

Mr. K.J. (Ken) Kirkland became manager at Melfort in 1996, as well as superintendent at the Scott Research Farm. Two new scientists arrived in Melfort in 1996: Dr. S.S. Malhi transferred from the Lacombe Research Centre to investigate nutrient cycling and Dr. H.R. Kutcher initiated the plant pathology program. Mr. Cecil Vera was reclassified to a biologist to take responsibility for the variety development program and new crop development. In 2000, Dr. Kutcher became section head at the Melfort Research Farm. The agronomy building was retrofitted to better accommodate the sustainable cropping systems program in 2001. This building became the field laboratory building, while the sheep barn was retrofitted with grain driers and seed cleaning facilities to become the seed processing building.



Cecil Vera evaluating a flax crop in 2003 for lodging effects on seed yield

In 2006, Mr. Vera assumed the officer-in-charge position at the Melfort Research Farm and the professional staff complement and programs have continued to the present. The programs have evolved to include variety development and examination of potential new crops, plant pathology, nutrient cycling and greenhouse gas research, and general agronomy of cropping systems. Recent innovations include multi-site, multi-year studies in these areas with AAFC scientists across the prairies and in some cases across the country.

Over the years, the scientific programs at the Melfort Research Farm have addressed the needs of farmers and livestock producers in the unique environment of the Aspen Parkland of western Canada. This area, comprising 10% of Canada's agricultural lands, is characterized by some of the most fertile soils in the world, combined with adequate

moisture for crop production (413 mm annual precipitation, 241 mm during May to August), but a limited number of frost-free (110) and growing-degree (1516) days.

Research results have been well received and utilized by livestock and crop producers. These include the development of suitable cereal, oilseed, and pulse varieties for the Parkland and experimentation with potential new crops: quinoa, hemp, sorghum, camelina, calendula, prairie carnation and not long ago, canola. Research has provided management tools to deal with pests of various field crops in a cost-effective and environmentally sustainable manner, such as the development of diversified rotations, including oilseeds and pulses, in place of monoculture wheat.



Ken McJuray harvesting research plots in 2009

Research at Melfort has contributed to improved production practices, such as reduced tillage systems, which have been widely adopted by farmers and have had very important and long-lasting impacts on the environmental sustainability of our soils, as well as improved the economics of crop production. The integration of herbicide-tolerant crops into the production system and improved fertilizer use efficiency were researched at Melfort and rapidly accepted by producers. The information gained from the forage beef program benefited livestock producers across the Aspen Parkland area of western Canada. Recently, research has examined practices aimed at the bio-economy, such as the production of crops and crop varieties for fuel and fibre; soil, crop, and nutrient management to improve soil quality and sustainability of production; as well as practices to reduce greenhouse gas emissions.

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75th Anniversary

History of the Melfort Research Farm



To mark the 75th Anniversary of the establishment of the Melfort Research Farm (1935), we have selected some highlights in the development of the facilities and research programs that will be of interest to our readers, particularly those who have been associated with the farm.



Aerial view of the Melfort Research Farm, 1995

The Melfort Research Farm is located in the Thick Black (10% organic matter) soil zone of the Aspen Parkland region of western Canada and at present consists of 340 ha of cultivated land and 56 ha of pasture. The research conducted serves farmers and industry in both the Black and Gray-Wooded soil zones. This region is known for the quantity and quality of canola produced, but also includes other well-adapted crops, such as wheat, barley, oat, field pea, flax, and forage (including seed production). Livestock numbers have increased steadily over the last 15 years.

The Formative Years (1935–1960)

In 1934, the Honourable Robert Weir, federal Minister of Agriculture, saw the need for an experimental farm to serve the northeastern portion of Saskatchewan, especially the Carrot River Valley. He pointed out that in 1931 the Carrot River Valley produced 2,898,000 bushels of wheat, four times as much as was produced in Prince Edward Island, New Brunswick, Nova Scotia, and British Columbia combined. However, he emphasized the suitability of the area for mixed farms, not just wheat production. The land (Section 30-44-18), three miles

south of Melfort, was bought from Messrs. Gordon, Gibson, Gerrish, and Craig at \$40 to \$50 per acre. Under the acting director, F.V. Hutton, superintendent of the Rosthern Farm, work began on the construction of several buildings — the grain elevator, a cattle barn, and a machine shop. The Shorthorn Bull, Resolution, and 14 cows were bought from Frank Wood of Blythe, Ontario. Breeding services and purebred cattle were sold to area farmers.



