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83rd Annual Report of the Nebraska Agricultural Experiment Station

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83rd annual report of the

Nebraska Agricultural Experiment Station

University Of Nebraska
College of Agriculture and Home Economics
The Agricultural Experiment Station
E. F. Ericson, Dean, H. W. Ottosen, Director

LINCOLN NEBRASKA FEBRUARY, 1970
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Issued February 1970, 1500

Foreword

The 83rd Annual Report of the Nebraska Agricultural Experiment Station contains a list of all active projects during July 1, 1968 to June 30, 1969, a list of Station publications, staff members, and a financial report. Information derived from the various research projects is published in bulletins, circulars, scientific and trade journals, in the Nebraska Farm, Ranch and Home Quarterly and as mimeographed departmental reports. Station bulletins, circulars and the Quarterly may be obtained free from any county agricultural agent or by writing to the Director of the Experiment Station, University of Nebraska College of Agriculture and Home Economics, Lincoln, Nebraska 68503. Reprints of most journal articles may be obtained by writing directly to the authors.

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J. W. Knoch, B.Sc., Assistant Instructor, SPF Swine
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H. C. Mussman, D.V.M., Ph.D., Associate Professor, Pathology
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E. L. Stair, D.V.M., Ph.D., Associate Professor, Swine Diseases
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George W. Rehm,2,3 Ph.D., Assistant Professor, Agronomy
Walter L. Tolman,2,3 B.Sc., Assistant Professor, Animal Science

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D. C. Clanton,2,3 Ph.D., Professor, Animal Science (Beef)
D. M. Danielson,3 Ph.D., Associate Professor, Animal Science (Swine)
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G. A. Wicks,2 M.Sc., Assistant Professor, Agronomy (Weed Science)

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U.S. Meat Animal Research Center, Clay Center, Nebraska

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W. W. S_lhs, M.Sc., Superintendent of Field Laboratory
F. C. Hastert, B.Sc., Operations Manager

1 College Staff
2 Station Staff
3 Extension Staff
4 Leave of Absence
5 Cooperative, USDA
Nebraska Agricultural Experiment Station
Research Projects

Research projects are listed in order by subject matter departments. An asterisk (*) indicates that the project was discontinued in fiscal 1968-1969.

Administration
1-1 General administration of federal grant funds research. E. F. Frolik and H. W. Ottoson.
1-2 The planning and coordination of cooperative regional research. H. W. Ottoson.
1-3 Administration of federal grant marketing research funds. H. W. Ottoson.
1-4 Regional Research Coordination, North Central Region. H. W. Ottoson.

Agricultural Economics
10-1 Farm business and enterprise analysis. A. W. Epp.
10-12 An economic analysis of the farm real estate market in Nebraska. J. D. Greer.
10-17 Economic and legal factors in providing, using, and managing water resources in agriculture. L. K. Fischer.
10-34 Economics of beef production in range areas of Nebraska. A. W. Epp.
10-41 Effects of technological changes on inter-area competition for the livestock-feed-wheat sectors of the midwest. J. B. Hassler.
10-43 Adjustment opportunities for wheat farms. G. T. Vollmar.
10-45 Economic factors affecting sugar marketing. C. J. Miller.
10-50 Impact of changing international trade in grain. C. J. Miller.
10-51 Least cost formulation of recommended livestock and poultry rations. J. G. Kendrick.
Agricultural Engineering

11-2 Use of radio-frequency energy for insect control and conditioning of farm products. S. O. Nelson.
11-3 Planning farmstead buildings and their auxiliary equipment. O. E. Cross.
11-7 The integration of machine operations and cultural practices in irrigated agriculture. B. R. Somerhalder and S. A. Wecks.
11-12 Engineering and agronomic studies associated with land shaping under dryland conditions in western Nebraska. H. D. Wittmuss and P. L. Ehlers.
11-16 The mechanics and measurement of soil tillage. G. W. Steinbruegge.
11-20 Thermographic properties and nutrient retention of grain at different moisture levels during storage. O. E. Cross.
11-21 Operations research on mechanized systems for cutting, curing and handling hay. G. M. Petersen.
11-23 Effect of pollution on the quality of surface and ground water resources. D. M. Edwards.
11-24 Improved silo capacities. G. M. Petersen and R. W. Kleis.
11-27 Environmental design criteria for livestock housing. J. A. DeShazer.
11-30 Development and operation research on irrigation systems. P. E. Fischbach.

