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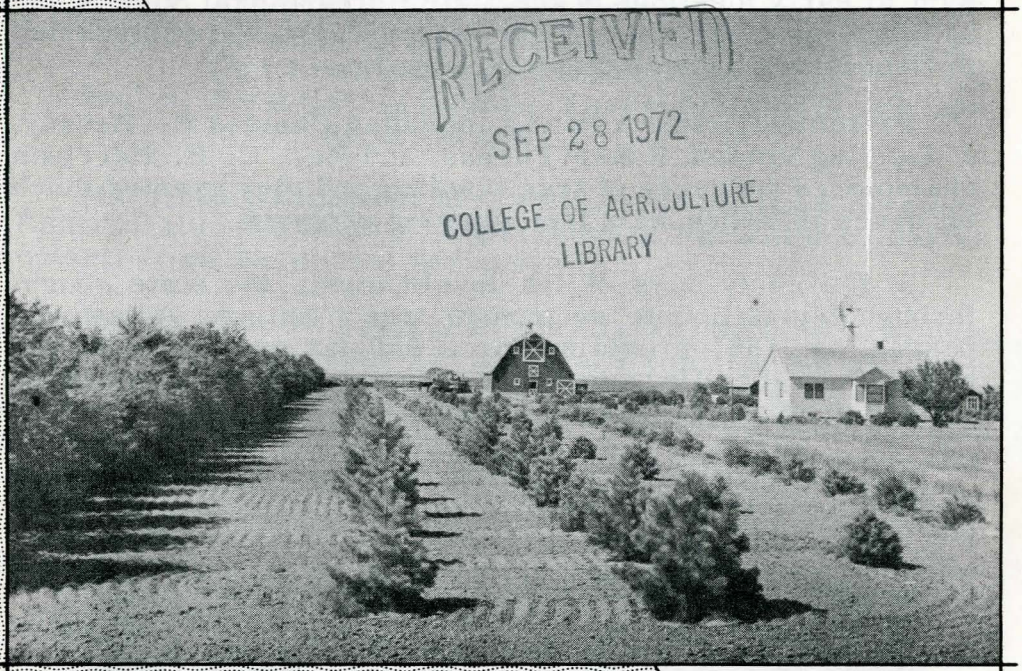
25 YEARS of CLARKE-McNARY TREE DISTRIBUTION



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EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
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COOPERATING
W. V. LAMBERT, DIRECTOR

Introduction

Nebraska became known as the "Tree Planter's State" early in its history because of its extensive tree planting activities. Many of the early settlers came from regions where trees were plentiful and consequently felt the need of trees to furnish wind protection and to provide fuel. They transplanted young seedlings from along the streams for windbreaks and woodlots. Some settlers brought tree seeds with them and seeds were sent to many by relatives in the east.

Tree planting and tree culture came in for much discussion at early meetings of the State Horticultural Society and at other meetings where folks gathered who were interested in Nebraska's agricultural development.

Prominent individuals including Charles E. Bessey, J. Sterling Morton, Robert Furnas, and Rev. C. H. Harrison championed the cause of tree planting and they exerted much influence in Nebraska's tree planting program.

In the early days of its development, the state sought through legislation to encourage tree planting. A law was passed in 1861 providing for a $50 tax exemption for the planting of a specified number of trees. A second law passed in 1869 provided for a $100 exemption.

The creation of Arbor Day in 1872 through the efforts of J. Sterling Morton also added a great stimulus to tree planting. It is said that on the first Arbor Day more than three million trees and cuttings were planted in the state.

The Timber Culture Act of 1873 provided until 1891 extra homestead grants for those who planted and cared for a required number of trees. The Kincaid Act of 1904 provided free trees from the U. S. Forest Service to farmers and ranchers living west of the 100th meridian.

These early plantings stimulated others and all of them provided shade and shelter on Nebraska farms. In due time a new generation came into active operation of the farms, a younger generation that saw less need for tree planting because they were benefiting from trees planted by their forebears. Tree population declined also because many early tree plantings were harvested for lumber and fuel, while others deteriorated because of old age and other causes. Replacements for these plantings were slow. The stimulus to farm tree planting afforded by the passage of the Clarke-McNary Law was timely.

