on the site, but... the plan fell through because they did not have the operating funds" (3). Frolik also noted on November 10, 1962 that the USDA had abandoned plans for a proposed national research laboratory on the Depot (4). In the same news story, Frolik was quoted as saying that only 15 days remained for eligible public bodies to request the land. On November 15, the South Platte United Chambers of Commerce was quoted as passing a resolution to establish an experiment station at the Depot (5).

Frolik was almost desperate in his attempt to salvage something from the NAD for agricultural research. In an informal session he urged the Board of Regents to apply for a limited amount of the NAD land since the USDA had canceled plans for an operation there. He proposed that a tract of NAD land be requested by the University for forestry, crops, soils, and irrigation studies. The response from the Board was that this would not be appropriate nor fiscally possible (to pay for improvements and operations) since the University had so recently undertaken the very major operation at Mead. They urged Frolik instead to push for reinstatement of the USDA research center on the NAD land.

Clay County Wants Land Returned to Farmers

Meanwhile the citizens in Clay County were actively involved in a campaign to get the NAD land restored to private farming interests, starting with the 10,236 acres already planned for private sale. Roy M. King, publisher of five newspapers in Clay County, strongly supported such action (2). A group of Clay County citizens retained John E. Sullivan, attorney at Clay Center, to represent them in their efforts. A petition "...signed by practically 100 percent of the citizens of the county..." which called for selling the land at public auction was transmitted to the Nebraska Congressional delegation in Washington (7).

The USDA Plans Are Reinstated

On November 11 to 13, 1962, Clifford M. Hardin, Elvin F. Frolik, and George S. Round were attending the National Association of State Universities and Land Grant Colleges annual meetings in Washington, D.C. It appeared that the possibility of getting NAD land for an agricultural research center was "hanging by a thread"; and only days remained to reverse the proposed action of disposal. Frolik and Round called on Theodore C. Byerly, administrator of the Cooperative States Research Service, who encouraged efforts to
reverse the disposal plan, and on Byron Shaw, administrator of ARS, who was noncommittal. Evening sessions were held with Hardin to plan strategy. Frolik and Round returned to Lincoln on the evening of November 14 in order to attend the annual Cooperative Extension Conference. The following evening George A. Woolsey, county extension agent, informed Frolik that the Clay County USDA/ASCS Committee was preparing crop acreage bases for the various tracts on the 10,256 acres of land in preparation for the forthcoming auction sale. It also appeared that Woolsey stood almost alone in Clay County in support of establishing an agricultural research center at the NAD—a position which most people in Woolsey’s position would not have had the fortitude to take.

During the latter part of that same week, University administrators conferred with Governor Frank Morrison and convinced him that an effort should be made at the Washington level to “get the USDA plan” back on track.

Accordingly, arrangements were made for the Governor, Carl Donaldson, and Elvin Frolik to leave Lincoln on Sunday, November 18, in the Governor’s plane to attempt to effect the reversal. Overnighting in Ohio, the group arrived in Washington early on Monday morning, November 19. The Governor called on President Kennedy at the Oval Office, followed by the three Nebraskans holding a conference with Under Secretary of Agriculture Charles Murphy (Secretary Orville Freeman was out of the city), with Byron Shaw also present.

The Nebraskans presented their case, requesting that the earlier USDA plan to establish a meat animal research center at Clay Center be reinstated. Byron Shaw, somewhat to Frolik’s pleasant surprise, fully supported the request.

The turning point in the conference came when Frolik advised the Under Secretary that the Clay County ASCS Committee was establishing crop bases on the land to be sold in anticipation of the buyers participating in crop reduction and price support Government programs. Murphy thereupon hit his fist on his desk and said: “(expletive), we’re not going to sell that land only to later pay out all of the returns to the buyers for participating in USDA crop support programs.” Within minutes he telephoned the appropriate Government agency, telling them to put a “hold” on sale of the land until USDA had had an opportunity to re-study the situation, possibly pursuing their earlier plan of establishing the research facility. This call stopped plans for the sale.

Of course much still remained to be done to make the Center a reality. Future necessary actions included getting a favorable response from the Clay County citizens, obtaining Congressional approval of transfer of the land to USDA, and obtaining Congressional appropriations for construction and operations.

**Clay County Comes to the Support of the Proposed Center**

On February 14, 1963, Ralph E. Hodgson and Ned R. Ellis of the USDA/ARS, Animal Research Division (ARD) conferred with Ag College administrators at Lincoln, outlining their proposal for establishing a meat animal research center at Clay Center. There had obviously been a good deal of “home work” done at the USDA Beltsville Agricultural Research Center, as Hodgson and Ellis came with a rather detailed plan, including drawings for the headquarters building. This came as a pleasant surprise to the University as it had not been known that plans were that far advanced.

USDA/ARS had the concept of expanding its research on meat animal production and of consolidating some of its outlying projects at Clay Center, and, through a multidisciplinary approach, to create a Center of excellence in research on numerous phases of meat animal production. The program at the Center would be developed in the closest possible association with the Nebraska Agricultural Experiment Station and as funds permitted, extending complementary research projects at other state cooperating experiment stations. The program plan also included provisions for scientists from the Center to engage in research at other locations and scientists from other locations, including foreign, to engage in research and training at the Center.

It was at the above session that Frolik first requested that a section of land be assigned by USDA/ARS to the University for agronomic, forestry, and vegetable research. Obviously, the USDA representatives could not make a firm promise, but they were most encouraging in support of the idea.

A meeting to present the proposed plan of USDA to establish a research center was arranged through John E. Sullivan and held at Clay Center on February 15, 1963. Immediately prior to the main session, the local citizens had met to plan their strategy for opposing the USDA plan. The aftermath of this preliminary session became evident at the main session when some spirited presentations were made from the floor in opposition to the proposal, including those made by two clergymen.

Sullivan presided at the meeting. Governor Morrison spoke first, supporting the plan, but making it clear that the decision was up to the local people. He said, “You are called here to get the facts and arrive at a conclusion.” Ralph E. Hodgson then presented a detailed plan for a proposed meat animal research center at the NAD. He said the center would consti-

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4Confirmed in the November 8, 1962 issue of the *Clay County Survey* with the following statement: “Kenneth Watts of Kansas City, MO . . . leaving instruction with ASC of Clay County to prepare the bases for the 10,000 acres in order to comply with regulations as to what may be cropped on the land next year.”

5This was a continuation of Frolik’s effort the previous fall to get the Board of Regents to apply for some of the NAD land when the USDA possibility appeared to be gone.
stitute a major segment of ARS meat animal research, with 4,000 to 5,000 beef cattle, 3,000 to 4,000 hogs, and 8,000 to 10,000 sheep. He said the project, as planned, would require the employment of at least 50 scientists and 100 to 150 support personnel, with an annual payroll of $2 to $2.5 million. He said the facilities would cost not less than $4 million.

He also stated that the NAD offered an ideal location for the project and that ultimately 35,000 acres of land would be needed. He explained that the ARS would not be interested in the NAD headquarters buildings near Hastings but would construct new quarters approximately four miles west of Clay Center. Hodgson also stated that ARS research centers are not established in an area if the local people are opposed, nor would they establish the Center without the support of the University.

Frokik spoke strongly in favor of the proposal and assured the University's support and cooperation.

