



NORTH DAKOTA Farm Research

Bimonthly
Bulletin

Vol. 32, No. 4

March-April, 1975



From the Director

A. G. Hazen



Beginning a New Century

"Almost Everything Starts on a Farm" is the slogan adopted by the National Agri-Marketing Association in sponsoring March 24, 1975 as National Agriculture Day. The objective of the designation and of the slogan is to help urban Americans understand how their lives and often their very jobs are touched by agriculture each day.

With the signature of a bill on July 20, 1875, appropriating \$2,800 for two years, Governor Ingersoll of Connecticut established The Connecticut Agricultural Experiment Station. This action is recognized as the beginning of the state experiment station movement in the United States. Recall that the Morrill Act of 1862, signed into law by President Lincoln, had provided for a land-grant college in each state where the principal object would be to teach agriculture and the mechanic arts without excluding any other branches of learning. The United States Department of Agriculture was also founded that same year. The Hatch Act of 1887 providing for modest federal financial support of individual agricultural experiment stations at the land-grant colleges was yet to come, as was the Smith-Lever Act of 1914 which marked the beginning of a federal-state cooperative agricultural extension service.

Therefore, the several state agricultural experiment stations throughout the nation are observing 1975 as a centennial year. The North Dakota Agricultural Experiment Station is proud to join in this observance even though our year of founding was not until 1890, the same year as our statehood. On January 20, 1890, Senator John E. Haggart of Fargo introduced Senate Bill 140 entitled, "A bill for the act to provide for the establishment, erection, and operation of the North Dakota Agricultural College and Agricultural Experiment Station at Fargo." The bill passed both houses and was signed by Governor John Miller on March 8, 1890.

Agriculture is fundamental to achieving and maintaining national strength, and it takes no stretch of imagination to recognize the fact that

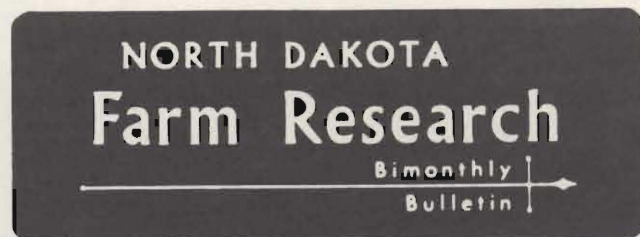
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On the Cover: Both sides of the bronze medal struck to commemorate the 100th anniversary of the first U.S. agricultural experiment station, and the contributions of the various state experiment stations to American agricultural research.

(Photo by Harold Caldwell)



Vol. 32, No. 4

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A BIMONTHLY progress report published
by the

**Agricultural Experiment Station,
North Dakota State University of
Agriculture and Applied Science**
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drawbar horsepower than their neighbors with smaller farms. The data in Table 4 show the number of acres presently farmed per total drawbar horsepower, as well as the farmer's estimate of maximum acres he could operate with his present labor. Acres of cropland per total farm horsepower was calculated for five farm size groups.

Acres farmed per total drawbar horsepower increased with the size of farm. Part of the difference is explained by the fact that the larger farms were not cropped as intensely as the smaller farms. However, it appears that the operators of larger farms do make more efficient use of their tractor power.

Farmers in all farm size groups estimated that they could increase the acreage farmed with their present tractors and labor. The operators of smaller farms felt they could increase acreage by the greatest per cent, while the operators of the larger farms estimated the greatest absolute increase in acres handled per total farm horsepower.

The fact that all farm operators felt they could handle more land if it were available gives evidence to the existence of an over-capacity of tractor horsepower on farms. The environment for the future expansion of farms having four-wheel drive tractors, it would seem, is favorable.

Reasons for Four-Wheel Drive Rather Than Two-Wheel Drive

Reasons for purchasing a four-wheel drive tractor rather than a two-wheel drive tractor may be useful information to farm operators considering the purchase of a large tractor. The respondents were asked the principle reason for purchasing a four-wheel drive tractor over a two-wheel drive tractor of similar power. The responses were segregated into eight general categories. The most popular response was "more traction", which describes the ability of a four-wheel drive tractor to outperform a two-wheel drive tractor in adverse conditions. The second most frequent reason, "more power," referred to the unavailability of very large horsepower two-wheel drive tractors. "Pulling capacity" described the ability of four-wheel drive tractors to pull larger loads in varying conditions. "Economy" refers to the purchase price and operating cost per horsepower. "Pulling capacity" and "economy" were the third and fourth most frequent reasons mentioned. The fifth and sixth most noted reasons were "labor" and "flotation." "Labor" describes the labor-saving possibilities of large horsepower four-wheel drive tractors and "flotation" refers to the ability of these tractors to operate in wetter conditions. "Comfort," the seventh reason, refers

to the smoother ride and easier handling over rough terrain which is characteristic of many four-wheel drive models. "Maintenance," the least frequent reason given, denotes ease of servicing.

Each respondent was also asked whether his four-wheel drive tractor had lived up to his expectation. Forty-nine respondents said that it had, 12 indicated it had more than lived up to expectation, and only six said the tractor had not met their expectation.

(From the Director . . . from page 3)

the United States of America achieved a position of world leadership among nations because of the willingness of its citizenry to develop and maintain a strong food and fiber production system. Nowhere in our democracy is there a better example of the individual citizen, state governments, federal government and the private industry sector working in harmony to provide an abundance of agricultural products, not only for our citizens but also for a significant portion of the other world nations' populations.

Thus, with our nation's government observing its bicentennial year in 1976 and the state agricultural experiment stations observing their centennial year in 1975, we might take this occasion to speculate what has happened to agriculture in the past hundred years compared with what may happen during the next hundred years.

During the past century, we have learned how to produce food and fiber by a relatively small percentage of our population through a combination of scientific knowledge, individual producer incentive and an advanced processing, packaging and marketing system. Generally, this has been highly successful. However, the present system is based upon consumption of energy resources predominantly generated from the fossil fuels which are not self-replacing.

Therefore, for the coming century it will be necessary to more carefully analyze the energy consumption from fossil fuels for agricultural production with a view toward both conservation and ultimate replacement for them. This, together with maintenance of productive soils, will be among the major challenges of the future for meeting the food and fiber needs of our national and international peoples.

The state agricultural experiment stations are capable of a major contribution toward meeting these challenges.

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POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



LERROY W. SCHAFFNER

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BULK THIRD-CLASS

Summary

There are approximately 5,000 licensed country grain elevators in Canada with a storage capacity of 400 million bushels. These firms are both privately and cooperatively owned. The cooperative elevators had their beginning in 1906, and have been active in the development of the Canadian grain marketing system as it exists today.

These cooperatives have played an important role in the establishment of the Canadian Wheat Board, which is the sole marketing agency for wheat, barley and oats produced in Canada. The Wheat Board controls the movement of grain from the private and cooperative country elevators by means of shipping orders issued to the elevator companies. Once in the terminal or export position, the grain is usually sold to private companies for dispersment.

The role of the Canadian Grain Commission in the grain marketing system is to maintain quality standards. Each year it establishes minimums for each grade and publishes an annual crop year report. The Grain Inspection Laboratory provides official inspection, grading and weighing of grain, and registration of warehouse receipts.

The Canadian International Grains Institute is primarily an educational facility for the grain industry of Canada. It provides practical training for domestic and international grain and oilseed industry groups, with the idea of promoting good will for the Canadian grain marketing system.

The Winnipeg Grain Exchange provides facilities for cash and futures markets. Wheat, oats, barley, flaxseed, rapeseed and rye are traded in the cash market, and all except wheat are traded on the futures market.