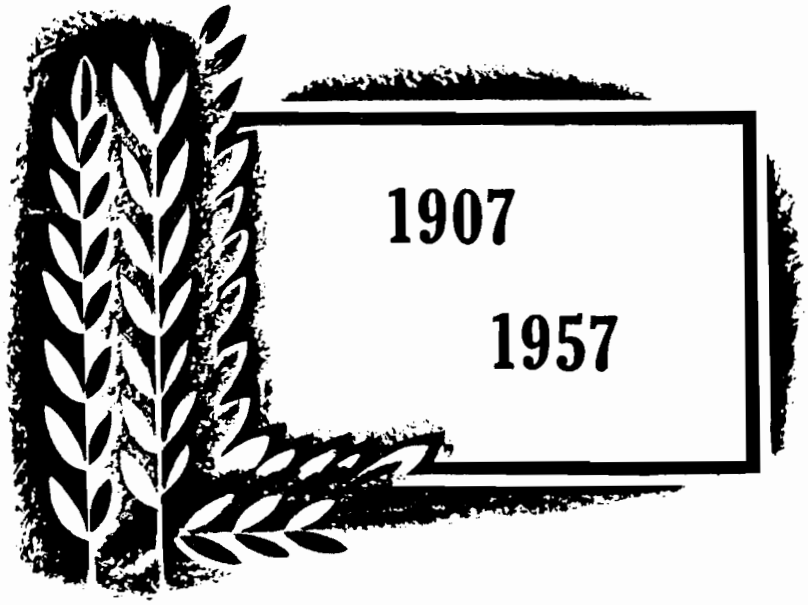
Fifty Years of Agricultural Progress

USDA
Central Great Plains Field Station
Akron, Colorado



U. S. Department of Agriculture
Colorado State University
and Local Groups Cooperating
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THE PAST, PRESENT AND FUTURE OF THE USDA CENTRAL GREAT PLAINS FIELD STATION, AKRON, COLORADO

Fifty Years of Research

About 1906 the Federal Government indicated it was willing to establish Agricultural Experiment Stations in the Great Plains area. Immediately the people in and about Akron, Colorado got busy to meet the specifications, namely:

(1) A suitable piece of native sod land be provided.
(2) The sum of $3,000 be made available for erecting the necessary buildings.

Among the chief supporters of this early action were August Muntzing, an attorney, H. G. Pickett, a newspaper editor, and James Brunker, a farmer-rancher, all of the Akron area. Washington county commissioners, Louis B. Wind, Mark B. Gill, and Elmer E. Brown, provided 66-2/3 acres of sod land that was acceptable. M. F. Vance, a local farmer-rancher, succeeded in having an adjoining 160 acres of state land set aside from homestead entry and it was added to what the County provided. On these 226-2/3 acres, the station was established in 1907.

Portions of the original buffalo-grama grass sod were broken out in 1907 to establish the first experiments in 1908 and 1909. Officially it became the U. S. Akron Field Station and now is one of the oldest Federal Experiment Stations in the Great Plains area.

In 1926, Dr. C. A. Lory, president of Colorado A & M College (now Colorado State University) at Fort Collins accompanied E. J. Maynard, staff animal husbandman, to the station. Dr. Lory was shown an adjoining 160 acres of native sod located across the tracks of the Burlington Railway. He agreed to the purchase of this land by the college which raised the station land area to 386 acres.

About 1930, the Colorado State Highway Department sought land along the south side of the 66-2/3 acres for federal highway purposes.

John M. Stephens, regional supervisor, from the Mandan, North Dakota station met with local citizens at Akron. As a result, sufficient funds were raised to buy 20 acres adjoining the 66 acres on the west. This 20 acres was deeded to Washington county which leases the land to the station. This raised the station land acreage to 406 acres, the present expanse.

The first superintendent of the station was J. E. Payne. His place was taken in 1910 by O. J. Grace, who remained until 1920. J. F. Brandon became superintendent in 1920 and has operated to the present time. In this time he has attained the research title of agronomist.

Both the cereal and forage offices of the U. S. Department of Agriculture maintained research personnel at the station beginning in 1908. Among personnel from these offices were W. C. Shelley, A. C. Dillman, H. N. Vinall, G. E. Thompson, Charles H. Clark, George A. McMurdo, F. A. Coffman, and J. J. Curtis. The dryland office has maintained a scientific researcher at the station during much of its tenure. Among those holding this post were A. E. Seamans, W. M. Osborne, N. L. Jensen, and J. F. Brandon.