Establishment of Clarke-McNary Program in Nebraska

The Clarke-McNary Law was passed by Congress in 1924. This Law authorized and directed the Secretary of Agriculture in cooperation with appropriate officials of the various states to encourage tree planting and forest protection. Specific objectives of the Act may be stated as follows:

Sec. 2. Forest Fire Prevention and Suppression
Sec. 3. Study of Forest Tax Laws
Sec. 4. Tree Distribution
Sec. 5. Forestry Extension
Sec. 6. Government Purchase of Forest Lands
Sec. 7. Acceptance of Donated Forest Lands
Sec. 8. Locating Public Lands Valuable for Streamflow Protection and Timber Production
Sec. 9. Establishing National Forests Within Government Reservations

States qualifying under the provisions of this Law received financial aid from the U. S. Department of Agriculture, particularly from the Forest Service.

Shortly after the passage of the Clarke-McNary Law, the Director of the Nebraska Agricultural Extension Service discussed with the Dean of the College of Agriculture, the Chairman of the Department of Horticulture, and leading commercial nurserymen, the feasibility of Nebraska's participation in the Clarke-McNary program. All recognized the need of renewing and establishing better shelterbelts and windbreaks around farm homes. All welcomed such a program.

Early leaders of the Clarke-McNary program in Nebraska - 1926. Left to right - E. A. Burnett, U. of N. Chancellor; Dr. C. C. Wiggans, Chairman of Horticulture Department; W. H. Brokaw, Director of Agricultural Extension; Adam McMullen, Governor; H. J. McLaughlin, Director of the State Department of Agriculture; Dr. G. E. Condra, Chairman of Conservation and Survey Division; W. W. Burr, Dean, College of Agriculture.

A meeting was called by Governor Adam McMullen early in 1926, to formulate plans for the tree distribution program. Attending this conference were the Governor, Dean of the College of Agriculture, Director of Agricultural Extension, Secretary of the State Department of Agriculture, Chairman of the Department of Horticulture, Chairman of the Conservation and Survey Division of the University, and representatives of the following commercial nurseries: Marshalls, Arlington; Plumfield, Fremont; Sondereggers, Beatrice, and Harrison's, York.

The agreement made at that time was for the Extension Service to proceed to comply with provisions of Sections 4 and 5 of the Clarke-McNary Law, and to secure as soon as possible an Extension Forester to take charge of tree distribution and forestry education work. It was agreed to request the U. S. Forest Service to provide evergreen transplants grown at Bessey Nursery, while broadleaf seedlings would be purchased from private Nebraska nurseries. The Nebraska nurserymen agreed to furnish necessary broadleaf seedlings (specimen trees and ornamental shrubs excepted), at a low cost. It was also agreed that a charge would be made to farmers sufficient to cover at least a portion of the cost of the trees, packing and shipping. This charge for trees was inserted in order to avoid some of the difficulties that had been encountered in free tree distribution under the Timber Culture and Kincaid Acts.

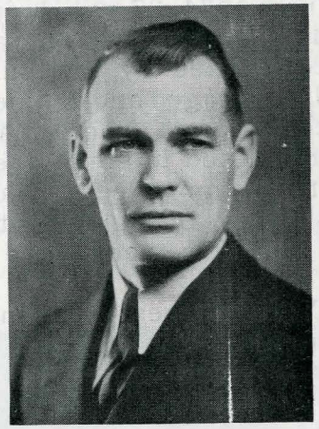
Although no memorandum of understanding was prepared, it was a formal conference with the Governor presiding and the agreements then made have been as closely adhered to through the years as though a formal document had been signed.

For the past 25 years Nebraska and the Federal Government have cooperated under Sections 4 and 5 of the Law. This report deals primarily with Section 4, which provides for the procurement and distribution of forest trees for planting of windbreaks, shelterbelts, and woodlots on farms.

In the spring of 1926, 33,900 trees were distributed to 96 cooperators in 44 counties. The distribution was handled that first spring by the Department of Horticulture in cooperation with the Extension Service, no Extension Forester having as yet been employed

In the fall of 1926 Clayton W. Watkins was employed as State Extension Forester. He took over the work of tree distribution and the forestry education work of the Agricultural Extension Service and continued until 1940 except for the two years 1935-36 when he served as State Director of the

Prairie States Shelterbelt Project. Earl G. Maxwell served as Extension Forester during those years and succeeded Mr. Watkins when he left Nebraska in 1940 to enter private business.



