FIFTY YEARS OF PROGRESS IN CROP PRODUCTION IN POLK COUNTY

“Food and fiber for survival” was the motto of the early pioneer in Polk County. Basically that motto holds true today, however today we expect from life more than mere survival. We expect our food producers to raise not only enough for himself but enough to feed some other forty people. While we no longer have the barter system direct, yet indirectly we barter our surplus foods for commodities that we can use.

Wheat was the most important crop to the pioneer, he produced it in surplus from the virgin lands of the county and it found a ready market when shipping facilities were available. The wheat crop, perhaps more than any other commodity, spurred the railroad builders, such as James J. Hill and others into a race to get the wheat shipping business. The chief competition for the wheat shipments was between the Great Northern and Northern Pacific railroads in Polk County. Poor drainage and grasshopper invasions were the major handicaps to the growing of wheat and other crops. Luckily the grasshopper invasions were far between in years, the 1878-79 invasions being the most devastating. Local outbreak of grasshoppers occurred during the drier years but flights of the migratory and lesser migratory locust occurred only in recent times during the dry years of the middle thirties. The chief menace to the wheat crop however was Black Stem Rust

The Avery (Espe) tractor replaced eight horses before World War I. This first stage of mechanized harvesting did not eliminate men but speeded up work. Later larger binders with “power take-offs” reduced man labor requirements.
which during the period 1910 to 1914 was most severe on the late wheat varieties such as Blue Stem. A new Canadian variety of wheat, Marquis, a high quality bread wheat, earlier in season than Blue Stem largely replaced the old standard varieties until the bad rust years beginning in the early twenties. While the farmers were seeking earlier varieties of wheat such as Reward to escape the rust, the Experiment Stations of Minnesota and North Dakota were attacking the problem on two fronts namely: Breeding rust resistant varieties and through Barberry eradication eliminating the alternate host of the Black Stem rust. With the wide spread planting of the European Barberry as an ornamental shrub and with the dissemination of the seed fruits of that shrub by birds throughout the wheat belt, the wheat breeders were in an uphill battle trying to develop rust resistant varieties faster than the new strains of rust were being developed on the Barberry.

Replacement of horses complete on farms of Kliner brothers near Euclid, Minnesota. Where grain dryers are available, straight combining eliminates many harvesting problems.

Hard spring wheat varieties resistant to the early strains of the then existing rusts were Kota and Ceres from North Dakota and Marquillo and later Thatcher from the Minnesota Station, followed in recent times by Lee from the Minnesota Station and Sel-kirk a Canadian variety which is the dominant bread wheat variety grown in the county today. The Durum varieties such as Kubanka and Mindum quite largely escaped the serious rust ravages until the late and wet season of 1950 in which the crop that year was practically ruined by a new strain of rust. Since that date, the United States Department of Agriculture, Cereal Breeding division in cooperation with the Experiment Stations of North Dakota, Minnesota and other Plains states has developed three new varieties of Durum the most promising of which is the
Langdon. With Selkirk and Langdon wheat varieties available and effective chemicals for the control of grasshoppers, the chief worry of farmers now is the disposal of wheat crops produced.

Polk county, since railroad transportation has been available, has been a surplus producer of wheat, oats, barley, rye and flax. Disease resistance in the oat crop for example, the most serious diseases affecting yields have been stem rust, crown rust. Serious diseases affecting yields have been stem rust, crown rust and smut. Oat breeders throughout the upper Mississippi states and Canada have produced superior varieties resistant to the major diseases in the early mid-season and late variety groups. Oat growers in Polk County today have a choice of any one of a number of varieties, all of good bushel weight, varieties on the recommended list from the Oat breeders from different sources are: Minnesota varieties—Andrew and Minhafer; Wisconsin—Branch and Sauk; Canada—Ajax, Garry and Rodney.

Barley has become increasingly important as a grain crop in recent years because of the premium quality of malting varieties grown in the county and the high yielding characteristics of the feed barley varieties. Its value as a feed for fattening livestock took on a new impetus when feed manufacturers began pelleting the ground barley and steam rolling the whole grain. A great deal of research work has been and is being done in the breeding of barley to improve-malting quality, disease resistance to leaf, stem and root diseases, bushel weight and stiffer straw. Varieties that are white seeded when pearled are preferred in this country. Some Canadian varieties with blue aluerone (blue barleys) such as a new variety Parkland are accepted by some in the malting trade. Acceptable malting varieties in 1958 are Kindred and Traill, two feed barleys recommended include Forrest from Minnesota and Vantage from Canada.

Rye is not widely grown in Polk County. Winter rye is generally grown on the lighter soils of the county where mid-summer dryness would be more serious to the spring planted crops. Other small grains generally give greater cash returns per acre than either fall or spring rye. Hardiness and good weight per bushel are two requirements for a good rye. Recommended varieties in 1958 are: Caribou and Adams.

