

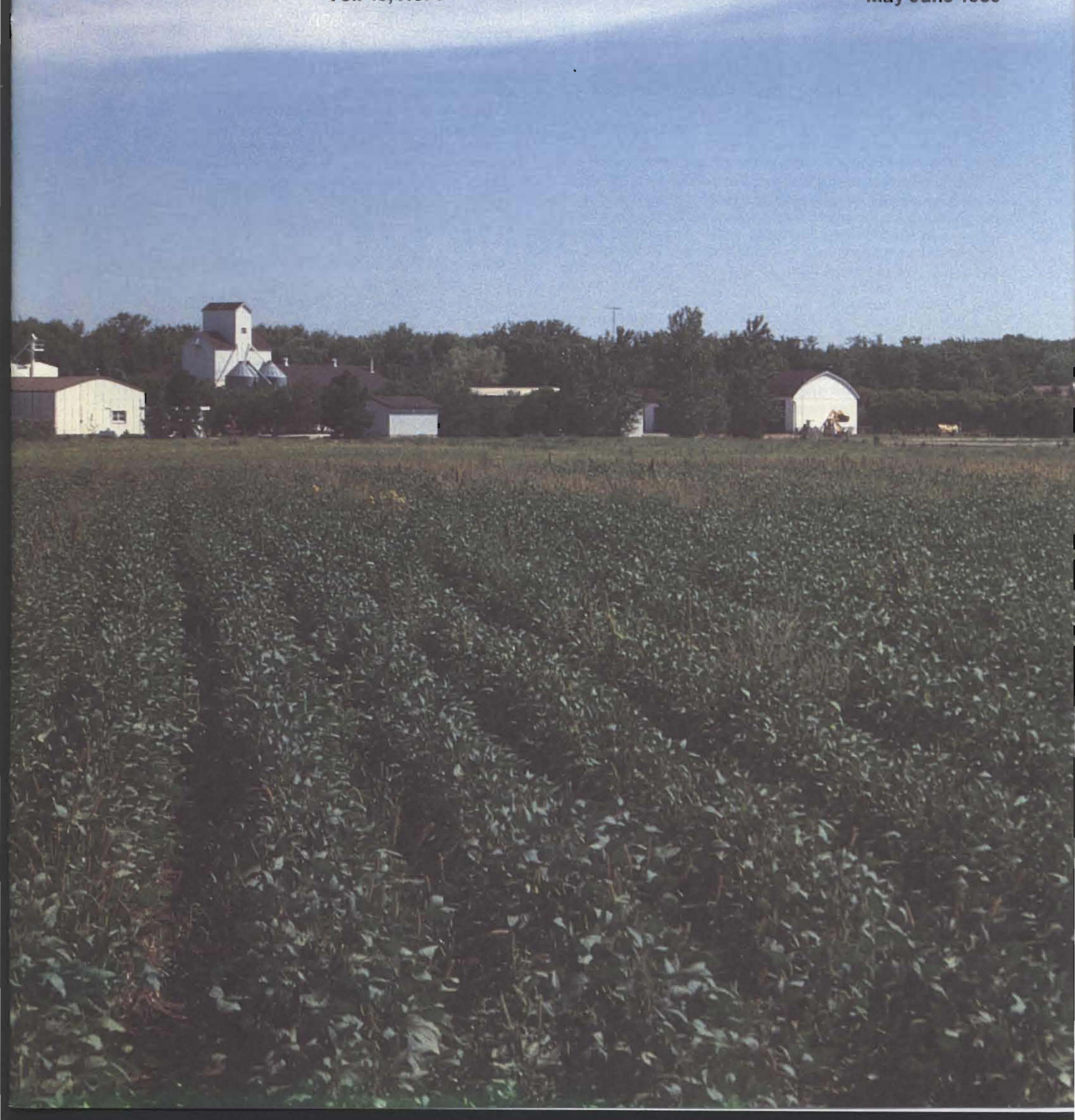


NORTH DAKOTA
Farm Research

Bimonthly
Bulletin

Vol. 46, No. 6

May-June 1989



Guest Column



Don Scott, Chairman
Agricultural Economics



Earl Foster, Chairman
Crop and Weed Science

The lead article in this issue of Farm Research by Roger G. Johnson and Dean Bangsund provides a perspective on the growing importance of row crops in North Dakota in terms of production and economic value. The North Dakota economy has become increasingly diversified in the past 20 years, but agriculture continues to be the most important sector of our state's economy. In 1987, agriculture (crops and livestock) generated 43 percent of the business activity in the state, with crops responsible for three-fourths of that amount and livestock one-fourth. In looking at the importance of various segments of the agricultural sector, a particularly noteworthy fact is the growing significance of row crops. In 1987, over one-fifth of our economic base attributable to agriculture came from row crops, while in 1970 it was only 7 percent.