Agronomy

12-1 Determination and application of principles of corn improvement. W. A. Compton.
12-2 Improvement and evaluation of oats and barley. J. W. Schmidt.
12-5 Developing and applying principles of alfalfa improvement. W. R. Kehr.
12-6 Cultural, ecological and physiological studies with various agronomic crops. W. L. Coiville.
12-7 Chemical and cultural control of weeds. O. C. Burnside.
12-8 Improvement of forage grasses by breeding and the propagation and evaluation of new strains and experimental varieties of grasses. L. C. Newell.
12-9 A study of the adaption, improvement and culture of grain and forage sorghums. P. T. Nordquist.
12-11 Mineralogical, physical and chemical characterization of Nebraska soils in relation to their genesis, classification and mapping. J. V. Drew.
12-12 Selection, breeding and testing of soybeans for productivity, high oil and protein content for industrial farm utilization. J. H. Williams.
12-13 Microbiological studies of stubble mulching in Great Plains. T. M. McCalla.
12-17 Soil properties in relation to fertilization of leguminous crops. G. A. Peterson.
12-23 Soil management practices under non-irrigated and irrigated systems of farming in Nebraska. R. A. Olson and F. N. Anderson.
12-26 Development and utilization of improved pasture techniques for the evaluation of forage grasses. E. C. Conard.
12-28 Development of crops for industrial or other special uses. J. H. Williams.
12-30 Isolation, culture and improvement of superior soil structure stabilizing microorganisms. T. M. McCalla.
12-34 Cytogenetic studies on wheat. Rosalind Morris.
12-38 Fate of applied nitrogen in relation to type of carrier and time and method of application. R. A. Olson.
12-43 Climatological phenomena and their effects on agronomic crops. W. L. Colville.
12-45 Chemical, morphological and nutritional changes occurring in Great Plains grasses and their relationship to management practices. D. F. Burzlaff.
12-46 Equip, staff and operate a laboratory to study wheat quality problems and evaluate the quality characteristics of new experimental wheat strains. P. J. Mattern.
12-49 Quantitative inheritance studies utilizing statistical genetic techniques on corn. C. O. Gardner.
12-50 Chemical genetics on the metabolism of coumarin and related compounds in sweetclover. F. A. Haskins.
12-52 Sulfur deficiency and its control in relation to soil properties, cultural practices and crop requirements. R. A. Olson.
12-55 Breed, test and evaluate quality of wheat varieties for Nebraska. V. A. Johnson.
12-57 Studies of morphological, anatomical and physiological characteristics that determine yield and agronomic performance in wheat. V. A. Johnson.
12-64 Life history studies of important pasture and rangeland weeds. M. K. McCarty.
12-65 Influence of bench leveling on the physical and chemical properties of soil and on plant growth. A. P. Mazurak.
12-66 The feasibility, economic potential and production of hybrid wheat varieties. J. W. Schmidt.
12-69 Physiological processes in relation to growth and development of sorghum. J. D. Eastin.
12-70 Seed production of breeding lines of insect pollinated legumes. W. R. Kehr.
12-72 The introduction, multiplication, preservation and evaluation of new plants for industrial and agricultural utilization. J. H. Williams.
12-73 Subsoil chemical properties in relation to nutrient requirements of field crops. G. A. Peterson.
12-74 Evaluation of water and soil pollution from cattle feedlots in Nebraska. T. M. McCalla.
12-75 Study of phytotoxic substances in plant residues and microorganisms and their effect on plant growth. T. M. McCalla.
12-101 Outstate testing—crop variety tests. A. F. Dreier.
12-201 Foundation seed. L. Brownlee.