Plot harvesting in the late 1930s

The first superintendent, M.J. (Jack) McPhail, was appointed in 1935. A director's residence, a piggery, and a 10-car garage and pumphouse were built. Weeds and soil erosion

Canada

were identified as major problems in the area. The farm was so badly infested with weeds that all but the northeastern quarter was summerfallowed in 1935. From 1936 to 1947, new buildings, including a bungalow, a four-suite residence, a carpenter shop, and two piggeries were built.

Discing at the Melfort Research Farm, circa 1937



In 1941, the supervision of nine illustration and three district experimental substations was transferred from the Experimental Farm at Scott to the Melfort Experimental Farm, under the supervision of R.H. (Bob) Anderson. From 1948 to 1959, the illustration stations were under the supervision of K.E. (Ken) Bowren, senior agronomist.

Field harvesting in 1937



Mr. McPhail resigned in 1948 and H.E. (Happy) Wilson, formerly an animal husbandry specialist at the Lacombe Experimental Farm, was appointed superintendent. He also carried out the livestock research until 1951, including a Record of Performance (ROP) for beef cattle project. During his term of office, a new office building, two bungalows, an agronomy building, a boardinghouse, an implement shed, a cattle barn, a horticulture building, and a forage and cereal work building were constructed. The research staff was enlarged to eight professionals: six with B.Sc. degrees and two with M.Sc. degrees.

Melfort Field Day, circa 1945



In 1952, livestock nutrition research was initiated. Offspring of the purebred Yorkshire herd were used to evaluate rations for growing-finishing swine and the sale of breeding stock was phased out. A 20-pen broiler nutrition facility was constructed in the loft of the cattle barn and projects were carried out over three summers.

In the fall of 1955, and each fall until the establishment of Melfort's cow herd, steer calves were purchased in southern Alberta and used to evaluate rations in the feedlot and pasture management systems on 39 hectares.

Shaping the Research Facility (1960–1985)

Dr. W.N. (Norman) MacNaughton, animal husbandry specialist at the Brandon Experimental Farm, was appointed director in 1960. During his six years, the soils laboratory, header house, one greenhouse, and the animal research laboratory were built. The professional staff remained at eight, but three had Ph.D. degrees.

Dr. S.E. (Stan) Beacom, in charge of animal research at Melfort since 1952, was appointed director in 1966. That same year the Experimental Farm was designated as a Research Station. Major additions to facilities were a feed-processing building (1967), installation of a natural-gas system and construction of a sheep nutrition barn (1969), and a machine repair and storage building (1970). An 80-tonnes capacity hay-drying tower, the first on the continent, was built in 1971, a second in 1976, and a concrete stave silo in 1980.

Agronomic studies on cereal, forage, and vegetables were undertaken from 1969 to 1974 at the Cut Beaver project in the Saskatchewan River Delta, between Squaw Rapids and Cumberland House, in cooperation with the Lands Branch of the Saskatchewan Department of Agriculture. Good production was attainable provided water-table levels were controlled and fertilizer used. At Melfort, a large cereal variety adaptation program evaluated cereals for the area (K. Plughes and later D. Warnock)

The horticultural research program ended in 1970 with the retirement of R.H. Anderson. Melrose sainfoin, developed by D.A. Cooke, in cooperation with the staff at Lethbridge and at Saskatoon, was licensed in 1970. It was the first variety of sainfoin developed in Canada. Also in 1970, Melfort coordinated a Canada-wide study on the value of copper in swine rations (Dr. A.G. Castell).

Forage harvesting research was started in 1971 in cooperation with the Engineering Research Service at Ottawa. Forage produced under various systems was evaluated by feeding to beef cattle (Dr. A. Robertson and Dr. O. Thorlacius). The first forage systems engineer was hired in 1973 (Dr. W. Coates).

In 1974, a major pasture research project was initiated in the nearby community pasture (Pathlow). This project was carried out in cooperation with the Lands Branch of the Province of Saskatchewan, which provided 1.5 sections of Gray-Wooded soil, fenced the paddock, and prepared the land for seeding. The Horned Cattle Trust Fund committee provided a one-time grant of \$150,000 for the purchase of 280 Hereford cows, which were then bred with Angus or Simmental to provide two different breeding herds. The pasture and wintering studies with cows and their offspring were financed through a revolving fund (mainly purchasing of feed). A beef cow management specialist, Mr. D.H. (Duane) McCartney, was hired to manage the project. Over 18 years, forage dry matter and liveweight gains (kg/ha) ranged from 1910 and 143 to 4253 and 436, respectively, depending on rainfall and the experimental treatments under test. This project developed into the first "Pasture to Plate" forage beef program in Canada.