During the meeting, Roy M. King, publisher of five King newspapers, who had strongly opposed the research center, said, "I believe we better think this thing over. We have learned much here today that we did not know before. This research station might be a mighty good thing for Clay County. Let's go home and think about it before we make a decision."

Things fell into place rapidly following the Clay Center meeting. On March 11, 1963, the ARS issued a 10 page report, confirming and elaborating on the oral presentation which Hodgson had made at the February 15 meeting.

On March 19, 1963, Robert M. Koch, chairman of the Department of Animal Husbandry, visited Clay County in the interest of the proposed Center. Sullivan reported to him that "... the attitude of a large part of the county citizenship had materially changed following the Clay Center protest meeting."

Koch sought out opponents to clarify the proposal and to explain what the Center would mean to Clay County and livestock producers generally. It was reported that "the hard core of opposition remains in immediate areas of Fairfield and Glenvil." Koch did much to allay the feelings of many of those who had been opposed.

King conducted an aggressive campaign through his newspapers in support of establishing the center. Along with a great deal of other supportive copy in his five newspapers, he put out an "extra edition" of the *Clay County Sun* dated April 2, 1963, entitled "Special Experiment Farm Edition", which was devoted entirely to the proposal. He gave prominence to a resolution, passed by the South Platte United Chambers of Commerce on March 19, 1963, and sent to him by Warren H. Curry of Holbrook, president, and Fred K. Evans of Arapahoe, secretary, showing the group strongly endorsing the establishment of the research center. King noted that the Clay County Board of Supervisors would be favorable. Other Clay County citizens were also speaking out in favor of the Center.

A meeting was held in Clay Center on the evening of April 5, 1963 to ascertain the feeling of Clay County residents toward the research center. John E. Sullivan presided. Present to answer questions were Hodgson, Frolik, Koch, and Norman Otto, gubernatorial assistant. After considerable discussion, a written ballot was taken. The outcome was 182 for and 90 against. The favorable vote for the Center was hailed by the *Harvard Courier*, a King newspaper, as "... the most heartening news Clay County will get this year." (13).

**Congressional Support - Establishment of the Center**

With the outcome of the vote, the last barrier within the State to establish a Center had been removed. The next move had to come from Washington. U.S. Senators Roman L. Hruska and Carl T. Curtis, and Congressman David Martin, representing the Third District, were all highly favorable. Senator Hruska took an aggressive lead in promoting the Center, and for the next several years Frolik and others worked hand in hand with him in expediting support for the program. Congressional approval was required in authorizing establishment of the Center, in getting the land transferred and, of course, in annually providing the necessary appropriations.

In a release dated June 16, 1964, Secretary of Agriculture Orville L. Freeman announced the establishment of the U.S. Meat Animal Research Center at Clay Center, Nebraska. On September 10, 1964, the GSA transferred the first block of land (approximately 10,236 acres) to the USDA. (1)

At this point there remained one island of opposition, that being voiced by some of the directors of agricultural experiment stations in other states. They could foresee the future federal expenditure of fairly large sums of money in Nebraska, which they thought could be more equitably distributed among a larger number of states. On October 12, 1963, Frolik wrote to Associate Director G. M. Browning of Iowa State (North Central Regional Director for agricultural experiment stations and a friend in court) as follows: "We appear to have reasonably good support everywhere, the one exception being that we are told there is opposition among some of the Directors. It would indeed seem paradoxical if Directors of Agricultural Experiment Stations were responsible for killing a fine agricultural development as the one in question. How-

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1On April 2, 1963, the Board voted unanimously in favor of the Center (14).

2On April 9, 1963, the board voted unanimously in favor of the Center (14).

3In a letter dated April 9, 1963, to the Nebraska U.S. Senators and Congressman David Martin, Frolik quoted Sullivan and other leading Clay County citizens as being confident that the percentage of people in favor was much higher than the vote indicated. They were of the opinion that, in general, the objectors come to such a meeting whereas many of the supporters do not.
ever, reports we have from Washington would indicate that this could be the case.” Fortunately, the opposition proved to be unsuccessful.

The first shipment of beef cattle from Fort Robinson to the new Center was in April of 1966. In October 1965 announcement came from Washington that the Congressional conference had agreed to an initial appropriation of $500,000 for the Center (the Administration had requested $600,000, and the House had voted $100,000). Of the total, $200,000 was to be used for immediate improvements and $300,000 for developing plans for the Center (15).

The remainder of the approximately 35,000 acres of Center land was transferred by GSA to the USDA on August 16, 1966 (1).

**The Center Becomes Operational**

Keith E. Gregory, who at the time was holding the ARS position of Regional Coordinator of North Central Project-I, “Improvement of beef cattle through breeding methods”, with headquarters at the University in Lincoln, was appointed director of the new Center in 1966 (1). The task ahead was enormous and Gregory proved to be equal to the challenge. He held fast to his principles and insisted that all staff and other employees contribute their utmost in making the Center a success. Probably no other scientist could have provided more effective leadership.

Headquarters for the Center was first located at the NAD administrative headquarters near Hastings, later moved to the old cafeteria in the bomb and mine load line area near Glenvil in the fall of 1966, and finally to the new MARC headquarters building in January 1971*. The last of the cattle were transferred from Fort Robinson to the Center in December 1971. Other developments consisted of establishing 30,000 acres of permanent pastures, building 300 miles of fence, providing necessary watering facilities for 200 pastures, and constructing experimental feedlots for 6,500 cattle and 2,500 sheep. Irrigation was developed on 5,000 acres primarily for silage and hay production. Twenty animal and six service buildings were constructed by 1974. These buildings included facilities for implementation of the swine research program and for more intensive beef cattle and sheep investigations (19).

Construction and development of research programs were planned on a four-phase basis**:

- **Phase I. Office-laboratory and animal laboratory building for intensive investigations, accommodating 42 scientists and 175 support personnel. Construction completed January 1971.**
- **Phase II. Meats research laboratory and agricultural engineering building. Physical plant to accommodate 25 scientists and 60 support personnel. Construction completed October 1977.**
- **Phase III. Research facility to house 10 animal health oriented scientists and support staff, plus a veterinary service/training facility to provide clinical care of the MARC animal population and blocks of training for senior veterinary students. Scheduled to be completed in May 1989 (19).**
- **Phase IV. Facilities for a comprehensive research program of producing, harvesting, handling, storing and utilizing forages in livestock production systems which will require 35 additional scientists and 65 support personnel. Presently in preliminary planning stages (19).**

On October 10, 1978, President Carter signed into law a bill renaming the U. S. Meat Animal Research Center the “Roman L. Hruska U.S. Meat Animal Research Center.” The purpose of the bill was to honor the Senator for “... his efforts in the establishment of a centralized federal facility for the research, development, and study of meat animal production in the United States” (17).

**The Program**

**Financial Support**

The Center obtains its financial support for operations from two principal sources: Federal funds through the USDA, ARS, presently at the level of $7.7 million annually; and approximately $3.3 million annually from the sale of animals and animal products produced by the Center. The latter funds come through the University — the University owns all the livestock under a “trust” agreement with ARS. If the livestock were owned by the Government, income generated from product sales would revert to the U.S. Treasury.