Animal Science

13-3 Beef carcass evaluation. V. H. Arthaud.
13-7 Breeding tests of population genetic theory. C. T. Blinn.
13-11 Dietary factors affecting the utilization of protein and energy sources by swine during the pre-weaning growth period. E. R. Pco.
13-14 Factors influencing the utilization of protein and energy sources by beef cattle. W. R. Woods.
13-17 Genetics and environmental factors affecting the efficient production of beef. L. J. Sumption.
13-19 The effects of summer wool covering on weight gain and fleece weight of Corriedale and Hampshire lambs. M. A. Alexander.
13-20 The development and improvement of laboratory methods for determining forage quality. T. Klopfenstein.
13-21 The nature of genetics viability for quantitative traits in diverse population of cattle. R. M. Koch.
13-33 Influence of hormone administration on reproductive performance in the laboratory rat. A. B. Schultz.
13-54 Dairy herd management. R. D. Appleman.

Veterinary Science

14-1 Laboratory diagnosis and examination of specimens from the field. O. D. Grace.
14-2 Diseases of young pigs. N. R. Underdahl.
14-4 Etiology and control of the parasites of Nebraska livestock. D. L. Ferguson.
14-6 Disease study and control in specific pathogen free herds. M. J. Twiehaus.
14-9 Epizootiology of specific pathogen free (SPF) pigs on controlled farms.
M. J. Twiehaus.
14-10 Gamma globulin absorption in the newborn. L. C. Payne.
14-12 Studies on the immunological properties of parasite enzymes in domestic
animals. C. L. Marsh.
14-13 Diseases of the central nervous system of domestic animals. C. A. Mcbus.

Biochemistry and Nutrition
15-4 Naturally occurring enzyme inhibitors and their nutritional significance
with particular reference to raw soybeans. R. L. Borchers.
15-5 Harvesting, processing and evaluation of forages and other crops. R. L.
Ogden.
*15-10 Biochemical aspects of carbohydrates and nitrogen metabolism in the
rumen. R. L. Borchers.
15-11 Analytical advisory and service laboratory and extension activities. R. M.
Hill.
15-12 Physico-chemical properties at the molecular level of surfaces of biologi­
cally important proteins. R. M. Hill.
15-14 Enzymatic and chemical modification of starches for industrial and phar­
maceutical uses. D. R. Lineback.
*15-15 The biochemical basis for the action and physiological effect of reproduc­
tive hormones. H. W. Knoche.
15-16 Improving market acceptability, stability and utilization of poultry prod­
ucts. R. Dam.
15-17 Biochemistry of plant diseases and disease resistance. J. M. Daly.
15-18 Metabolism and biological function of lipids. H. W. Knoche.

Food Science and Technology
16-8 Microenvironmnet of liquid food handling equipment. R. B. Maxcy.
16-17 Study and modification of milk fat by controlled lipase action for its use
in foods. K. M. Shahani.
16-19 Detection and control of flavor changes of foods. R. G. Arnold.

Entomology
17-2 Arthropod transmission of plant disease pathogens. R. Staples.
17-5 The biology, ecology and control of the spotted aphid. G. R. Manglitz.
17-7 The photosensitivity in insects. H. J. Ball.
17-8 Investigations of field bean insects with emphasis on the western bean
cutworm, Loxagrotis albicosta. A. F. Hagen.
17-9 Maintenance of marketability of stored grain through control of insects
and rodents. H. J. Ball.
17-10 Biology and control of insect pests affecting livestock and man. C. M.
Jones.
17-13 Factors influencing the distribution and abundance of grasshoppers in
Nebraska. K. P. Pruess.
17-14 The biology, ecology and control of the European corn borer, Pyrausta
nubilalis. R. E. Hill.
17-15 Biology, ecology and control of corn rootworm. R. E. Hill.
17-16 Field and laboratory investigations of insecticides. A. F. Hagen.
17-17 Biology, ecology and economics of noctuidae in Nebraska. K. P. Pruess.
17-19 Factors affecting the role of microorganisms in the biological control of insect pests. R. E. Hill.
17-20 Migration of aphids and noctuids. K. P. Pruess.
17-21 Studies of the biotypes of the European corn borer. R. E. Hill.

Information
18-1 Dissemination of research information. R. J. Graham.