Clayton W. Watkins, Extension Forester in Nebraska, 1926-1940.

Forestry soon became a part of every county extension program. County Agents have encouraged tree planting and have handled orders for Clarke-McNary trees as a part of their services to farmers in their respective counties. With very few exceptions some trees have been sent each year to each of the 93 counties of the state. Farmers have welcomed the opportunity of securing trees in this manner for the purpose of developing farmstead windbreaks and other types of tree plantings on their farms.

Extension Director W. H. Brokaw, left, and Tom Leadley, Editor of the Nebraska Farmer, examine a Clarke-McNary evergreen package ready for shipment.

Number of Trees Distributed

The demand for Clarke-McNary trees gradually increased, reaching 1,660,300 trees in 1937. The increase from 1934-37 was during severe drouth years. Tree survival during these years was low. After four years of drouth accompanied by low survival of trees, many farmers became discouraged and decided to wait for more favorable moisture conditions. The demand for trees declined in 1938. Rainfall increased in some areas in 1939 and by 1941 the demand for trees improved. War conditions and accompanying labor shortage brought about a decline in demand in 1942. In 1948, 1,686,275 trees were distributed.

Table I gives the number of trees distributed and number of cooperators by years for the 25-year period.

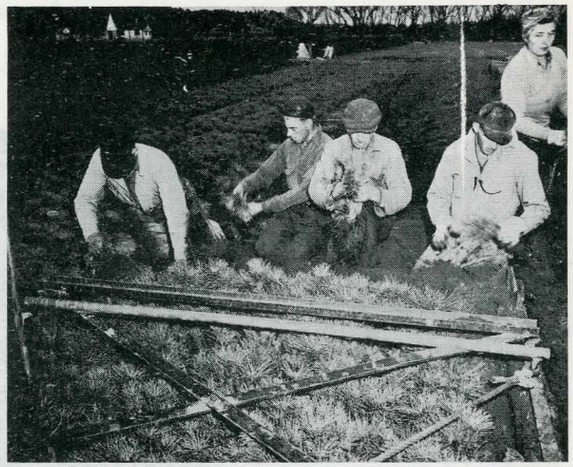
Table I

Year	Broadleaf	Evergreen	Total Trees	Number Co-operators
1926	10,100	23,800	33,900	96
1927	80,000	106,000	186,000	1088
1928	382,000	300,000	682,000	2686
1929	386,000	321,000	707,000	2556
1930	436,900	418,500	855,400	2676
1931	471,200	489,300	960,500	3212
1932	493,000	455,000	948,000	3402
1933	504,000	300,600	804,600	3231
1934	797,100	317,400	1,114,500	4016
1935	641,100	393,800	1,034,900	3634
1936	1,112,100	428,300	1,540,400	5573
1937	1,283,100	377,200	1,660,300	5784
1938	702,280	328,975	1,031,255	6125
1939	592,846	356,015	948,861	5775
1940	536,335	309,960	846,295	4383
1941	580,300	330,900	911,200	4455
1942	451,770	412,075	863,845	3516
1943	376,625	597,525	974,150	2633
1944	353,300	691,925	1,045,225	2292
1945	317,325	519,435	836,760	3056
1946	339,850	526,045	865,895	2613
1947	793,025	476,840	1,269,865	3430
1948	836,775	849,500	1,686,275	3818
1949	996,125	572,875	1,569,000	4378
1950	776,900	374,325	1,151,225	3554
Totals	14,250,056	10,277,295	24,527,351	

Species Distributed

A combination of broadleaf and evergreen species is generally recommended for windbreak plantings. The faster growing broadleaf trees give protection in a relatively short time and furnish height while the evergreens provide density.