**Research**

About one-half of the research program is devoted to beef cattle, one fourth to sheep, and one-fourth to swine (17). The total inventory of animals is in the neighborhood of 25,000. There are approximately 7,000 cows, 500 bulls, 4,000 ewes, 400 stud rams, and 700 sows and gilts farrowing 550 litters annually (20). Principal research areas consist of agricultural engineering, animal health systems, genetics and breeding, meats, nutrition, production systems, and reproduction.

**Agricultural engineering.** The purpose of this unit is “... to evaluate the need for livestock facilities, to develop facilities and equipment to improve meat production efficiency and to manage agricultural residues efficiently” (17). Accomplishments to date include development of a kinetic model for increasing methane production from livestock wastes and crop resi-

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*The building had been dedicated on June 3, 1969 but was not completed until January 1971 (1). An estimated 550 persons were present at the dedication ceremonies including speakers Secretary of Agriculture Clifford M. Hardin, Governor Norbert T. Tiemann, and Representative Dave Martin (6).

**The original plan called for only three phases. Phase III was incorporated into the plans in 1986, with the original Phase III being renumbered Phase IV.**
dues; demonstration that fermentor effluent can completely replace soybean meal in cattle and sheep rations; demonstration of inhibitory effects of certain antibiotics on the fermentation process; the adaptation of anaerobic microorganisms to these antibiotics; and development of methods of optimizing the anaerobic fermentation systems (19).

**Animal health.** Research focuses on developing integrated programs for control of diseases and parasites which cause losses in cattle, swine, and sheep. Initial areas of research are concentrating on epidemiologic evaluations of reproductive failure; respiratory disease; gastrointestinal parasitization; and mastitis; and genetic interactions relating to disease resistance (19).

**Genetics and breeding.** Studies at the Center “... have demonstrated that variation in biological traits important for efficient meat production is significant and under a high degree of genetic control. Significant genetic change can result from selection among breeds, selection within breeds, and use of crossbreeding to exploit heterosis ... it is important to employ crossbreeding systems that exploit heterosis and genetic differences among breeds. Once between breed variation has been exploited and the optimum crossbreeding system is in place, continued genetic improvement depends on continued intra-population selection for components of production efficiency” (19).

**Nutrition.** Working with ruminants, this unit “… has provided more complete knowledge of metabolic pathways and nutrient partitioning related to more efficient lean meat production ... new information on placental transfer of nutrients in cattle and sheep ... that dietary fiber can be utilized by growing-finish- ing and gestating swine as an energy source ...” The effect of degree of body fatness on various body functions and the importance of nutrition during pregnancy have been quantified in swine (19).

**Meats.** “The objectives of the unit are to improve efficiency of production, product quality, and product wholesomeness of red meat.” Work has been done on bulls as opposed to castrated males. The research is basic, involving study of hormones and enzymes.

**Production systems.** “This program develops an understanding for maximizing resource conversion rate for a wide range of production resource situations by developing trade-off information so the livestock manager can make better decisions” (17).

**Reproduction.** Principal areas of study and findings in this unit, since its inception in 1971, have been: swine pubertal development; sexual behavioral development of male pigs; ovarian function in beef cattle; neuroendocrine function of beef cattle and sheep; effective programs for out-of-season mating of sheep; postpartum (after birth) reproduction of beef cattle and swine as well as developing a more complete understanding of Leydig cell and testicular function; sexual behavior development in the bull, ram, and boar; twinning in beef cattle; male and female gamete (mature germ cell) production; and maternal influences on embryo/fetal development” (19).

With respect to the future, Oltjen states that in accordance with USDA policy, research will become increasingly basic. There will be increased emphasis on developing genetic resistance to disease, embryo manipulation and cloning, improving protein synthesis and conversion to meat, and finding unique ways to increase muscle mass (19).

**Postdoctoral and Other Visiting Scientists (19)**

MARC is interested in expanding its cooperative research efforts and has available a postdoctoral research program. Financial support is provided by the Center, and the length of stay ranges from one to two years. A visiting scientist program, both domestic and foreign, is handled on a case by case basis. Normally the Center provides partial support for the scientists, and the sponsoring institution shares in their support. Usually there are 10 to 15 postdoctoral and other visiting scientists at the Center, often one-third from foreign countries.

**Reactions of the Clientele**

Some of the reactions to the research underway at the Center are: 1) Ron Kahle of Nebraska, director and executive board member of the National Pork Producers Council, speaks highly of the work on swine reproduction, nutrition, and fat and muscle development; 2) Percy Turner, chairman of the Sheep Industry Development Program states that MARC is “right on track” with research on carcass evaluation and composition; and, 3) Don Williams, chairman of the Research and Education Committee of the National Cattlemen’s Association, believes that MARC has made valuable contributions through germplasm evaluation studies but he has some concerns about how the Center and researchers in general are addressing some of the immediate problems cattle producers face (20). About 5,000 persons visit the Center annually (20).

**Staff Recognition**

Staff members who have served as presidents of the American Society of Animal Science:

Wilson G. Pond 1980-81
Robert R. Oltjen 1982-83

**The UN South Central Research and Extension Center (UNSCREC)**

The UNSCREC is headquartered in a building constructed by the University on the MARC grounds. The building is connected by an enclosed catwalk with the main MARC office and laboratory building. In addition, the University has assigned to it one section of
land, as needed, which is devoted to crops, soils, irrigation and related research. The symbiotic relationship of the two public agencies at MARC maximizes the benefits of both to agriculture. Neither could be as effective without the presence of the other.

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8. Terrill, Dean. Feb 1963. Center size stills attackers. Lincoln Journal, NE.
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Chapter 9. The Valentine Substation

Contents

<table>
<thead>
<tr>
<th>Name of the Station</th>
<th>Beef Cattle</th>
<th>Subirrigated Meadows</th>
<th>Native Grassland Research</th>
<th>Public Service</th>
<th>The End of the Valentine Substation</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Other Staff</td>
<td>...</td>
<td>...</td>
<td>...</td>
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<td>Name of the Station</td>
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<tr>
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<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Dairy and Dual-Purpose Cattle</td>
<td>...</td>
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<td>...</td>
<td>...</td>
<td>...</td>
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Administrators (1, p 4)

Name of the Station

The Valentine Substation had that name throughout its existence from 1909 to November 30, 1951.

Although Brouse and Baker (1) published a bulletin in 1963 entitled “The Valentine Experiment Station”, it does not appear that the Valentine Substation ever actually carried that title. Brouse was listed in May 1951 as Superintendent of the Valentine Substation (2, May 1951, p 146).

The Kinkaiders Come and Depart

The Nebraska Legislature on March 20, 1909 passed HR 114, providing for the establishment of an experimental substation to be located west of the second guide meridian and north of the sixth standard parallel, (sometimes referred to as the sandhills station) in the State of Nebraska, along with an initial appropriation of $15,000 (2, Feb 1, 1910, pp xxii to xxiv). The War Department, through an act of Congress, granted the Regents an easement in the form of a perpetual lease on a tract of 1,093.52 acres of land located east of Valentine in Cherry County “...so long as it should be used for experimental purposes.” The town of Valentine donated 40 acres of land ad-
joining the above tract to the University for construction of permanent improvements. Preliminary operations were started with James Cowan being elected the first superintendent, effective March 1, 1910. He was succeeded by E. M. Brouse in 1919 (2, Feb 1, 1912, pp xxx and xxxi). In 1914 (11, p 159), the federal land (which meantime had been transferred from the Department of War to the Department of Interior), was tendered to the Board of Regents and purchased by them at the nominal price of $1.25 per acre (11, p 159). 