In the period 1910-1920, Drs. Lyman J. Briggs and Homer L. Shantz did their classic research on the water requirements of plants, work which has received world-wide recognition. Others participating in this work were A. P. Kidder, Homer Martin, Auguste Boncquet, A. McG. Peters, R. D. Rands, G. Crawford, A. F. Cajori, N. Peters, H. W. Marquard, J. D. Hird, R. L. Piemeisel, H. Shattyn, T. R. Henault, F. M. Eaton and Clyde Griswold.

During the 50 years of the station's existence, various agencies of the U. S. Department of Agriculture in cooperation with the Colorado Agricultural Experiment Station have maintained a wide variety of research activity. Work has included soil and crop management studies; shade, windbreak, ornamental and fruit tree adaptability and management studies; plant selection, breeding and adaptability investigations; and animal feeding and production work.

Notable soil and crop management work at Akron has been underway since 1909. These long-time crop rotations and management studies continued until 1954 and have yielded a wealth of valuable information on the best adapted crop sequences and the proper tillage and cultural practices for successful crop production. Recommended dates and rates of seeding have been firmly established for a wide variety of grain and forage crops.

Extensive deciduous and evergreen plantings have been underway at the Akron station since 1908. These studies have included intensive determinations of the adaptability of various species and the systems of management under which different species are best maintained. Performance and adaptability of various fruit trees have also been measured.

Major contributions have been made in development and selection of adapted crop varieties in cooperation with agronomists of the Colorado Experiment Station. Outstanding developments have included leading wheat varieties such as Akrona Durum, Kanred, Temmarq, and Comanche; oat varieties such as Brunker; barley such as Otis, Vance, Beecher, Munsing, and Club Mariout; and sorghums such as Improved Coes, Highland and Alliance. These varieties have done much to stabilize and strengthen the agriculture of the region.

Farmers have also profited from work at the Akron station that gave negative results. Many plant species tested have not proved adaptable to the Central High Plains area, and farmers learned what not to plant. Tests that ended negatively included flax, sunflowers, corn, navy beans and certain vegetable crops such as peas, spinach and melons.

Animal feeding and production work has included sheep grazing, hog and lamb fattening, calf feeding, and cow-calf production studies.

The work at the Akron Field Station has resulted in a great number of publications and reports of value to other research workers and especially to the farmers and ranchers. This work has been a major portion of the background for recommendations in the dryland areas of the Central High Plains.

Present and Prospective Research Activity

On July 1, 1956, the Akron Field Station received designation for agricultural research for the Central Great Plains and on December 20, 1956, the name was changed to USDA Central Great Plains Field Station to more clearly define this added responsibility. The experimental program will be broadened to include work in eastern Colorado, western Kansas, western Nebraska and southeastern Wyoming.

To convert the station to a large headquarters serving portions of four states is not a job that can be done overnight. It is anticipated that several years will be necessary to completely develop the program. This overall program will involve several necessary steps before the expansion job is completed. Listed below are the steps receiving major attention:

1. Draw up and lay out in the field various experimental plans in accordance with the most critical soil and water conservation needs for the Central Great Plains.
2. Revise and adjust the available land for new field experiments.
3. Increase both the technical and non-technical staff.
4. Develop adequate water supply for multiple station purposes.
5. Remodel present buildings for anticipated program needs.
6. Purchase the necessary tools, instruments, machinery, etc., needed for new field experiments.
7. Provide modern laboratory facilities for necessary chemical, physical and other soil and plant measurements.

New experiments will deal with the major crops, cropping systems, and land use problems occurring in the Central Plains so that maximum utilization of resources at minimum cost is realized. Briefly, the biggest individual problem is to find a way to get more water into the soil and convert that water into maximum crop units. Three major experiments aimed at this general objective were started in 1955 and 1956.

Available land facilities on the station are being adjusted to accommodate new research. Other areas occupied by studies that are completed or that are not in experimental plots will be utilized as new experiments are developed.

