

100 Years of Research at NGPRL

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The Northern Great Plains Research Laboratory (NGPRL) in Mandan, ND is celebrating 100 years of research this year. At the beginning of the 20th century, homesteaders were moving fast into the northern Great Plains, and they needed to know how to protect their homes and livestock from the harsh winter weather and to grow vegetables, fruits, and grains in a limited rainfall environment. In response to these needs, the Mandan community petitioned Congress to create an agricultural research facility in the area.

The first scientific staff included horticulturalists, agronomists, foresters, and a pomologist (i.e. someone who cultivates fruit trees). This staff was charged with developing farming practices and identify plants that would help farmers and ranchers deal with the harsh conditions of wind, drought, and extreme temperatures common to the region and testing trees for hardiness and growth potential. This research led to the establishment of long-lived trees for shelterbelts and the development of hardy fruit trees, grapes, vegetables and ornamentals along with flax and cereal breeding and management.

Initially, the station was self-sufficient with two residences for the superintendent and his assistant and two smaller cottages and several apartments for the professional staff, and a bunkhouse for the workers. Employees were fed in the Station's cafeteria and used its own produce, milk, and beef. Two root cellars were stocked with ice from the nearby Heart River and provided storage for food and trees for windbreak plantings in North and South Dakota, Montana, and Wyoming.

Over the years, NGPRL continued to grow and research included a dairy unit, beef production, tree and grass nurseries, plant pathology, irrigation, and soils. New varieties of grasses for reseeding eroded areas formed during the Dust Bowl



A 2009 landscape view of NGPRL and one from 1914.



were developed including 'Nordan' crested wheatgrass, 'Lodorm' green needlegrass, and 'Vinall' Russian wildrye. By the early 60's, the fruit tree and ornamental program had released new cultivars of apple, apricot, plum, and crabapple trees, tomatoes, corn, and geraniums. Soils research increased in the areas of soil and water conservation, soil nutrient cycling, and preventing saline seep formation. In the 1970s, plant science research expanded to include grassland management, forage breeding and nutrition, plant physiology, and mine-land reclamation. More grass cultivars were released in the 80's and 90's such as 'Manska' and 'Reliant' intermediate wheatgrass and 'Rodan' western wheatgrass along with 'Cardan' green ash and 'Oahe' hackberry trees.

Field-scale conservation tillage and cropping systems research was made possible by the creation of the Area IV SCD Research Farm in 1984 with the support of the local Area IV Soil Conservation Districts. Today, this 420-acre farm along with about 1900 acres of rangeland supports research in the areas of cropping systems, integrated crop-livestock systems, plant physiology, soil quality, trace gas emission, carbon sequestration, soil microbiology, rangeland management, and healthy beef. The laboratory has a nationally and internationally recognized reputation with

scientists invited to speak and share research in Australia, Uruguay, Germany, France, Russia, and the Ukraine. It also has been recently selected as a Long-Term Agroecosystem Research site due to its long history in cropping and rangeland research. Historic pastures have been in continuous management – one since 1916 and others since the 1930's. Other long-term studies include a 12-year integrated crop-livestock project and an 18-year cropping systems trial. Samples are available for other scientists to analyze from all these experiments along with historic soil samples stored in an archive which dates back 90 years. ♦

Author's Note: My thanks to Dr. Al Frank, Plant Physiologist-Retired, and Cal Thorson, Technical Information Specialist, for providing background information for this article. If you would like to read more about the history of NGPRL, please take a look at *The Taming of the Prairie: Nearly a Century of Agricultural Research at the Northern Great Plains Research Laboratory* by Dr. Frank.