Both broadleaf seedlings and evergreen transplants have been made available each year. The number of species has varied somewhat from year to year depending on availability and price. In the main, the list of broadleaf species has included the following: American elm, Ash, Black locust, Boxelder, Caragana, Chinese elm, Cottonwood, Hackberry,



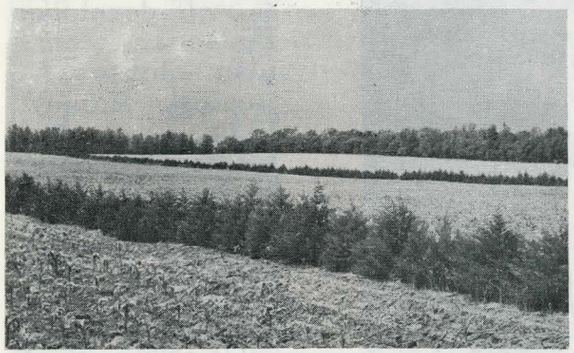
A Forest Service crew at Bessey Nursery digging pine transplants such as have been used for Clarke-McNary tree distribution.

A well developed Redcedar transplant pleases L. Besley, Halsey, left, and Extension Forester Maxwell. Mr. Besley has assisted with Clarke - McNary tree distribution each year since the program began.

Honeylocust, Russian mulberry, Russian olive, Soft maple, and Wild plum. These have generally been one-year-old seedlings of 12"-18" grade.

The Chinese elm was first made available through the Clarke-McNary program in 1930. It was, however, first introduced into Nebraska in 1915. In the years following its introduction it received much favorable publicity and consequently considerable demand developed for it among farmers for windbreak planting. A total of 273,000 Chinese elm seedlings were distributed that first year. It grew fast and did well even in dry situations, and its popularity rapidly

E. W. Dickson, railway express agent, Halsey, Nebraska, and Extension Forester, Earl G. Maxwell, examining shipment of Clarke - McNary trees. Through this shipping point practically all of the 10,277,295 evergreens which have been used in the Clarke-McNary program, have been sent.

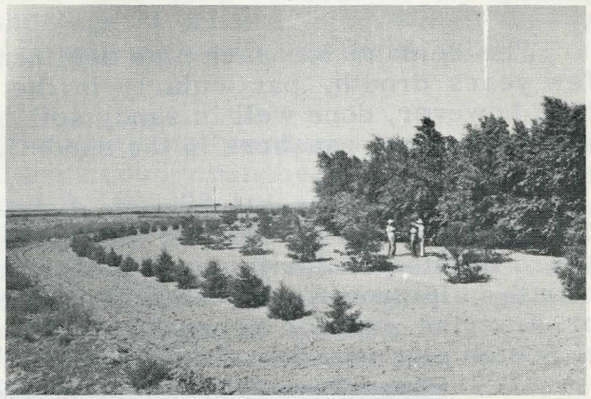


Single row field windbreaks on the Earl Lewis farm in western Pierce county.

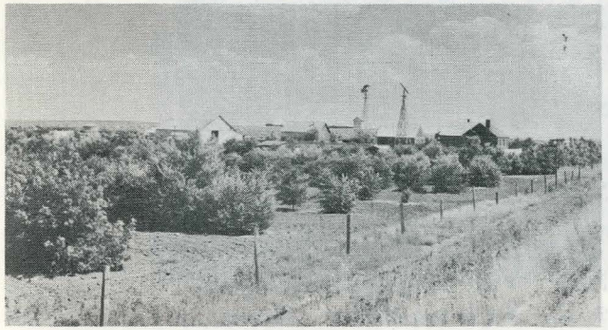
increased. In the five-year period 1935-39, 2,519,000 Chinese elms were distributed. The Armistice Day freeze in 1940 took a rather heavy toll of Chinese elms, particularly those that had been trimmed up at the base. Chinese elms that had been allowed to grow naturally in windbreaks suffered least. The heavy losses resulting from the 1940 freeze discouraged many farmers from planting Chinese elm and in the five-year period 1941-45 orders were received for only 688,400 of this species. The demand for this species increased considerably during the last five years.

Other popular broadleaf species have been Russian olive, Russian mulberry, Honeylocust, Black locust, Hackberry, Wild plum, and Cottonwood.

The five principal evergreens distributed have been once-transplanted Redcedar, Ponderosa pine, Austrian pine,



Farmstead windbreak of Redcedar, Honeylocust, Hackberry, and Chinese elm on the Rudolph Reimers farm - Keith County. U.S.F.S. Photo



Farmstead windbreak on the Theodore Smith farm - Deuel County.

