Agronomic Research Trials

The following information is a listing of agronomic research conducted at the Carrington Research Extension Center. CREC and other NDSU research staff provide this list to illustrate specific research issues that are being addressed. The listing briefly describes the trial and indicates project collaborators who are working in cooperation with CREC agronomy team leaders. Results of this work may be made available at a later date by contacting the CREC. Numbers in parentheses indicate the number of trials conducted, followed by project leaders and/or collaborators and NDSU department.

Germplasm Evaluation/Cultivar Development

Alfalfa: Evaluation of alfalfa varieties; *Meyer (Plant Science)*
Barley: 2-row and 6-row plant breeder nurseries (6); *Horsley (Plant Science)*
Barley: Variety evaluations (5)
Barley: Organic variety evaluations (2)
Barley: Drill strip demonstration
Buckwheat: Variety evaluation
Camelina: Evaluation of experimental lines
Camelina: Spring variety evaluation
Camelina: Winter variety evaluation
Canola: Breeder nurseries (7) *Melani (Plant Science)*
Canola: Collaborative company nursery; *Canterra*
Canola: Collaborative company nursery; *Monsanto*
Canola: Variety evaluations (2)
Chickpea: Regional breeder nursery; *McPhee (Washington State Univ./USDA)*
Chickpea: Segregating bulk populations and selections (3); *McPhee (Washington State Univ./USDA)*
Chickpea: Variety evaluation
Corn: Breeder nurseries (6); *Carena (Plant Science)*
Corn: Commercial hybrid evaluations (3); *Industry*
Crambe: Breeder nursery; *Hammond (Plant Science)*
Crambe: Variety evaluation
Dry Bean: Plant breeder nurseries (8); *Osorno (Plant Science*)
Dry Bean: Variety evaluations (2)
Durum: Uniform Regional Durum Nursery (2); *Elias (Plant Science)*
Durum: Variety evaluations (2)
Durum: Drill strip demonstration and milling evaluation
Emmer: Variety evaluation
Emmer: Organic variety evaluation
Emmer: Organic drill strip demonstration
Field Pea: Regional breeder nurseries (2); *McPhee (Washington State Univ./USDA)*
Field Pea: Segregating bulk populations and selections (3); *McPhee (Washington State Univ./USDA)*
Field Pea: Winter field pea nursery; *Eriksmoen (Hettinger REC)*
Field Pea: Winter field pea selections
Field Pea: Variety evaluations (4)
Field Pea: Organic variety evaluations (3)
Flax: Plant breeder nurseries; *Hammond (Plant Science)*
Flax: Variety evaluation
Lentil: Regional breeder nursery; *McPhee (Washington State Univ./USDA)*
Lentil: Winter lentil nursery; *Eriksmoen (Hettinger REC)*
Lentil: Winter lentil selections
Lentil: Variety evaluation
Lupin: Plant breeding/selection nurseries (3)

Lupin: Germplasm purification/increase
Lupin: Variety evaluation
Mustard: Variety evaluation
Oats: Uniform Midseason Oat Nursery; *McMullen (Plant Science)*
Oats: Breeders nurseries (3); *McMullen (Plant Science)*
Oats: Variety evaluations (3)
Potato: Organic evaluation of specialty varieties in dryland and irrigated environments
Rye: Evaluation/increase of an experimental winter cultivar
Rye: Spring variety evaluation
Rye: Winter variety evaluation
Safflower: Variety evaluation; *Riveland (Williston REC)*
Soybean: Breeder nursery evaluations (5)*; Helms (Plant Science)*
Soybean: Variety evaluations (9)
Spelt: Evaluation of experimental and released winter types
Spelt: Winter variety increase
Spelt: Winter drill strip demonstration
Sunflower: Hybrid evaluations (2), oil and non-oil
Sunflower: Collaborative company nursery; *Monsanto*
Triticale: Increase of winter cultivars; *Kolden (Oregon State Univ.)*
Triticale: Spring variety evaluation
Triticale: Winter variety evaluation
Wheat: Advanced breeder nursery; *Mergoum (Plant Science)*
Wheat*:* Uniform Hard Red Spring Wheat Regional Nursery*; Anderson (USDA-ARS)*
Wheat: White wheat plant breeder nurseries (4); *Bersonsky (Plant Science)*
Wheat/Durum: Collaborative company nursery; *Canterra*
Wheat: Collaborative company nurseries (2); *Seed-link*
Wheat: Organic variety evaluations (4)
Wheat: Spring wheat variety evaluations (5)
Wheat: Drill strip demonstration
Wheat: Winter wheat variety evaluation
Wheat: Evaluation of high yield potential lines
Wheat: Quality evaluation of IMI cultivars

Biomass Production Research
Evaluation of perennial herbaceous bioenergy crops
Switchgrass breeding nursery
Prairie cordgrass breeding nursery
Evaluation of switchgrass and prairie cordgrass for biomass production

Forage Production and Cover Crop Research
Cool season annual variety evaluation
Warm season annual variety evaluation
Winter cereal forage trial
Cover crop: Rotational effect on yield and quality of potato
Cover crop: No-till cover crop roller evaluation; *Rodale Institute*
Chicory: Persistence of stand evaluation
Field pea: Determination of dry matter and nitrogen concentration of volunteer crop
Fertilization of grass for increased yield and improved forage quality