Aside from the economic contribution of row crops to the agricultural economy, there are many reasons why row crops are important to producers. They provide opportunities for production diversification which reduces producer risk. They provide opportunities for more efficient use of land, labor, and capital resources in agriculture and create alternative marketing opportunities for producers. They also lead to value-added activities (further processing) that are important to the state's overall economy.

Row crops have a long history of production in the state. Corn and potatoes were grown by some of the first settlers, and records indicate that corn was grown much earlier than that by Native Americans. Acreage planted to row crops is much less than that planted to solid seeded crops, and showed a gradual increase until 1982, when about five million acres of the state's 24 million acres of tilled land was planted to row crops. That figure now has declined to about three million acres because of a reduction in acreage planted to sunflower.

Major row crops in North Dakota, in decreasing order of acreage, are sunflower, corn, soybeans, dry edible beans, sugarbeets, and potatoes. Yields of row crops, like those of small grains, have increased dramatically over the years because of greater yielding varieties or hybrids, better disease resistance, improved cultural practices, and changes in machinery.

Crop surveys first reported acreage of sunflower in 1947, when 4,000 acres were planted. There was a gradual increase in acreage over the next 30 years, and most of this

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On the Cover: Row crops like this soybean field in central North Dakota are a vital and potentially growing facet of North Dakota's agricultural industry. The history and status of row crops in the state are reviewed in this issue. Photo by Gary Moran.



Vol. 46, No. 6

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A BIMONTHLY progress report published by the
**Agricultural Experiment Station,
North Dakota State University
Agriculture and Applied Science
Fargo, North Dakota 58105
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of Agricultural Experiment Station
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The total economic contribution of a crop is greater than its farm value because expenditures are also made in marketing and processing the product. Also, farm and marketing expenditures are re-spent in the local economy. Each dollar spent in crop production is estimated to generate another \$2.86 in business activity for a total multiple of \$3.86 (Coon et al., 1985).

Recent studies have been completed on the economic contribution of the potato and sugarbeet industries in the Red River Valley (Coon et al., 1986 and 1988). The potato industry in 1985 provided \$238 million of business activity in North Dakota and Minnesota, or about \$1,117 per crop acre planted. The sugarbeet industry in 1987 generated \$986 million in business activity in the two states, or about \$2,191 per acre planted. Although not as intense as these two crops, other row crops also are making large contributions to the North Dakota economy.

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acreage was planted to confectionery type sunflowers. In 1974, higher yielding hybrid sunflowers, mostly oil type, became available and sunflower acreage increased several-fold in the next five years. Nearly all of the first hybrids resulted from use of inbred lines developed by USDA-ARS breeders and geneticists located at NDSU. Recent competition from other domestic and foreign sources of vegetable oils has resulted in closing of some sunflower processing plants and a reduction in acreage and production.

The advent of hybrids in corn occurred much earlier than in sunflower, and there was a rapid shift from production of open pollinated to hybrid corn. There has been a gradual shift from production of corn for silage to corn for grain. The availability of high-yielding early-maturing hybrids (the state's average yield of corn for grain has tripled in the past 40 years) and a reduction in the number of livestock farms are reasons for this change. Many early-maturing corn hybrids sold in North Dakota have at least one inbred parent that was developed by the NDSU breeding program.

The dry bean and soybean breeding programs at NDSU were expanded greatly through the cooperation and funding supplied by their commodity groups. Acreage planted to these crops expanded about 1980, and North Dakota has become one of the leading states in production of dry edible beans. Markets for North Dakota-produced dry edible beans gradually have been developed and are continuing to expand. NDSU expects to release higher yielding, good quality varieties of these two crops in the next several years.

Sugarbeet production began in North Dakota in the early 1920s, and the first beet processing plant was constructed in 1926. Several more processing plants have been built since. Acreage of this crop is controlled by the local farmer-owned cooperatives and production has remained rather static in

recent years. NDSU and the University of Minnesota cooperate in providing information on production and weed control practices to growers. USDA-ARS scientists located at NDSU develop germplasm with improved storage characteristics and resistance to pests that is released to commercial breeders.

North Dakota-produced potatoes are used for seed, processing, and table stock. Nearly all of the varieties currently grown in North Dakota were developed by the NDSU breeding program. Several of these varieties show wide adaptation and are grown in other potato producing states. Total acreage of potatoes has remained at about 100,000 acres for at least 20 years.

NDSU scientists are evaluating the potential of several other row crops for North Dakota, including amaranth, crambe, rape, and canola. The success of these "new" crops will depend, as does the success of any crop, on development of markets for the produce.

Regardless of the length of time a specific crop has been grown commercially in the state, the trends in harvested acreage and yield are at the heart of explaining the growing importance of row crops in North Dakota. Many variables help to explain those production trends. Important contributions come from research conducted at NDSU and other Land Grant institutions that leads to new varieties, alternative cultural and management practices, more profitable marketing practices and opportunities, and the feasibility of processing agricultural commodities to create value-added products. That research has been extremely important from the standpoint of enhancing the income of producers as well as the income of other firms and individuals (most of us in the state) whose livelihood depends on agriculture.

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