Horticulture and Forestry
20-5 Bean breeding and genetics. D. P. Coyne.
20-6 The improvement of ornamentals and fruits for Nebraska through selection, breeding and cultural practices. J. O. Young.
20-7 Improvement of tomatoes, sweet potatoes, cabbage and broccoli. D. P. Coyne.
20-10 Improvement of potatoes. R. B. O'Keefe.
20-13 Forest tree improvement through selection and breeding. R. A. Reed.
20-14 Evaluation of varieties and cultural practices in vegetable crop production in Nebraska. D. S. Nuland.
20-21 Agroclimatic parameters for selected regions in Nebraska. R. E. Neild.
20-23 Windbreak shelter effects. W. T. Bagley.
20-26 Potato genetics. R. B. O'Keefe.
20-27 Bacterial diseases of beans. D. P. Coyne.
20-29 Adaptation, improvement and management of turfgrasses and other ground covers for Nebraska. J. O. Young.
20-51 Measurement of short period photosynthesis and evapotranspiration and microclimate alternation to effect changes in process rate and magnitude. N. J. Rosenberg.

Plant Pathology
21-1 Plant disease survey and special investigation. Plant Pathology Staff.
21-3 Plant viruses, the disease of plants they cause and their control. W. B. Allington.
21-5 Fundamental studies on root diseases of plants. M. G. Boosalis.
21-6 Diseases of trees and other woody plants in Nebraska. G. W. Peterson.
21-10 Plant pathology outstate testing. J. L. Weiking.
21-11 Physiology of nematode diseases of plants with emphasis on use of tissue culture. M. L. Schuster.
21-14 Dwarfing virus disease of corn. W. B. Allington.
21-15 Epidemiology and control of vegetable diseases in Nebraska. D. S. Meredith.
21-17 Physiology of fungal spore germination. J. L. Van Etten.

**Poultry Science**

22-3 Physiological and physical response of poultry to environmental variables. F. B. Mather.
22-10 Factors affecting the quality and characteristics of poultry meat products. G. W. Froning.
22-12 The role of mammalian physiological food intake regulators in poultry. G. W. Froning.
22-14 A study of quality parameters (physical, chemical and microbiological) and their control in eggs and egg products. T. E. Hartung.
22-16 Atmospheric stresses on the performance of chickens. F. B. Mather.

**Statistical Laboratory**

23-1 Applications of statistics to research in agriculture. W. M. Schutz.

**Agricultural Education**

*24-1 Employment opportunities in agricultural non farm occupations in Nebraska. J. T. Horner.
*24-4 An analysis of factors influencing occupational and educational plans of Nebraska farm boys. J. T. Horner.
24-5 An experimental evaluation of approaches to preparing high school students for agricultural occupations other than farming. J. T. Horner.
24-6 The anatomy of decision making as it relates to occupational and educational choices of rural youth. J. T. Horner.
24-7 Establishment and development of a research and coordination unit in the area of occupational needs research and coordination in Nebraska. J. T. Horner.
*24-9 The identification of common behavioral factors as bases for pre-entry preparation of workers for gainful employment (sub-contracts from Colorado State University). J. T. Horner.
24-10 Evaluation of the honors program in the College of Agriculture—a four year course. V. G. Williams and R. D. Dillon.
24-11 The survey of attitudes of agricultural students. V. G. Williams and R. D. Dillon.
24-13 Seminar for preparation of profession personnel for vocational education.  
R. D. Dillon.

Northwest Agricultural Laboratory

40-2 Tillage practice in the central Great Plains in relation to erosion and weed control, soil moisture, and crop response to fertilizers.  C. R. Fenster.
40-3 Ecological studies of crop production in western Nebraska.  P. L. Ehlers.
40-4 Engineering systems for water control in crop production.  L. S. Axthelm.

Fort Robinson

41-1 Management and feeding practices affecting the gains of beef cattle on range and in the feedlot.  K. E. Gregory.
41-2 Improvement and alteration of reproductive performance of beef cattle.  K. E. Gregory.

Northeast Station

42-1 Influence of certain housing and management regimes on confinement rearing of growing-finishing pigs.  R. D. Fritschen.

North Platte

43-6 The evaluation of feeding and management practices during the different phases of swine production.  D. M. Danielson.
43-9 The relation of cropping and tillage practices to crop production and maintenance of soil fertility under dryland condition.  D. E. Smika.
43-17 Irrigated pastures and stored forage for dairy cows.  M. C. Rumery.
43-21 Relationship of production factors, handling methods and nutritive value of forages as measured by performance in beef cattle.  D. C. Clanton.
43-22 Development of ornamental plants for Nebraska as a Great Plains state.  R. D. Uhlinger.