Certainly a strong contributing factor to establishment of an agricultural substation was the plowing of soil in the above designated portion of the state, resulting from the passage of the Kinkaid Act of 1904 (1, p 4). The Act of 1904 provided for “homesteading” 640 acres of land in the sandhills of Nebraska. The attempts at crop production in the sandhills resulted in many problems, the solution of which was thought could be attained, at least in part, through research.

It was stated in 1912 (2, Feb 1, 1913, p xvii): “The Substation was established for the purpose of determining the suitability of the sandhill country for general farming.”

In the early years of the Substation, attention was given to experimentation on grain and forage crops, grasses, vegetables, fruit crops, tree plantings, and dairying (1, p 7). Brouse (1, p 8) reported that by the time he became superintendent of the Substation, in 1919, there were relatively few Kinkaiders left in the area. He added that the work of the Station gradually shifted to projects of interest to ranchers.

Areas of Research

Cultivated crop production was generally not successful at the Valentine Substation. This was well expressed in the Station report for 1927 (2, Feb 1, 1928, p 36) that read: “As is generally recognized, the soils of the station farm are not well adapted to the production of crops.” Some work at that time was done cooperatively with farmers on the harder land north of the Substation, and this type of cooperation continued to be carried on until near the time the Substation was closed.

In spite of the above limitations, some work on cultivated crops was conducted at the Substation. In 1948, the last year in which it is possible to identify accurately from the annual Station reports the work done at the various outlying Substations, there was still work being done at Valentine on oat and barley varieties, corn hybrids and varieties, small fruits and strawberries (2, May 1949, pp 117-118).

The principal research by the Substation staff during the last 27 years of its existence was on range, sub-irrigated meadows, and cattle (dairy, dual-purpose and beef breeds), along with very limited work on turkeys and swine.

Dairy and Dual-Purpose Cattle

In 1925 Milking Shorthorns were added to the Holstein herd, which had been established earlier, to compare the cost of milk and fat production of the two breeds. The Holsteins proved superior to the Shorthorns. Following dispersion of the Holstein herd in 1935, the USDA transferred a Milking Red Polled herd to the Substation and additionally a Milking Shorthorn herd in 1936. There was little difference in the performance of these latter two breeds. Experimental breeding programs resulted in improved fleshing ability at the expense of milk production. In 1948 the Milking Shorthorn herd was transferred to the Department of Animal Husbandry at Lincoln (1, pp 19-21).

Beef Cattle

The principal work on beef cattle had to do with the feeding of protein supplements in wintering calves on prairie hay (1, pp 21-24). Considerable work was also done cooperatively with the Department of Animal Pathology at Lincoln on Bovine Hyperkeratosis (X-disease), (1, pp 24-25).

Subirrigated Meadows

Significant results were obtained from studies on subirrigated meadows. Detailed determinations were made on the relationship of the depth of the water table to the type of vegetation. It was found that the types of clovers which had the highest yields were determined by the depth of the water table. It was also shown that application of phosphorous greatly stimulates the growth of clovers and, thereby, both the yield and protein content of the hay. In later years the research was carried on cooperatively with the Soil Conservation Service in five sandhill counties, with the application of nitrogen and phosphorus fertilizers singly and in combination. Varying results were secured (1).

Native Grassland Research

The Valentine Substation also provided a base for studies by University agronomists from Lincoln on the native grasslands, including grazing studies. These studies were made on ranches in a number of counties in that general area. Much credit is due to E. M. “Merle” Brouse for his “opening doors” of the ranches for the agronomists and for his all-around support and encouragement. An interesting observation is that George W. Beadle, who ultimately received the Noble Prize, was a joint author of a publication on research done in that area. The publication was “Keim, F. D., A. L. Frolik, and G. W. Beadle, 1932. Studies of prairie hay in North Central Nebraska, NE AES Res. Bul. 60.” In all probabilities this was Beadle’s first scientific publication.
Public Service

Brouse was a good and faithful servant of the University. Throughout his tenure of 32 years as superintendent of the Substation and during much of that time as the only staff member, he maintained a positive attitude, did the best with what resources he had, cooperated with the Station scientists located at Lincoln, and maintained good relationships with people living in the sandhills. Since there was no regular county extension agent in Cherry County until the start of the federal AAA program of 1933, he devoted considerable time to extension activities and, in fact, served as county extension agent during WW I (1, p 5).

The staff spouses helped, also, in any way they could to make the Substation operation a success. Mrs. Louise Hall of Bassett, widow of the late Louis L. Hall who was at one time a staff member, recalls that the annual field days included a free meal paid for in part by the Valentine Chamber of Commerce. Mrs. Hall would put up pickles and sauerkraut for the event (3).

The End of the Valentine Substation

In 1951, the 62nd session of the State Legislature passed LB 528 which directed the Board of Regents to "... terminate and close the Experimental Substation operated at Valentine, NE, and to convey to the State of NE all rights, title and interest which the Board has in the property..." (4). This action did not come as a shock or even a surprise because the University had requested the closure (5). When asked the basis for the request, an unidentified University spokesman reasoned that land is not typical of the area in which it is located; the herd (cattle) has been hard hit by a mysterious "X" disease; and the operation could be carried on more efficiently and cheaply at Fort Robinson (5). The "X" disease reason was rather ironical because there had been research done at the Substation by the Department of Animal Pathology at Lincoln on that disease, and the cause of "X" disease, when discovered shortly afterwards, was found to be due to a toxic substance in pelleted feed which made complete control of the disease very simple1 (8, 9). As for transferring the research to Fort Robinson, land at the Fort is not typical of the sandhills, and furthermore it wasn't too much later before serious problems developed there. The University, of course, complied with the Legislative directive. The Substation was officially closed on November 30, 1951 (1, p 4) and all UN rights to the property were transferred to the State of Nebraska. The land was assigned by Governor Peterson to the Board of Educational Lands and Funds (7). In 1953 the 40 acre tract of land with the improvements was sold by the State to H. G. Wallingford of Cody for $18,000 (6).

1For details, see Part V, Chapter 18.

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Chapter 10. Multiple Use Farms

Contents

Dalbey-Halleck Farm, Virginia ........................................ 350
Development Farms (at various locations) ......................... 351
Fawcett Endowment Farm, Lodgepole .......................... 353
Pierce Sandy Land Farm, Pierce ................................. 354
Rogers Memorial Farm, Lincoln ................................ 355

Over the years a series of farms scattered over the state have come into possession of the University through bequests, gifts or lease, with provisos that these be used directly for research and/or educational purposes. Other bequests have provided for income generated from sale of products of the farm, or from sale of such properties. In some cases a condition of the bequest/gift was that the University had to hold title to the farm in perpetuity, or other conditions have sometimes been included. The Board of Regents have, of course, always had the privilege of either accepting or rejecting ownership of real estate offered, and in some cases farms/ranches have been rejected primarily because in the judgment of the Regents, the conditions imposed were such that ownership would not have been in the best interest of the University.