Present staff members are: J. F. Brandon, agronomist and superintendent; M. B. Cox, agricultural engineer; B. W. Greb, soil scientist; Maurine K. Lane, clerk-stenographer; L. H. Kundert, agricultural aid; Robert L. Florian, agricultural aid; Wendale Graves, machinery operator; and Ruedean Severin, farm laborer.

Good progress has been made in recent months to provide an adequate water supply for station requirements. A new domestic well has been completed and attached to the original water system.

Test holes have been completed and bids let for the development of another larger multi-purpose well to provide additional water for fire protection, landscape development, emergency water for experimental grass and grain nurseries, and for two or three special soil moisture experimental studies on small leveled areas. These studies will be designed to provide a variation in soil moisture condition every year which normally would require many years to attain.

Two small soil laboratories are well past the planning stage. One laboratory, to be used for chemical analyses is almost completed. The second laboratory will be used for sample preparation, soil moisture determination, and soil physical characteristics, including such things as wind erodibility.

Established work in cooperation with the Colorado Experiment Station, such as crop variety trials, grass selection plots and windbreak will be continued as in the past.

Experimental work underway or in the process of establishment and the station personnel responsible for it is as follows:

1. Soil Removal Experiment: A study of the production of winter wheat on land that has been eroded to various depths. Can the soil which has been so affected be improved by residue management and commercial fertilizer? B. W. Greb.

2. Uniform Cropping of Original Long-Term Rotation: This involves the effect of certain past cropping and cultural practices on yields of a uniform crop of winter wheat and/or grain sorghum. B. W. Greb.

3. Methods of Grain Sorghum Production: A new experiment to study grain sorghum production under three crop sequences (sorghum - after - sorghum, fallow - wheat - sorghum, and fallow - sorghum). Various drill spacings and lister type plantings will be used in each sequence. B. W. Greb.

4. Cooperative Stubble Mulch Field Trial, Peetz, Colorado: A new field trial involving plowing, stubble mulch, and disk-type summer fallow tillage for winter wheat. B. W. Greb.

5. Cooperative Stubble Mulch Field Trial, Hayden, Colorado: Two field trials comparing conventional chisel, plow, and disk-type summer fallow with stubble mulch tillage on steep land in northwestern Colorado for winter wheat production. B. W. Greb.

6. Native and Tame Grass Fertilization Under Dryland Conditions: Rates of 0, 40 and 80 lbs. of commercial nitrogen applied to various native and tame grasses which had been established since 1942. Responses are anticipated in forage and/or seed production. B. W. Greb.

7. Narrow Strip Cropping Field Trial: A field trial involving a fallow - wheat - sorghum sequence in long narrow field strips to observe weed control and field operation difficulties. B. W. Greb.

8. Conservation Bench Terraces: This new experiment is designed to allow drainage from sloping land to spread over leveled areas. Annual cropping to sorghum will be used on the leveled areas with sorghum - fallow on the slopes. Different lengths of slopes will be tried varying from zero to three times the width of the leveled portion. M. B. Cox.

9. Bench Catchment Terraces in Western Kansas: This experiment is located at the Fort Hays, Kansas Experiment Station and is a companion to project number 8 above at Akron. Others are located at Amarillo, Texas and Newell, South Dakota. The Hays experiment is expected to be the eastern limit of the usefulness of this type of terraces. M. B. Cox.

10. Terrace Spacing for Moisture Conservation and Crop Production in Northeastern Colorado: This new experiment is designed to study several spacings of level terraces for their value in spreading and conserving moisture for increased crop production. Runoff, crop yields and soil moisture distribution measurements will be made. M. B. Cox.

11. Terraces for Moisture Conservation and Distribution in Western Kansas: Two field trial experiments in western Kansas are located near Oakley and Dighton, Kansas. These experiments are designed to evaluate various spacings of level, closed-end terraces. M. B. Cox.

12. Types of Terrace Construction for Moisture Conservation: This field trial experiment, located near St. Francis, Kansas, is intended to evaluate four types of terrace ridge design. M. B. Cox.

In addition to the above field experimental work, J. F. Brandon is actively engaged in summarization of past experimental work.

It is sincerely hoped that the USDA Central Great Plains Field Station will continue, with its new responsibilities, to serve the agriculture of the region and that progress in solution of agricultural problems can be hastened through intensified research activity at Akron. All concerned with the experimental programs at Akron express their deep appreciation for the sustained and continuing local support and trust that this support will be increasingly justified.