Scottsbluff

44-1 Improvement of safflower by development of better cultural methods and superior varieties.  W. F. Peterson.
44-2 Dry bean variety test.  F. N. Anderson.
44-3 Maximum production of crops under irrigation.  L. C. Harris.
44-4 Fertilizer and manure application for production of continuous corn on very fine sandy loam.  F. N. Anderson.
44-5 Small grain investigation.  F. N. Anderson.
44-6 Alfalfa variety testing and corn testing.  F. N. Anderson.
44-7 Effects of high rates of phosphate fertilization on the production of corn.  F. N. Anderson.
44-10 Fertilizers for sugar beet production.  F. N. Anderson.
44-12 Improvement of millet production by breeding and cultural studies.  N. R. Malm.

Mead Field Laboratory

45-1 Field laboratory development.  W. W. Sabs.
United States Meat Animal Research Center

Clay Center development. K. E. Gregory.

School of Home Economics

Family Economics and Management

90-4 Patterns of major financial decisions and crises in the family life cycle. D. Larrey.
90-6 Consumer practices and the use of cooking tops equipped with high to very low multiple heat and automatically controlled heat sources. A. Baragar.

Food and Nutrition

91-4 Factors relating to diets of preschool children. H. M. Fox.
91-5 Utilization of dietary fats from various sources. C. Kies.
91-6 Minimum cost formulation of menus. M. Knickrehm.
91-7 Metabolic interrelationships affecting human requirements. H. M. Fox and C. Kies.
91-8 Nutritional status of various population groups. H. M. Fox and C. Kies.
91-10 Interrelationships of amino acids and vitamin utilization. C. Kies and H. M. Fox.

Home Economics Education

92-1 A teaching-learning design for specific areas of home economics in secondary school and extension programs in rural Nebraska. S. Kreutz.

Human Development and the Family

93-5 Family structure and conjugal authority. J. N. Edwards.
93-6 Factors affecting age at marriage in rural Nebraska. R. Gingles.
93-7 Factors affecting patterns of living in disadvantaged families. J. Woodward.
93-8 Loneliness and solitude-phenomena, incidence and factorial relationships. J. Woodward.

Textiles, Clothing and Design

94-1 Fabric stress. J. Erickson.
94-2 Factors affecting clothing and textiles purchase decision.
94-4 Study of perception, creativity and other factors as they relate to design. A. Newton.
**Experiment Station Publications**


Nebraska Experiment Station Quarterly, Summer, 1968 (28 pages). 15,000 copies.

Nebraska Experiment Station Quarterly, Fall, 1968 (24 pages). 15,000 copies.

Nebraska Experiment Station Quarterly, Winter, 1969 (28 pages). 15,500 copies.

Nebraska Experiment Station Quarterly, Spring, 1969 (28 pages). 15,500 copies.

**Bulletins**


504. Land Sales, Prices, Values, and Assessed Values in Nebraska 1930-1968 (32 pages). James D. Greer. 4,000 copies.

505. Yearling Steer Gains and Vegetation Changes of Western Nebraska Rangeland Under Three Rates of Stocking (A Ten-Year study) (20 pages). Donald F. Burzlaff and Lionel Harris. 3,000 copies.


**Circulators**


**Research Bulletins**


**Tractor Test Reports**

Nebraska Tractor Test Data 1969. 15,000 copies.
Report of individual tractors tested during period of July 1, 1968 to June 30, 1969. Nebraska Tractor Tests 976–1015. 78,000 copies. Reprints of individual tests: 970, 500 copies; 971, 500 copies; 972, 2,000 copies; 973, 2,000 copies; 974, 500 copies; 975, 500 copies; 979, 500 copies; 982, 500 copies. Reprint of Nebraska Tractor Test Data 1968. 2,000 copies.

Outstate Testing Circulars


Nebraska Experiment Station Quarterly Articles


How To Raise Polyunsaturated Pigs. E. R. Peo, Jr. and Roger Mandigo. Vol XV (3) 2.