Crop Fertility Research
Evaluation of APSA-80 surfactant on dryland corn

Corn, sunflower and wheat response to livestock manure and fertilizer
Corn response to fertilizer placement
Corn response to starter fertilizer
Corn response to nitrogen rates
Corn response to zinc; *WinField*
Evaluation of inoculation and inoculant products in dry bean – Carrington
Inoculation / nitrogen fertility management in field pea (3); *Industry*
Field pea input evaluation
Inoculation / nitrogen fertility management in soybean – Carrington (6) and Oakes; *Industry*
Soybean response to livestock manure and fertilizer
Soybean response to Seed Prod and Crop Prod
Soybean response to phosphorus
Soybean planting rate and row spacing
No-till spring wheat performance with Exactric-applied nitrogen – Juanita
Nitrogen management of spring wheat – Carrington and Wishek
Spring wheat response to zone-applied nitrogen; *Nowatzki (Ag and Biosystems Engineering)*
Inoculation management in wheat prior to soybean

Crop Management Research
Evaluation of growth regulators to reduce lodging in barley; *Syngenta*
Assessment of harvest management and production of calendula; *TCI*
Harvest management of canola; *Johnson (Plant Science)*
Evaluation of APSA-80 surfactant soil applied in dryland and irrigated corn; *Access Business Group*
Evaluation of input strategies of corn
Estimating corn development using NDAWN; *Ransom (Plant Science)*
Corn, dry bean, and sunflower response to tillage management
Development of growth model and grain dry down for corn in North Dakota; *Ransom (Plant Science)*
Hail damage and stand reduction in dry bean; *Johnson (Plant Science)*
Impact of seed quality on crop performance of soybean
Impact of seed size and planting depth on soybean performance
Evaluation of input strategies on soybean
Evaluation of growth promoters in Roundup Ready soybean systems; *Wilbur Ellis*
Evaluation of alternative input strategies in wheat

Crop Rotation Research
Long-term cropping systems trial evaluating rotations, tillage, and fertility
Performance of continuous corn versus soybean/corn rotation

Plant Pathology Research
Barley response to early-season foliar fungicide – Wishek and Dazey
Evaluation of canola varieties for susceptibility to Sclerotinia; *Industry*
Evaluation of fungicides for Sclerotinia management in canola (4); *Bayer/Valent/Dupont*
Evaluation of foliar spray techniques for Sclerotinia management in canola; *del Rio (Plant Science)/Halley (Langdon REC)*
Effect of plant density on fungicide response in control of sclerotinia in canola; *del Rio (Plant Science)/Halley (Langdon REC)*
Evaluation of fungicides for *Ascochyta* control in chickpea; *Bayer CropScience*
Evaluation of dry bean breeding lines for Sclerotinia susceptibility; *Steadman (Univ. of Nebraska)*
Evaluation of fungicides for Sclerotinia management in dry bean (5); *Dupont/Valent/Bayer CropScience/Cerexagri*
Evaluation of fungicides for suppression of scab in durum (2); *McMullen (Plant Pathology)*

Evaluation of field pea plant introductions for resistance to sclerotinia; *McPhee (Washington State Univ.)*
Evaluation of field pea cultivars for resistance to sclerotinia; *McPhee (Washington State Univ./USDA)*
Impact of Sclerotinia infection levels on soybean performance
Soybean response to Headline – Wishek and Dazey
Sunflower head rot screening nurseries – Carrington (4) and Oakes; *Gulya (USDA-ARS)/Halley (Langdon REC)/Rashid (Morden, Manitoba)*
Evaluation of sunflower germplasm for susceptibility to Sclerotinia stalk rot; *Gulya (USDA-ARS)*
Sunflower response to Headline; *BASF*
Evaluation of fungicides for head rot control in sunflower; *Bayer/Dupont*
Evaluation of fungicides for suppression of scab in spring wheat; *McMullen (Plant Pathology)*
Fungicide evaluation for leaf disease control in spring wheat; *BASF*
Fungicide management of leaf and head diseases in spring wheat; *Bayer CropScience*
Evaluation of fungicides for leaf disease control in spring wheat; *Syngenta*
Evaluation of fungicides for head disease control in spring wheat; *Makhteshim-Agan*
Spring wheat variety response to fungicide strategy; *Gregoire (NDSU Ext)/Halley (Langdon REC)*
Impact of spring wheat variety on fungicide application strategy; *Bayer CropScience*
Wheat response to early-season foliar fungicide – Wishek and Dazey
USDA wheat rust nursery; *USDA*
Winter wheat response to previous crop and fungicides – Ellendale; *Ducks Unlimited*

Weed Science Research
Dry bean grass control with clethodim; *Loveland*
Weed management in no-till field pea*; Valent*
Weed control in sulfonylurea-tolerant soybean (STS)/Roundup Ready; *Dupont*
Weed management in Clearfield sunflower and spring wheat; *BASF*
Weed management in Express-tolerant sunflower; *Dupont*
Evaluation of herbicides for grass control in HRS wheat; *Howatt (Plant Science*)
Foxtail control with Everest in spring wheat; *Arysta LifeScience*
Grass and broadleaf herbicide evaluation in wheat; *Syngenta*
Herbicide mode of action demonstration

Tri-County variety trials at Wishek, 2007.