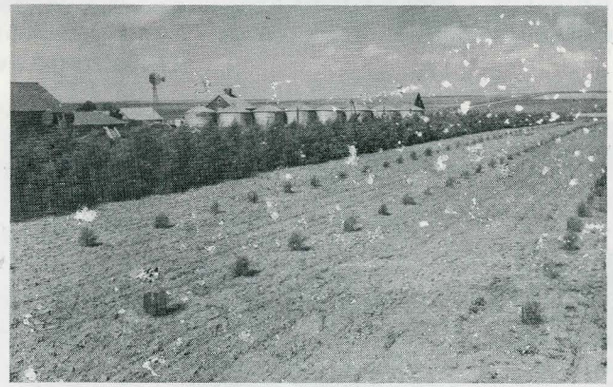
Jack pine, and Scotch pine. The Redcedars were generally two years old (1-1)[a] and the pines were three years old (2-1)[b].

By far the most popular evergreen species in recent years has been the Redcedar. It gained great popularity during the drouth years of the 30's because of its high livability during that difficult period. The greatest number of Redcedars were distributed in the years 1943 to 1945 inclusive. Approximately 1.5 million Redcedars were sent out in this three-year period. The number distributed in the next five-year period showed a marked decline not because of lack of demand but because of the unavailability of stock. Only 26,650 Redcedars were available for distribution in 1950 while the demand was for many times that number.

The two pines which have been in greatest demand throughout the state over the years are Ponderosa pine and Austrian pine.

The demand for Jack pine declined considerably after a few years drouth, particularly in the hard land areas. It has, however, done well in sandy soil areas and is still popular with some ranchers in the sandhills.

Scotch pine transplants were distributed each year from 1926 to 1939. This species was rather popular for several years but its popularity declined after a few years of severe drouth. It proved less suitable than either Ponderosa pine or Austrian pine for Nebraska conditions. The distribution of Scotch pine was discontinued in 1940.



Clarke-McNary windbreak planting on the Charles G. Schroeder farm - Furnas County. U.S.F.S. Photo

a - One year in seedling bed - one year in transplant bed.
b - Two years in seedling bed - one year in transplant bed.

Handling Planting Stock

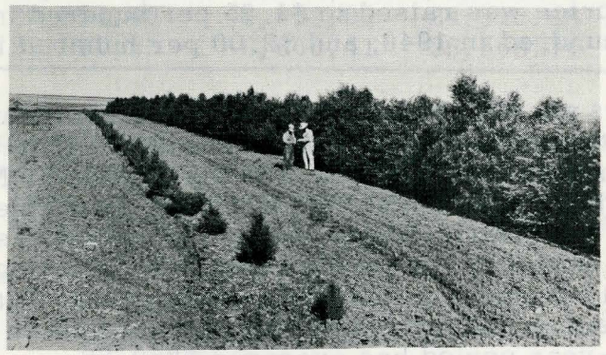
Each nurseryman furnishing broadleaf trees digs them in the fall, grades and ties each species in bundles of 100, and delivers them to the Extension Service for storage at Fremont. Usually this stock is heeled in the ground over winter. Shipment of all broadleaf stock is made in the spring from Fremont.

The evergreens at Bessey Nursery in the Nebraska National Forest, Halsey, are dug in the spring by the Forest Service and delivered to a packing shed at the Nursery where all evergreen orders are packed for shipment.

In the early years tree orders, both broadleaf and evergreens, were wrapped in heavy paper and tied. Since 1938 trees have been packed and shipped in corrugated boxes. This sort of packaging proved to be more suitable from the standpoint of appearance and also because of the ease of packing. With the shortage of labor during World War II it became necessary to employ women to do the packing of the tree orders.

Several counties have consistently ordered large numbers of trees each year. Cherry county ranchers have in the past 25-year period ordered 1,100,000 trees. Holt county is a close second with a little under a million. Custer, Lincoln, Scotts Bluff, Rock, Brown, and Lancaster counties each have been sent over a half-million trees during this period.