When Half a Potato is Better Than a Whole One (Genetically). R. B. O’Keefe. Vol XV (3) 8–9.


Nebraska Bacteriologist “Outstanding Young Woman.” Grant I. Johnson. Vol XV (1) 16-17.


Millet Improvement Program Established in Western Nebraska. N. R. Malm. Vol XV (1) 27-28.

**Departmental Reports**

**Department of Agricultural Economics**


Department of Agricultural Education


Department of Family Economics and Management

Report Number 1, Factors Affecting Homemakers' Satisfactions with Floor Coverings. Kay Hoff Christenson, Florence E. McKinney and Dorothy A. Larrey.

Department of Horticulture and Forestry


Department of Agricultural Statistics


Department of Plant Pathology

Report Number 1, Corn Stalk Rot in Nebraska. M. G. Boosalis.
University of Nebraska North Platte Station

1968 Fall Crops and Livestock Field Day Progress Report. Staff.
Current Research and Extension Programs at the University of Nebraska North Platte Station. Leslie F. Sheffield.
North Platte Station Guide. Neal Baxter.

Miscellaneous Publications


North Central Regional Publications

NCR 172 Horticultural Characteristics and Reaction to Two Diseases of the World Collection of the Genes of Lycopersicon. Published at the University of Ohio.
NCR 188 Livestock Marketing in the Upper Missouri River Basin. Part II—The Sioux Stockyards—Facilities and Costs of Operation. Published at the University of Minnesota.
NCR 190 Patterns of Firm Growth in Livestock Slaughter. Published by the University of Minnesota.
NCR 195 Solar Radiation and Sunshine Duration Relationships in the North Central Region and Alaska. Part I—Basic Computation. Published at the University of Minnesota.

Journal Series (Technical Articles and Papers)


2562. Mutation Studies, Recurrent Selection Programs and Use of Exotic Germ Plasma in Corn Improvement at the University of Nebraska. C. O. Gardner. Proceedings of a Special Symposium on Plant Breeding, National Taiwan University. Genetics and Plant Breeding, 60-72.


ETV Entomology at the University of Nebraska. Thomas J. Helms. The Journal of the National Association of Colleges and Teachers of Agriculture. In press.


Publications of the Staff

Key to Abbreviations

SB—Station Bulletin
RB—Research Bulletin
DR—Departmental Report
OTC—Outstate Testing Circular
M—Miscellaneous Publications