In this Chapter we have included the farms which have come into usage by the University through ownership or lease, located within the boundaries of the State, used for research or educational purposes, and
which have not been assigned exclusively to any one Department. The write-ups of the latter are included in the respective Departmental Chapters.

Dalbey-Halleck Farm, Virginia

Contents

Names ................................................... 350
Administration ........................................ 350
Staff ................................................... 350
Land and Improvements .............................. 350
How the University Came Into Possession .... 350
Usages Made of the Farm ........................... 351
Agronomy and Animal Science, 1944-1958 ....... 351
Animal Science, 1959-present ....................... 351
References ............................................. 351

Names

Dalbey Farm ............................................. 1944-58
Dalbey-Halleck Farm ................................... 1959-present

Administration

Department of Agronomy ................................. 1944-58
Elverne C. Conard, in charge 
Department of Animal Science ......................... 1959-77
Vincent H. Arthaud, in charge .......................... 1959-77
Merlyn K. Nielsen, in charge ........................... 1977-present

Staff

Research and educational activities conducted on the Farm have always been handled by faculty members headquartered on the East Campus.

Land and Improvements

The Dalbey-Halleck Farm, located 4 1/2 miles south of Virginia, consists of all of Section 35, the E 1/2 of Section 26, and the NW 1/4 of Section 36, all in Twp 3N, Rge 8E, Gage County, Nebraska. The half section lies contiguous to and north of Section 35, and the quarter section lies immediately east of the north half of Section 35. There is a farmstead on the west edge of the quarter section which provides a convenient residence and headquarters for the resident operator.

How the University Came Into Possession

From 1944 through 1958, the Farm (Dalbey, as it was then known), consisted of the 640 acres of Section 35. This tract was formally presented to the University of Nebraska Foundation on January 12, 1944 by Dwight S. Dalbey, as a memorial to his late wife, Hannah Virginia Lewis Dalbey, and her late father, Ford Lewis.

Ford Lewis, although he never lived in Nebraska, had extensive land holdings in Gage, Johnson, Lancaster, Otoe, and Pawnee counties. He founded the towns of Lewiston in Pawnee County and Virginia in Gage County, the former being named after himself and the latter for his daughter, Virginia (7, 8).

Dwight S. Dalbey was a graduate of the University of Illinois, class of 1902, and later was on the agronomy staff of that University. In 1907 he moved to Beatrice to manage the extensive land holdings of his father-in-law, Ford Lewis. Dalbey served in the Nebraska Legislature from 1915 to 1921, including being Speaker of the House all three terms. At the time of his death in 1949 he owned 5,800 acres of land in Gage and Pawnee Counties, and about 1,000 acres in Illinois.

At the time the gift was made, Section 35 had never been plowed. Mr. Dalbey made a condition of the transfer of title of the land to the effect that it had to remain in native grass in perpetuity (1, 2).

The other 480 acres of the Dalbey-Halleck Farm have a completely separate history. In 1958 Robert M. Koch, professor of animal husbandry, appealed to then Associate Director Frolik of the Station for land to provide hay and pasture for cattle, including a balance between cool season grasses and alfalfa, and warm season grasses. Frolik conceived of the idea of utilizing funds from the sale of land in Hamilton county, near Hordville, which had been willed to the University by the late Milo M. and Emily Halleck, for the purchase of land contiguous to the Dalbey section for production of principally bromegrass and alfalfa to balance the warm season grass pastures and prairie hay produced on the Dalbey section. It was also his thought that the name Halleck could be incorporated into the name of the Farm, thus memorializing the names of both Dalbey and Halleck.

The proposal was accepted by the appropriate University administrators and the Board of Regents following which steps were undertaken to attempt to purchase the needed land near the Dalbey Section. Early in 1959, the following 480 acres were added through purchases: the E 1/2 of Section 26-3N-8E, Gage County at a cost of $23,962; and the NW 1/4 of Section 36-3N-8E, Gage County, at a cost of $22,500.

A well cared for farmstead came with the NW 1/4 of Section 36, purchased from Mr. and Mrs. George Wignall. The E 1/2 of Section 26 was unimproved farm land, purchased from Aller and Pease, Inc. 3.

1Even though their names are now associated in the name of the Farm, it is extremely unlikely that the Dalbeys and Hallecks ever knew, or had even heard of, each other.
2The Wignalls were iris fanciers. They had a big task of moving the large collection of irises that they had growing on the farm, following sale to the University.
3A number of residents of Gage County, under the leadership of County Agent Robin Spence, provided much assistance in locating and acquiring the additional land.

During the period of 1944-1958, 300 acres of the Dalbey Section were used primarily for hay studies with the remainder of the land being rented for pasture. Over the years, both the meadow and the pasture, which was carefully managed in conjunction with the lessee, were improved in productivity. The hay studies had to do principally with the effect of time of cutting on the yield and feeding value, and on the botanical composition of the meadow. For six years, the hay was trucked to the East Campus where it was used to conduct feeding studies with wintering calves. For some years after feeding studies were completed, the hay was sold locally.

In addition to providing material for two PhD dissertations, the studies resulted in two Station bulletins and one Station research bulletin, authored jointly by Elverne C. Conard, Marvel L. Baker, Vincent H. Arthaud and L. C. Newell (4).

Animal Science, 1959-present

The Department of Animal Science took possession of the Farm in June 1959. Plantings were made in the fall of 1959, and by the spring of 1960 there were 480 acres of established bromegrass and alfalfa, and 55 acres of growing wheat (3).

For the first time, University experimental cattle were placed on the Farm, utilizing all of the original Dalbey section for pasture, except 90 acres cut for hay and used in making agronomic studies. With the mixture of bromegrass and alfalfa on the purchased land, it was possible to establish a sound, long season grazing program. All hay produced on the Farm was fed and additional hay was purchased as needed.

The research from 1959 to 1976 consisted principally of breeding studies with Angus cattle. Through performance selection from 1959 through 1976, the following changes per year were made in the herd: (1) increase one-half pound in birth weights; (2) increase of 5.5 pounds in weaning weights; and (3) increase of 11 pounds in weight of mature cows. A purebred herd was maintained, from which some yearling bulls with the better performance records were sold for breeding purposes. Grade cows were used to produce calves for carcass studies (5).

In another experiment, Vincent H. Arthaud found that short scrotum animals (cattle) did not grow quite as rapidly as bulls but faster than steers. No difference was found in quality of carcasses between bulls and short scrotum animals (6).

From 1978 to present, crossbred cows that differ in level of milk production, but not in body size, have been evaluated for efficiency of beef production. A portion of the farm continues to be utilized for maintaining the registered Angus cattle herd (10).

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Short scrotum animals are produced by forcing and retaining the testes in the body cavity. The animals are sterile.

References

1. Omaha World-Herald, Omaha, NE. Jan 13, 1944. Prairie tract given to UN.
2. Terrill, Dean. Apr 26, 1971. Farm's deed bans plowing of ground. Lincoln Star, NE.

Development Farms 1 (at various locations)

Although other farms in various College of Agriculture programs have been known as development farms, the term is associated primarily with the six farms owned by the University, and operated by lessees under a program of close and intense supervision by the University. The primary purpose of the program was to use the farms for demonstrational purposes. The project was started in 1950 and terminated in 1958.