A number of individuals have ordered trees several years in succession. Joe Koenig of Riverview in Keya Paha county began ordering Clarke-McNary trees in 1928. Since that



A three-year old Clarke-McNary planting made by A. J. Zink - Red Willow County. U.S.F.S. Photo

time he has ordered 21,500 trees, failing to order some trees only six times during the 25-year period.

Stanley Rothleutner, a rancher north of Kilgore in Cherry county, began ordering Clarke-McNary trees in 1932 and has missed only two years since that time.

The majority of Clarke-McNary trees have been used for planting farmstead windbreaks but many have been planted for field shelterbelts, livestock shelters, wildlife habitats, and for growing fence posts and other wood products.

Ranchers in the sandhills have planted trees in large numbers for protecting their cattle herds while on their winter ranges. For example, the Arnold Cattle Co. of Cherry county has secured through the Clarke-McNary program 75,000 trees, mostly evergreens, in the last five years. John Drayton, also of Cherry county, has in the last five years made a good many separate plantings of a few to several acres in extent distributed over his winter range for protecting his cattle herd during severe winter weather.

Tree Cost to Farmers

The delivered price for trees to farmers from 1926 to 1945 was $1.00 per hundred or 1 cent per tree. Clarke-McNary trees were often referred to as "penny trees". Rising costs in later years necessitated increasing the price to farmers. The price was raised to $1.25 per hundred in 1945; to $1.50 per hundred in 1948; and $2.00 per hundred in 1949.

Farmers who have purchased trees have contributed most to the operation of the project. Funds received from the Federal government through Sec. 4 of the Clarke-McNary Law and through supplemental funds made available with the passage of the Norris-Doxey Act of 1937 have assisted in making it possible to supply forest tree planting stock to farmers at a low cost. A relatively small amount of tax money has been spent on the program. The annual cost to the state over the 25-year period has averaged $859.96.

Annual receipt from sale of trees, total receipts, federal contribution, and total expenses are given in Table II below.

Table II -- Record of Receipts and Expenditures

Fiscal Year	Receipts from Sale of Trees	Federal Contributions	Total Income	Total Expenditures
1926	$ 329.53	$	$ 329.53	$ 114.20
1927	1,824.32	720.00	2,544.32	2,250.00
1928	6,968.57	2,000.00	8,968.57	6,334.95
1929	7,894.57	2,100.00	9,994.57	10,475.21
1930	10,331.48	2,200.00	12,531.48	12,854.41
1931	11,579.32	3,550.00	15,129.32	15,532.92
1932	10,586.37	3,880.00	14,466.37	15,537.21
1933	10,434.97	2,367.00	12,801.97	11,637.43
1934	12,083.39	2,500.00	14,583.39	13,898.80
1935	10,212.73	1,850.00	12,062.73	10,432.19
1936	15,759.40	1,590.00	17,349.40	16,522.07
1937	18,975.35	2,224.00	21,199.35	19,643.30
1938	11,020.96	1,701.00	12,721.96	15,269.08
1939	8,943.98	2,637.00	11,580.98	10,210.50
1940	7,906.76	2,516.00	10,422.76	13,406.00
1941	8,580.00	3,004.00	11,584.00	13,045.01
1942	8,813.50	2,681.00	11,494.50	13,638.88
1943	7,929.25	3,086.00	11,015.25	13,792.23
1944	7,907.91	3,186.00	11,093.91	13,723.88
1945	9,233.61	2,934.96	12,168.57	13,099.53
1946	10,605.16	2,041.71	12,646.87	14,688.59
1947	15,553.03	4,103.96	19,656.99	24,072.02
1948	25,074.20	2,286.44	27,360.64	30,815.31
1949	30,852.46	3,663.02	34,515.48	38,439.80
1950	22,900.33	3,668.41	26,568.74	26,857.15

The distribution cost per thousand trees varied because of the price of nursery stock, postal and express rates, cost of labor, etc. The breakdown of these costs for 1950 is shown in Table III.