Q2—Summer Quarterly 1968
Q3—Fall Quarterly 1968
Q4—Winter Quarterly 1968
Q1—Spring Quarterly 1969
J—Journal Series
Clanton, D. C., DR Progress Report, J2465, J2561
Colville, W. L., J2420, J2446
Compton, W. A., J2376, J2399a, J2466
Conard, E. C., J2207, J2404a
Corcoran, P. T., J2618
Cotner, Carol, J2367
Coyne, D. P., SB505, DR70, J2464, J2534, J2603
Cranfill, J. C., J2586a
Crispin, Sharon, J2591a
Cromer, C. A., DR7, DR8
Croes, E., J2624a, J2625a
Cundiff, Larry V., J2244, J2492
Cunningham, P. J., J2590a, J2591a, J2592a, J2594a
Daddario, J., J2407, J2433, J2596a
Daigger, L. A., OTC131, OTC135, OTC134
Dalaly, B. K., J2513a
Danielson, Murray, J2398a, J2554, J2572
DeCordeva, O. R., J2276
Delvo, Herman W., Q3
DeShazer, J. A., J2354
Dewan, Saryavan, J2603a
Dickerson, J. W., J2492
Dillon, Roy D., DR6, DR7
Doane, Ted H., J2456a, J2588a
Domingo, A. F., OTC131, OTC132, OTC135, OTC136, OTC137, Q2, J2525
Drew, J. V., J2447, J2555, J2556
Dudeck, A. E., Q1, DR68, J2481a
Dunn, T. G., J2424
Durand, Alvaro, J2531
Dunse, John W., J2497a
Eastin, Jerry, Q2, J2446, J2453a, J2563, J2523, J2564
Edwards, D. M., J2472
Ehlers, P. L., Q2
Einbu, R. R., J2543a, J2576
Ellington, E. F., J2593a
Ellis, J. R., J2492a, J2624a, J2625a
Englebart, Leo P., DR9
Eppright, E. S., J2610
Everston, D. M., J2591a
Fenster, C. R., OTC134, J2336, J2416, J2445, J2447, J2476a, J2486a, J2487a, J2488a, J2489a, J2496, J2499a, J2530
Ferguson, Donald L., SB499, Q4, J2504, J2565, J2572
Finkler, R. E., SB502
Fisher, Loyd K., J2578
Fitzpatrick, Bill, DR72
Florell, Robert, Q4
Fox, Hazel M., Q2, J2555, J2271, J2478a, J2610
Fox, R. L., J2510a
Frederick, L. R., J2446
Fritschen, Robert D., J2597a
Froning, G. W., J2266, J2407, J2433, J2491a, J2595a, J2596a
Fry, Edward, J2271
Fry, Peggy Crook, J2255, J2271
Fryer, B. A., J2610
Gardner, C. O., J2406a, J2459a, J2414, J2417a, J2437, J2466, J2474, J2559a, J2562
Gavit, Richard, Q3
Gengenbach, B. C., J2521
Georgi, C. E., J2483, J2571, J2574
Ghoshy, S. R., J2430
Gibb, Mary C., DR11
Gilbertson, Conrad, Q4, J2624a, J2625a
Gingles, Ruby, J2532
Gleaves, Earl W., J2603a, J2606a
Gooler, Jan, Q2
Gonzalez, H. J., J2450, J2227, J2308, J2387, J2402, J2440, J2475, J2502, J2521
Grabouwski, P. H., OTC131, OTC132, OTC135, OTC136, Q2, J2525
Grace, O. E., J2604a, J2605a
Greer, James D., SB504
Gregory, Keith E., J2492
Gurney, E., J2452a, J2517
Guyer, Paul, J2430a
Hagen, Arthur, Q4, Q1
Hahn, R. R., J2319, J2453a
Hammond, James J., DR3
Hargus, Gary, J2266, J2491a
Harmsberger, Richard, J2524
Harris, Lionel, SB505, Q3
Hart, Hoyt, MP20
Hartung, T. E., J2266, J2407, J2433, J2491a, J255a, J2596a, J2602a
Haskell, James E., J2490
Haskins, F. A., J2227, J2308, J2387, J2402, J2475, J2502, J2521, J2560
Hassan, Nouri A. K., J2555
Hasler, J. B., J2148
Helm, Gladys, J2552
Helmers, Glenn, SB500, Q2
Helmke, A., J2595a
Helms, Thomas J., Q3, J2277, J2581, J2584
Herbeck, J. H., J2446
Hibbs, J. R., J2456a
Hill, Charles R., Q3
Hillestad, Robert, Q1
Hinders, R. G., J2298
Hites, B. D., J2388
Hoefl, R. G., J2537
Holm, Paul L., MP21
Horner, Albert R., DR2, J2472
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Horst, G. L., RB229, J2434a, J2435a
Howe, Crosby, Q3, J2548
Ingalls, J. E., J2424
Iwai, M., J2542a
Janon, William P., J2568
Jeffery, Larry, Q4
Jenner, Judith, DR10
Johnson, D. R., J2446
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Johnson, V. A., Q2, J2514
Johnston, Donald N., J2516a
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Kahn, I. M., J2542a
Kakade, M. L., J2168
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Kehr, W. R., OCT136, J2276, J2410, J2620
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Kendrick, J. G., J2148
Kellogg, D. W., J2432, J2573
Kerr, E. D., J2535
Kerrey, Elinor, J2305
Kies, Constance, J2306, J2478a
Kinhacher, E. J., Q2, DR70
Kindler, Dean, J2311, J2359, J2443, J2512, J2565, J2620
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Knickrehm, Marie, J2587
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Koers, Witter, J2585a
Lamkin, G. H., J2610
Landers, P. L., J2415
Langenberg, Willem G., J2627
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Larney, Dorothy A., DR1
Lasy, T. L., J2319, J2400, J2401, J2508, J2580, J2585a
Lawrence, J. S., J2422, J2429
Libal, G. W., J2411, J2590a
Lindsey, M. F., J2585
Linville, K. R., J2392a
Lineback, D. R., J2483, J2608a, J2616
Linscott, J. J., J2400
Lonnquist, J. H., J2393a, J2583
Lucas, L. E., J2392a, J2597a
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Lutz, Dan, Q2, Q3
Malm, N. R., OT135, OT156, Q1
Mandigo, R. W., Q3
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Matther, F. B., J2407, J2501a
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Mancy, R. B., J2362, J2419, J2455, J2519, J2540a, J2571, J2574
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Staples, Robert, RB232, J2256, J2296, J2311, J2443, J2565, J2568
Steinbruegge, G. W., J2495
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Stubbenlick, J., J2536
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Terman, G. L., Q2, J2525
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Twiehaus, Marvin J., SB499, RB233, Q1, J2448
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Vakili, R. J., J2485, J2507, J2528, J2542a, J2576, J2577
Van Etten, James, J2316, J2425, J2515
Van Haverbeke, David, Q3, Q1
Van Pelt, Nancy, J2533
Varner, Larry, J2428a, J2589a
Vidaver, Anne, J2579
Viehmeyer, Glenn, J2256
Vipperman, F. E., J2411, J2418a, J2518, J2590a, J2591a, J2594a