Flax during pioneer days was generally the first crop grown on new breaking. Because the second and third crops of flax on land yielded in diminishing returns, the early pioneers concluded that flax was "hard on the land". This theory was thoroughly disproved by Professor L. H. Bolley, a plant pathologist from North Dakota Agricultural Experiment Station following World War I. He proved that a disease, flax wilt, which lives over in the soil was responsible for the low yields or loss of crop on old flax land. With that information, Professor Bolley and others began selecting resistant plants from infected seed beds and through selections and crosses developed wilt resistant varieties. Since that time flax breeders have achieved resistance to rust
and other diseases. A more recent virus disease, aster yellows, caused a high percentage of loss to the flax crop in 1958.

Corn, a seed crop grown by the American Indians probably several centuries before the coming of the white man to North America, did not become a dependable seed crop in Polk County until comparatively recent times. Minnesota farmers did not look with too much favor on the dependable flint corn varieties developed from the Indian types of flint corn even though yields of forty to sixty bushels could be obtained. Dent corns were preferred by most farmers because of the higher tonnage of corn silage produced per acre. Only in odd years of late falls was ear corn dry enough to store safely in cribs. From 1910 to the middle thirties only a few early varieties of dent corns were recommended for Polk County. The list included Minnesota No. 23, an early white cap dent, Russler's White Dent, Northwestern Dent (N.W. Exp. strain), Minnesota No. 13, Minnesota No. 13 Haney Strain yellow dents. In Flint corns the varieties most commonly grown were Pearl, Dakota White, Gehu-yellow, Smut-nose and Mercer. A number of late varieties were grown for fodder and silage. While a number of farmers in the county husked out some of the early varieties each year, yet the production of ear corn up to the time early hybrid varieties were introduced in the late thirties, was on a "catch as catch can" basis, two or three years out of five. The major use for corn in Polk County has been for silage, fodder or hogging off. Farmers have found that the new hybrid varieties which reach a fair state of maturity make silage of higher feed value than the tall late growing silage corns. Census figures in 1949 showed that 65 per cent of the corn crop in the county was used for silage, fodder or hogging off; the 1954 figures showed an increased percentage of 72 per cent. Since the introduction of commercial grain dryers and the corn-husking-shelling combine the trend of producing dry shelled corn in showing a marked increase. The introduction of early hardy hybrid corns and the use of adequate amounts of commercial fertilizer together with chemical aids in weed control have put the acre cash value of the corn crop on a parity with other farm crops in the valley.

Soybeans have been in variety test trials at the Northwest Experiment Station more than thirty years. Even the early varieties such as Wisconsin Blacks could not be depended on for seed crops more than two to three years out of five. The Agronomists recommended them to farmers with livestock so the crop could be salvaged for hay if the season was unfavorable for seed. During the past fifteen years, plant breeders have produced early dependable varieties and the commercial acreage of soybeans has been pushing steadily northward in the Red River Valley. Isolated growers in the county were growing a total of some 100 acres per year until 1942 when 1100 acres were grown. The acreage dropped back too from 100 to 300 acres until 1954 when new interest in the crop was aroused by the construction of a
processing plant in Norman County. The acreage in 1954 was 410 acres, 3200 acres in 1955, 16,600 acres in 1956, 10,400 acres in 1957 and 10,900 in 1958. The soybeans are legumious and as a cultivated crop fit well in a crop rotation plan. Included in the recommended variety list are Acme, Flambeau and Capital.

**Sunflowers**

During the past ten years, from a few to several hundred acres of Sunflowers have been grown in the county. The first sunflowers grown in Minnesota were grown in northeastern Minnesota as a silage crop, when cooler temperatures were unfavorable for corn. The tall growing Russian sunflowers were grown in experimental plots for silage at the Northwest Experiment Station some thirty years ago. The crop out-yielded corn in tonnage but the tough, hard stems made the crop difficult to handle. Cows ate the silage when they became accustomed to it. The commercial sunflower varieties of today are grown for seed. The plants grow from four to six feet in height and the seed crop is harvested by straight combining. Much of the crop has been sold to an oil processing plant at Altoona, Manitoba, while some of the crop goes to feed dealers for bird seed. The better varieties grown today are hybrids and new hybrid seed should be purchased each year, same as hybrid corn. The hybrid Advance has proved to be the best high oil content variety and yields 1000 to 2000 pounds of seed per acre. The taller, open pollinated varieties such as Arrowhead gives higher yields but are less desirable for oil.

**Hemp**

Hemp, as a fiber crop, has been grown experimentally by farmers at three different intervals in the county's history and at two different intervals by the Northwest Experiment Station at Crookston. A few stacks of hemp were observed on farms in the Crookston vicinity by the writer in 1911. The stacks were reported as three years old and due to the failure of the hemp to ret, the stacks were burned.

During and immediately following World Wars I and II when the importation of hemp was in jeopardy, the United States Department of Agriculture, through its Office of Fiber Investigations, cooperated with the State Experiment Stations of the Midwest in the growing of hemp and several hemp mills were built in central and south central Minnesota. In the World War I period the International Harvester Company cooperated with the United States Department of Agriculture in building hemp harvesting machinery which was tested at the Northwest Experiment Station. The company set up a hemp processing plant at Grand Forks. The hemp tests in the World War II period corroborated the findings of the previous tests, namely, that climatic conditions, rainfall and soil moisture conditions in northwestern Minnesota were unfavorable for the ground retting of the hemp, and secondly, that the tonnage yield was much less than in the warmer and more humid areas further south.