Pathlow pasture mob grazing (courtesy Duane McCartney)



In 1975, 112 ha (280 ac) of irrigable land immediately east of the Melfort Research Station was bought from Glen Robson, primarily for hay production and harvesting research. Dormie, a variety of Kentucky bluegrass with superior winterhardiness, was developed and licensed in cooperation with the Saskatoon Research Station (D.A. Cooke) in 1977. In 1979, a study on the use of anhydrous ammonia to preserve high-moisture hay was initiated (Dr. S.O. Thorlacius and Dr. J.A. Robertson). Remote-sensing studies to develop a technique for assessing pasture productivity were conducted in cooperation with Intera Environmental Consultants of Calgary and D. McCartney from 1979 to 1984. The swine nutrition (crop utilization) program was ended in 1980.

A three-year study on the use of a roller herbicide applicator for control of brush regrowth was started in 1981 (Dr. J. Waddington and Dr. S. Bittman). Studies were begun to determine the energy requirement of forage system components (Dr. E.Z. Jan). In 1982, a major road- and yard-paving project was completed.

Evolving Research Priorities (1985 to present)

The Melfort Research Station had a professional staff of 10 (seven with Ph.D. degrees) and a support staff of 36 by 1986. Major research programs at that time were forage crop production,

harvesting, and utilization; cereal, oilseed, and special crops evaluation and production; and beef cow-calf management, all geared to efficient crop and livestock production while maintaining or improving productive capacity of the soil. The beef-forage production systems program was conducted by Dr. S.E. Beacom, Dr. S. Bittman, Dr. E.Z. Jan, Mr. D.H. McCartney, Dr. N. Malik, Dr. Z. Mir, Dr. P. Mir and Mr. T. Yeager. Crops research in 1986 was conducted by Mr. K.E. Bowren, Dr. W.F. Nuttall, Dr. L. Townley-Smith, and Mr. A.T. Wright.

In 1988, crop production systems research was assigned priority at the Melfort Research Station and a new agronomy laboratory building was constructed. Plant pathology was included in the crops program with the arrival of Dr. W. Berkenkamp. The beef and forage production research continued to focus on crop utilization by beef cattle, range management, forage crop agronomy and weed management, and low-cost cow-calf grazing and wintering practices until 1995, at which time a decision was made to end livestock research and concentrate solely on crop and forage research. From 1960 to 1995, the beef forage program included research on the production, harvesting, storage, processing, and feeding of forage crops to growing-finishing beef cattle and lambs, providing an alternative to cereal crop production on less productive, easily eroded soils. This program had demonstrated that beef cattle and lambs could be successfully finished on rations containing high levels (up to 95%) of ground hay with 3-5% of acidulated fatty acids (a by-product of canola processing).

In 1989, Director H.R. (Harmon) Davidson began his term at the Melfort Research Station after Dr. Beacom accepted a special assignment to teach at the University of Saskatchewan, ending his distinguished 23-year career as director. In the crop production program, Dr. P.R. Horton initiated research in forage crop agronomy and range management, Ms. H. Loeppky assumed responsibility for forage weed management in 1990, and Dr. A. Vaage contributed to the forage beef program as a postdoctoral fellow.

Consolidation of facilities across the department in 1992 resulted in the integration of the Melfort Research Station within the Saskatoon Research Centre, and subsequent renaming to the Melfort Research Farm. In 1993, a number of new staff joined the Melfort Research Farm: Dr. H. Beckie (soil fertility), Dr. A.J. Johnston (agronomy), and Dr. S.B.M. Wright (forage crops agronomy). The Melfort Research Farm was given the mandate for sustainable cropping systems in 1996. Facilities at this time consisted of numerous animal housing and laboratory buildings, hay towers and the silo, the agronomy building, the sheep barn building, forage laboratory building, and the vehicle and equipment maintenance building. The office building accommodated the director, scientists, and administrative staff; there were some residences for staff. With the refocusing of the program, buildings and laboratories for livestock research were retrofitted to better facilitate field crop research or demolished and some of the residences sold.