Vivian, V. M., J2610
Vollmar, Glenn, SB500, Q2

Walsh, Richard, SB503, J2488, J2439, J2490
Wares, D. D., J2482a, J2520
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Weekman, G. T., J2313
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Wehrbein, Gene F., J2418a, J2590a, J2591a
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Whited, D. A., Q2
Wicks, G. A., J2416, J2445, J2447, J2459a, J2450a, J2456a, J2457a, J2458a, J2459a, J2460a, J2467a, J2468a, J2469a, J2470a, J2480a, J2530, J2532, J2482a, J2486a, J2487a, J2488a, J2489a, J2496, J2506, J2520
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Willis, William, J2358
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Wittman, H. D., J2614, J2622
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Woods, W. R., J2494a, J2421a, J2427a, J2450a, J2442a, J2585a, J2586a, J2587a, J2589a, J2624a, J2625a

Wysong, David, Q1, J2358, J2535

Yeutter Clayton, DR46
Young, J. O., DR68, DR69

Zikmund, Dale G., DR12
Zimmerman, Dwane R., J2424, J2465, J2607a
THE UNIVERSITY OF NEBRASKA
AGRICULTURAL EXPERIMENT STATIONS
REPORT OF INCOME AND EXPENDITURES
For the Year Ended June 30, 1969

GENERAL CURRENT FUNDS
Funds Available:
  Received from United States Government
    Hatch Fund ........................................ $ 682,773.00
  Budgeted by the University ........................... 5,493,397.89
    Total .................................................. $4,176,170.89
Expenditures:
  Salaries, Wages, and Staff Benefits .................. $3,114,168.16
  Operating Expense .................................... 662,662.81
  Equipment and Improvements ........................... 399,944.92
    Total .................................................. $4,176,170.89

REstricted CURRENT FUNDS
Income:
  Gifts, Grants, and Contracts
    From United States Government Agencies .......... $1,298,557.60
    From State of Nebraska Agencies .................. 98,912.66
    From Industry ........................................ 146,177.62
    From Foundations and Health Organizations ....... 142,745.97
    From Other Sources ................................... 3,107.30
    Total .................................................. $1,659,480.55
Expenditures:
  Salaries, Wages, and Staff Benefits .................. $994,173.26
  Operating Expenses .................................... 605,799.14
  Equipment and Improvements ........................... 59,508.15
    Total .................................................. $1,659,480.55

CASH AUXILIARY FUND
Income:
  Sales and Services ..................................... $2,818,097.24
Expenditures:
  Salaries, Wages, and Staff Benefits .................. $708,801.83
  Operating Expenses .................................... 1,861,138.20
  Equipment and Improvements ........................... 248,157.21
    Total .................................................. $2,818,097.24

Note: This does not include capital expenditures of Station Funds expended as Plant Funds ("P" Accounts).
  Research facilities grant ............................ NONE
  Transfer from Cash Auxiliary Fund
    Seed Lab ............................................. $ 7,440.00