Table III -- Cost of Tree Distribution in 1950

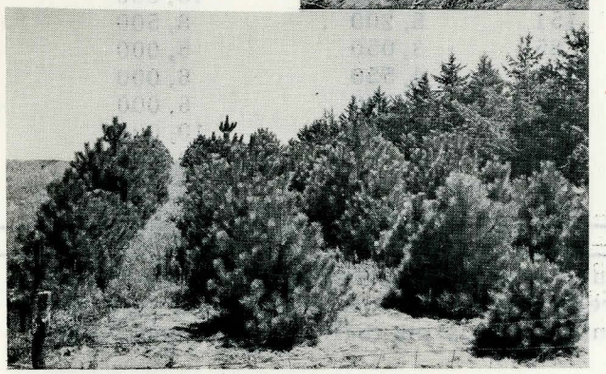
	Cost	Ave. per M.
1,151,225 trees distributed	$19,267.96	$16.74
Postage and express	2,064.57	1.79
Labor	1,119.08	.97
Supplies (boxes, moss, paper)	1,122.40	.98
Inspection certificates, application blanks, office help, and supplies	697.52	.61
Extension Service overhead	2,585.62	2.25
Total	$26,857.15	$23.34

4-H Forestry Clubs

A 4-H forestry project was outlined and project material prepared by Mr. Maxwell in 1935. This project was added to the list of available club projects for 1936. In order to encourage the organization of Forestry Clubs and also to provide means of effectively demonstrating that evergreens could be grown successfully on Nebraska farms, 100 evergreen transplants were offered gratis to each member of the first 18 4-H forestry clubs organized before February 1, 1936, with ten or more members. The offer was limited to one club to a county. To qualify the clubs were required to hold at least one tree planting demonstration by tree planting time.

Thirty-six 4-H forestry clubs were organized in 1936 in 29 counties with a total membership of 373. The 18 clubs which qualified were furnished a total of 22,000 evergreen transplants. It was estimated that all forestry club members that year planted a total of 40,000 trees. This was a year

Leland Wilhelm, Otoe County, shows Forester Maxwell an Austrian Pine planted by himself and his brother Floyd in 1936.



The 4-H Forestry club planting of Austrian pine made in 1936 by Leland and Floyd Wilhelm - as it appeared in 1943.

of severe drouth and the average survival of the trees was rather low. However, several individuals raised a large percentage of their trees. Albert Johnson, a member of a Deuel county club, whose planting is shown on the cover page, raised 97 percent of the 200 Ponderosa pine which he planted.

As a result of the year's experience, it was decided to reduce the number of trees each 4-H member should plant to meet the tree planting requirements from 100 trees to 25 for new members and 35 for all others.

For several years the 4-H Forestry Club project was very popular This was partly because it was new and partly because money was scarce and it was difficult to finance livestock and other club projects which ordinarily are more popular. The number of club projects increased and remained high until 1941 when a marked decline occurred because of war conditions. At that time increased emphasis was placed on club projects more closely related to food production to help win the war.

Table IV - 4-H Forestry Club Record

Year	Clubs Organized	Total Members	Total Members Completing	Trees given gratis by Ext. Service	Estimated Total trees planted by all club members*
1936	36	373	286	22,000	40,000
1937	71	778	623	38,300	60,000
1938	219	2604	2178	64,455	75,000
1939	226	2653	2014	67,700	83,000
1940	184	2080	1752	58,383	63,000
1941	155	1636	1320	48,925	49,000
1942	46	436	290	12,500	18,000
1943	23	228	151	8,200	8,500
1944	16	171	85	3,050	5,000
1945	19	184	131	4,550	6,000
1946	15	186	137	5,285	6,000
1947	23	267	183	1,550	10,000
1948	22	174	122		9,000
1949	9	79	61		3,500
1950	44	449	390	12,825	14,000
Total				347,723	450,000

*Not all 4-H forestry club members were supplied trees gratis. Several secured their trees from other sources. Some met their tree planting requirements by assisting their parents and others with tree planting.

The Clarke-McNary tree distribution program has been popular with Nebraska farmers because it has furnished them needed planting stock at a nominal price. During the 25-year period a great many windbreaks and groves have been established that are now providing the benefits which they were expected to furnish.

Nebraska ranks high among the Plains States in number of Clarke-McNary trees distributed. The Nebraska Clarke-McNary program has been recognized as very successful by folks outside the state and inquiries have come from other states as to how the program is handled here. The large farmer participation is an indication of its success and points out the need for its continuance.