The concept for the program belongs to then Dean W. V. Lambert who patterned his plan after one which had been in operation at Iowa State University since 1938. The program was started with five farms which had come under ownership of the University through bequests. The farms had been owned by the University for varying periods of time prior to the initiation of the Development Farms Program. At first, leasing and management of these farms had been handled by the business officers of the University. Later, from about 1942 through 1949, the business officers del-
egated management to a College of Agriculture staff member. During this second period, management was conducted on about the same basis as it would have been by a private farm management company.

The Development Farms Program concept was something quite different. It was Lambert's idea that by applying the extensive sources of expertise available at the College, the Farms could serve as valuable educational demonstrations of good farming practices. The five farms initially included in the program were to be only the beginning — it was Lambert's thought that as time went along, landlords/tenants of privately owned farms would volunteer to participate in the program.

Lambert succeeded in enlisting the services of a man who had an excellent background for the assignment of being in charge, Philip A. Henderson. Henderson had been farming in Nuckolls County for seven years before starting in the new position at the University on February 1, 1950. He was a native Nebraskan, had graduated from the UN College of Agriculture with a major in agronomy and later received a PhD in agricultural economics from Cornell University. He had held the position of extension farm management specialist for 3 1/2 years at Purdue University prior to returning to farming in Nebraska.

The Farms Involved

The original Development Farms in the program were the first five listed in Table 1. The only farm subsequently added to the initial group was the William Francis Fawcett Farm in Cheyenne County. Like the others, this farm came into ownership of the University through a bequest. There were no volunteers of landlords/tenants of privately owned farms asking to come into the program. As shown in Table 1, three of the farms were operated on a 50/50 stock share lease while the other three were on a crop share lease. The former, of course, provided for incorporation of technology and management on a broader basis than was possible with the crop share lease farms.

The only land irrigated was part of the Nance County farm, with water pumped out of Beaver Creek. Soils on the Cass, Dodge, Hamilton, and Nance County farms were classified as good, those on the Cheyenne County farm as fair, and those on the Nemaha County farm as poor. The Cass County and Dodge County farms had a rather rolling topography. The Nemaha County farm had heavy, glaciated soils, with much of the farm being steeply rolling and severely eroded.

Problems Encountered

According to Henderson, the principal problems encountered in the conducting of the Development Farms Program were: 1) the necessity of having to educate the tenants relative to the practicality of newer practices which were unfamiliar to them; 2) lack of capital since the University could not borrow money, necessitating continuing, for example, to operate the Hamilton County farm on a dryland basis when it had excellent potential for irrigation; and 3) employment of a full time manager for only 5 or 6 farms not being practical from an economic standpoint (1).

Accomplishments

Through the Development Farms Program it was possible to demonstrate: 1) the development and use of realistic written leases; 2) the use of lime and commercial fertilizers based on soil tests; 3) soil conser-

<table>
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<tr>
<th>County</th>
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<th>Postoffice Address</th>
<th>Legal Description</th>
<th>Bequeathed by</th>
<th>Size (acres)</th>
<th>Type of Lease</th>
<th>Date the Farm Was Sold</th>
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<tbody>
<tr>
<td>Nemaha</td>
<td>Brock</td>
<td>All of Sec 27; N1/2, N1/4, W1/2, SW1/4, NE1/4, SW1/4, NW1/4, Sec 34, all in T 6N, R 12E</td>
<td>Orinda Johnson</td>
<td>780</td>
<td>315</td>
<td>50/50 Livestock</td>
<td>Dec 26, 1958</td>
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<td>Cass</td>
<td>Plattsmouth</td>
<td>Sec 1/4 &amp; 1/2 Sec 10, T 12N, R 14E</td>
<td>Eliza Olive Horning</td>
<td>240</td>
<td>170</td>
<td>50/50 Livestock share</td>
<td>Cannot be sold</td>
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<tr>
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<td>Dodge</td>
<td>Sec 1/4 &amp; 1/2 Sec 33, T 26W, R 5S</td>
<td>Ora Clair Montgomery</td>
<td>240</td>
<td>171</td>
<td>50/50 Livestock share</td>
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<td>Hordville</td>
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<td>Milo M. and Emily Halleck</td>
<td>320</td>
<td>272</td>
<td>1/3 - 2/3 crop share</td>
<td>Nov 10, 1958</td>
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<tr>
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<td>St. Edward</td>
<td>W1/2 Sec 20, T 18N, R 4W</td>
<td>Orinda Johnson</td>
<td>320</td>
<td>133</td>
<td>2/5 - 3/5 crop share plus cash for bldgs, hay</td>
<td>Dec 18, 1958</td>
</tr>
<tr>
<td>Cheyenne</td>
<td>Lodgepole</td>
<td>All of Sec 3; NE1/4 &amp; SW1/4 Sec 2; NE1/4 Sec 10, all in T 12N, R 47W</td>
<td>William Francis &quot;Frank&quot; Fawcett</td>
<td>1120</td>
<td>631</td>
<td>1/3-2/3 crop share plus variable bldg, pasture cash, rent</td>
<td>Dec 4, 1984</td>
</tr>
</tbody>
</table>
vation measures; and 4) the use of good commercial livestock breeding programs (1).

**Termination of the Program**

On August 12, 1956, Henderson was shifted to the position of extension farm management specialist at the University, while still retaining responsibility for managing the Development Farms. He was provided with assistance on the latter by a graduate student, Douglas Melvin.

In 1958 it was decided to terminate the Development Farms Program. Four of the farms as shown in the Table were sold at auction in the late fall of that year. The Cass County farm, which under the terms of the will can never be sold, was placed under the Department of Horticulture and Forestry, and has since been used principally for forestry research (see Part V, Chapter 15).

The Cheyenne County farm was placed under the management of Charles Fenster, Box Butte Experiment Station, for management and sold on December 4, 1984. (See "Fawcett Endowment Farm, Lodgepole" in this Chapter).

**Reference**


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**Fawcett Endowment Farm**

The Fawcett Endowment Farm was bequeathed to the University of Nebraska by William F. "Frank" Fawcett, with the date of heirship being January 9, 1954. The legal description of the 1120 acre farm located in Cheyenne County, Nebraska was as follows: all of Section 3; the NE 1/4 and the SW 1/4 of Section 2; and the NE 1/4 of Section 10, all in T 12N, R 47W. Mr. Fawcett had seen the need for an experimental farm in the dryland area of the Panhandle and believed that after his death his land could be put to that use.

Mr. Fawcett, as was typical of farmers in the panhandle of Nebraska, initially used the crop varieties and cultural practices of the more humid midwest. But the varieties were not adapted to, and the cultural practices did not fit, the high plains conditions. Droughts, relatively short growing seasons, cool summer nights, devastating dust storms, and high hail frequency made growing conditions a great deal different from those which exist farther east.

Like other farmers in the panhandle area, Mr. Fawcett gradually shifted his farming practices to those more suited to the growing conditions in that portion of the state. He found that much of the experimental information developed at Lincoln and North Platte did not fit the high plains conditions. Because he felt that the Station should conduct more experimental work in his portion of the state, Mr. Fawcett decided to will his farm to the College of Agriculture.

A proviso of the Fawcett Will was that his niece and her husband, Mr. and Mrs. James (Helen Fawcett) Sterling, would have the right to farm the land bequeathed to the College of Agriculture so long as they wished to do so. The rent collected by the University was to be used exclusively to finance agricultural research. The Sterlings were good farmers, most cooperative with the College of Agriculture, and continued to rent the farm until 1984 at which time it was sold by the University.

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The authors gratefully acknowledge the assistance of Charles R. Fenster in doing the research and providing most of the material for this write-up on the Fawcett Endowment Farm.
A particularly vexing problem from a conservation standpoint in the forties and early fifties was the soil blowing that was taking place in the transition area of sandy soils between the hardlands and the sandhills of northeastern Nebraska. Severe wind erosion was taking place and yields were low. Chemical fertilizers were being used sparingly and center pivot irrigation had not yet entered the farming picture.

The supervisors of the Pierce County Soil Conservation District recognized the need for research to help solve these problems. When they won a cash prize from the Omaha World-Herald in 1950, they combined money from the prize with some other District funds to lease 80 acres of state school land with very sandy soil. Thus was established the Pierce Soil and Water Conservation District Sandy Land Farm, commonly known as the Pierce Sandy Land Farm. An additional 80 acre tract was added to the original 80 acres in 1951. This 160 acres comprised the SE1/4 of Section 36, Twp 26 N, Rge 3W, Pierce County, Nebraska. It was located about four and one-half miles southwest of the town of Pierce.

The next step in the development of this research operation was the signing of a three-way cooperative agreement involving the District Supervisors, the Research Division of the Soil Conservation Service, and the Agronomy Department of the College of Agriculture of the University of Nebraska (1, 2, 3). The key staff members who did most of the field research on the Farm were Charles R. Fenster, SCS work unit conservationist in Pierce County, and J. C. Russel, professor of agronomy at Lincoln.

Operations on the Farm were started in 1951 and experimental programs were essentially terminated in 1955. Beginning with the 1956 crop season, the Pierce County Soil and Water Conservation District Supervisors subleased the land, and on February 9, 1959, they sold the machinery and other equipment which had been accumulated in the course of conducting the experiments (2).

Results obtained from the research were little short of phenomenal. At the time the District took over the farm, none of the land was considered safe from blowing. Within one year, through the use of crop residues left on the surface of the soil, sand blowing was virtually eliminated. The recommended farming program consisted of a crop rotation, growing corn one year, with a mixture of rye and vetch being planted that fall, harvesting the rye/vetch mixture the next summer, and coming back to corn the third year. Yields over the five year period were increased 120 percent (2). Other conservation practices and use of chemical fertilizers and lime were also studied (1).

Although farmers in the transition area had been growing rye, they had not grown it in combination with vetch. With the demonstration on the Pierce Sandy Land Farm, the recognition of the value of adding vetch and the making available seed of an adapted variety, the adoption of the two-year rotation by farmers was very rapid. Fenster and Frank L. Duley inspected approximately 100 fields of rye in the area, at random, in about the middle fifties and found only two fields that did not also contain vetch (1).

Field days were held annually, with attendance being as high as 1,100. The project drew national and international attention (2).

In 1954 J. C. Russel retired from the University to accept an assignment in Iraq. In March 1956, the sale of the Farm have helped support research which has resulted in 85 publications on dryland farming. The Fawcett Endowment Farm Fund has been and will continue to be of much value in supporting dryland agricultural research, teaching and extension in western Nebraska. Thus it continues to fulfill the desires of the late W. F. Fawcett who gave the land to the University for the improvement of dryland farming in the Nebraska Panhandle.

References
3. Fenster, Charles R. Nov 12, 1982. Interview with Mr. & Mrs. James (Helen Fawcett) Sterling. Lodgepole, NE.
4. ______. Fawcett Endowment Farm annual reports. IANR, UNL.

Pierce Sandy Land Farm

The authors gratefully acknowledge the assistance of Charles R. Fenster who provided most of the material used in this write-up.

\(^{1}\)A most valuable accomplishment of the Project was the establishment of Madison vetch as a certified seed crop (see Part II, Chapter 3 for details).
College of Agriculture persuaded Fenster to accept a position at the Box Butte Experimental Farm to undertake the even more challenging task of refining stubble mulch farming practices so that they would be accepted by farmers in the panhandle section of the State. The loss of these two highly capable and productive scientists from the Pierce area, along with a shortage of funds, resulted in closing out the project with the 1955 crop.

The Pierce Sandy Land Farm project constitutes one of the finest examples of how much can be accomplished in agricultural research and education in a relatively short period of time, with relatively small expenditures of funds. It demonstrates, too, that highly capable and motivated individuals like Fenster and Russel, who are willing to work long hours and go the extra mile to find solutions, are indispensable to the success of this type of undertaking.

As a result of the coming of still more advanced technology, the two-year rye/vetch and corn rotation is now used to only a limited extent. The use of a legume such as vetch would limit the heavy use of herbicides as practiced today. Availability of chemical nitrogen fertilizers has lessened the need for legumes for providing soil nitrogen. And lastly, the coming of center pivot irrigation systems has resulted in much wider use of monoculture.

References
2. Pierce Leader, NE. Feb 5, 1959. SCWDF Farm proves sand land can grow crops.

Rogers Memorial Farm

Contents

Name ................................................... 355
Administration .......................................... 355
Land and Improvements ................................ 355
Staff ................................................... 355
Acquisition by the UN .................................. 355
Complying With Conditions of the Will ............... 356
Contingent Devises Bring Action ......................... 356
Major Users ............................................. 356
Department of Animal Science .......................... 356
Department of Agricultural Engineering ................. 356
Department of Poultry Science ........................ 356
Other Studies ............................................ 356
Source of Funds for Scholarships ......................... 357
Educational and Historical Values ....................... 357
Summary ................................................ 357
References .............................................. 357

Name
Rogers Memorial Farm (in perpetuity)

Administration
Department of Animal Science 1947-1965
  Vincent H. Arthaud, in charge
Department of Agricultural Engineering 1966-present
  Howard D. Wittmus, in charge 1966-1980
  Elbert C. Dickey, in charge 1980-1984
  William Splinter, in charge, 1984-present
Department of Poultry Science
  (secondary user) 1966-1973
  Thomas W. Sullivan, in charge

Land and Improvements
The Rogers Memorial Farm consists of 320 acres, legally described as the E1/2 of Section 12, Twp 10, Rge 8, Lancaster County, Nebraska. It is located one-half mile east of 172nd and Adams Streets. When the farm came to the University through a bequest, it had a farmstead, including a residence. Subsequently, other improvements were added by the University.

Staff
There have never been any academic staff members in residence on the Rogers Memorial Farm. However, in addition to the staff members in leadership roles (listed) there have been a number of others on the East Campus involved in the research carried out on the Farm.

Acquisition by the UN
The Rogers Memorial Farm has an interesting history. In 1864, the farm was given to the State of Nebraska by the United States Government to be used for the construction of a penitentiary or prison. Apparently the land was never so used, and in 1871 it was sold to a private individual for $3,155.84 (7).

Subsequently, Mr. and Mrs. Edgar A. (Cora E.) Rogers came into ownership of the farm. Edgar A. Rogers preceeded Cora E. in death, following which she had sole ownership. In her will she stated that she was carrying out the wishes of her late husband, as well as herself, in bequeathing the farm to the University of Nebraska. The farm was given as a memorial to the Rogers' son, Edward Alfred Rogers, a UN graduate, who had died in the military service in WW II.

Mrs. Rogers set forth these "requests" in her will:
1) The property to be known as the "Rogers Memorial Farm",
2) To be enclosed with a permanent fence, using concrete posts, with a gateway suitably marked with "Rogers Memorial Farm",
3) To be operated as an experimental farm for the promotion of agriculture and the benefit of College of Agriculture students,
4) To provide, out of the annual income from the Rogers Memorial Farm, two $500 scholarships to the College of Agriculture.

5) To keep the farm in good state of cultivation (1).

Mrs. Rogers further stipulated that in the event the University rejected the gift or failed to carry out any of the above “requests”, the land would revert to a group of contingent devisees (relatives) whom she named in the will (1).

The will was probated on July 11, 1945. On June 18, 1947, following acceptance of the gift by the Board of Regents, the deed to the land was transmitted to L. F. Seaton, Operating Superintendent of the UN (7).

Complying with Conditions of the Will

When the University came into possession of the Rogers Memorial Farm in 1947, it was assigned to the Department of Animal Science for the purpose of carrying out cattle breeding experiments. The Department made every effort to comply with the “requests” contained in the will. It engaged the services of the U.S. Soil Conservation Service to develop a comprehensive soil and water conservation program. The enclosure fence was constructed, utilizing cement posts and erecting a marked gateway. Stops at the Farm were included in student field trips. Due to the Farm not generating adequate funds, no scholarships were paid in 1949, and only two $250 scholarships were paid in 1950. However, from 1951 on, two $500 scholarships were paid each year (14). The Department staff believed that they kept the farm in “... a good state of cultivation” through contouring and by establishing perennial grasses on much of the land — both being excellent conservation practices (2).

Contingent Devises Bring Action

On March 18, 1957, Oliver Erskine, et al, (contingent devisees) filed action in the District Court of Lancaster County, asking that the Rogers Memorial Farm be turned over to them. They charged that the Board of Regents of the University of Nebraska had failed to comply with the terms of the will in a number of ways, including failure to keep the farm in a good state of cultivation, failure to erect a cement gateway, failure to pay the scholarships (in full), and failure to operate the farm as an experimental farm (10, 14).

The University’s attorney, Earl Cline, did a masterful job of defending the case. One of the significant arguments he made was that “a good state of cultivation” could well include use of perennial grasses like bromegrass, particularly on rolling land subject to erosion, as was the case on the Rogers Memorial Farm. A good deal of testimony was devoted to this point by both the plaintiffs and the defense. In the Decree dated March 6, 1959, the presiding Judge, John L. Polk, dismissed the petition of the plaintiffs. The plaintiffs appealed the case and the Supreme Court found in favor of the University. In the decision written by Judge Edward F. Carter, the Supreme Court found that the Board of Regents had “substantially complied” with the conditions imposed by the will, and that “no basis exists for a forfeiture of the estate” (8, 14).

Major Users

Department of Animal Science

From 1947 to 1965 the Department of Animal Science used the Rogers Memorial Farm for beef cattle breeding studies. The unit was actually too small for this type of operation but the Department had to do with what was available. In 1965, with land at the University Laboratory at Mead becoming available, the Department of Animal Science closed out its work on the Rogers Memorial Farm.

Department of Agricultural Engineering

The Department of Agricultural Engineering took over operation of the Rogers Memorial Farm early in 1966 (3). The Department’s principal studies had to do with soil and water conservation, utilizing terraces and conservation tillage practices. Howard Wittmus pioneered in the use of parallel, steep, back-slope terraces with tile outlets. The agricultural engineering faculty have also carried out many tillage and erosion studies, intensive irrigation research, soil loss experiments utilizing a rainfall simulator, and grain drying studies (4).

Department of Poultry Science

A secondary, but important, user was the Department of Poultry Science which had operations on the Rogers Memorial Farm from 1966 through 1973. During this period the Department of Agricultural Engineering had charge of the farmstead. The Department of Poultry Science used a portion of the land for a turkey range. Thomas W. Sullivan was in charge of the turkey research program. Studies were also conducted on wildlife habitats (5, 9). Dominick Costello, who with his family, occupied the residence from 1969 to 1983, recalls many pleasant memories of helping to take care of the premises (6). He and Sullivan cooperated with the Nebraska Game and Parks Commission in attempting to keep Great Horned Owls from killing too many of the turkeys.

Other Studies

Studies by other departments included work on forestry, including woodlot management and development of a black walnut enterprise; control of pocket gophers; field scouting for insects; and basic studies on the coyote.
Source of Funds for Scholarships

In the late 70's, a power line was constructed across the Rogers Memorial Farm. The Board of Regents were forced to refuse acceptance of payment for the right-of-way, for to do so might have been construed as a violation of that portion of the will which stipulated that the farm could never be sold. Instead, the $10,000 for the right-of-way was placed in escrow, which fund to date has generated sufficient earnings to provide the two annual $500 scholarships (4).

Educational and Historical Values

In 1985, the IANR and the Board of Regents of the UN entered into an agreement with the U.S. Soil Conservation Service which provided for utilizing the Rogers Memorial Farm as the "Conservation Demonstration Farm" (12). The purpose of the agreement was to formalize efforts of the UN and the SCS to jointly carry out an intensive educational program on conservation, with the Rogers Memorial Farm providing the focus for demonstrating successful conservation practices. A dedicatory program was held on the premises on April 23, 1985 with Governor Robert Kerrey and Vice Chancellor Roy Arnold doing the ribbon cutting (13).

The Logeschulte-Weese Living History Farm, located on 112th and Adams Streets and owned by the Nebraska State Historical Society Foundation, when fully developed, will serve as an excellent demonstration of early day farming, while the Rogers Memorial Farm, located four and one-half miles to the east will demonstrate modern day farming utilizing the best known current soil and water practices.

Summary

The senior author recalls that there was a serious question raised when the Cora E. Rogers will was probated as to whether or not the University should accept the Rogers Memorial Farm under the stipulated conditions. He helped inspect the farm and consulted with F. D. Keirn who had been asked to make a recommendation as to whether or not the University should accept the Farm. Keirn recommended acceptance and, with some reluctance, the Board of Regents concurred. The Board was influenced, in part at least, by the fact that at the time appropriated funds for the Station were extremely limited and additional land was very much needed.

Perhaps there were times since then that, if the clock could have been turned back, the gift would not have been accepted — such as those years when it was a financial burden to meet the scholarship requirement, and when defending the lawsuit brought on by the contingent devisees involved expense and much staff time. However, the scholarship problem was solved by a completely unforeseen turn of events, and the lawsuit was successfully defended. Today the Rogers Memorial Farm stands as a living, actively functioning memorial, not only to Edward Alfred Rogers, but also to soil conservation research and educational programs. Cora E. and Edgar A. Rogers would be proud of the program they made possible, as would the Regents who accepted the gift.

References

10. Lincoln Star, NE. Feb 19, 1960. Top Court to study case against NU.
12. Joint agreement between the UN and the SCS. 1985. Lincoln, NE.