

**Canola Research Conference
NDSU Alumni Center**

**November 4, 2021
Fargo, ND**



UNIVERSITY OF MINNESOTA

MN Canola Research - 2021

- **U of MN Magnusson Research Farm**
 - 40 acre site located 6 miles NW of Roseau
- **Northern Resources Cooperative**
 - 14 acre site located 1 mile west of Roseau on Hwy 11
- **Research Team:**
 - Dr. Nancy Ehlke - PI, U of MN, St. Paul
 - Donn Vellekson - Project Manager, U of MN, St. Paul
 - Dave Grafstrom - Research Agronomist, Roseau, MN
 - Val Laidley - Summer Intern

Canola Research Projects - 2021

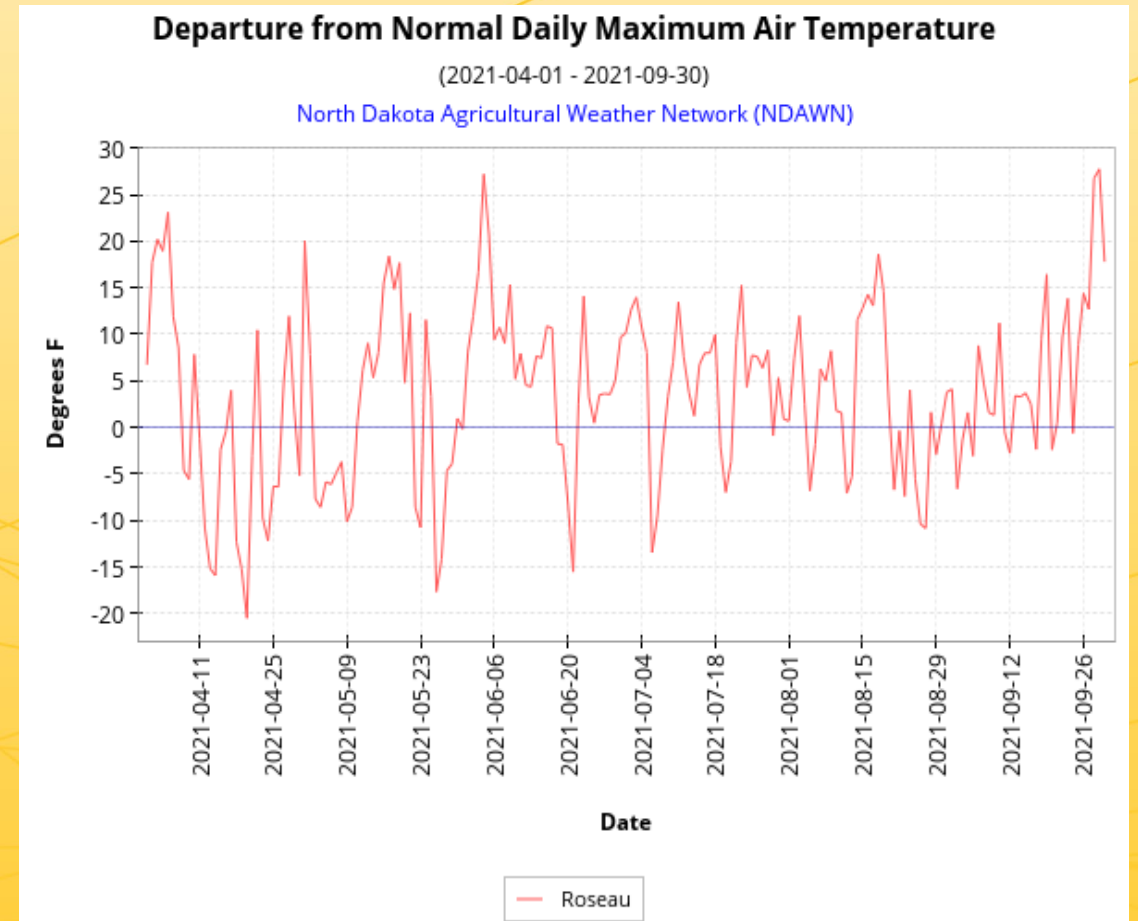
- **Variety Trial, 21 entries: 12 LL & 9 RR**
- **Shatter Trial, 13 entries: 9 LL & 4 RR**
- **Soil Applied Insecticides**
- **Nitrogen Use Efficiency**
- **Micronutrients**
- **Banding of Nitrogen - Wide Row Canola**
- **Soil Applied Herbicides**
- **Winter Canola**



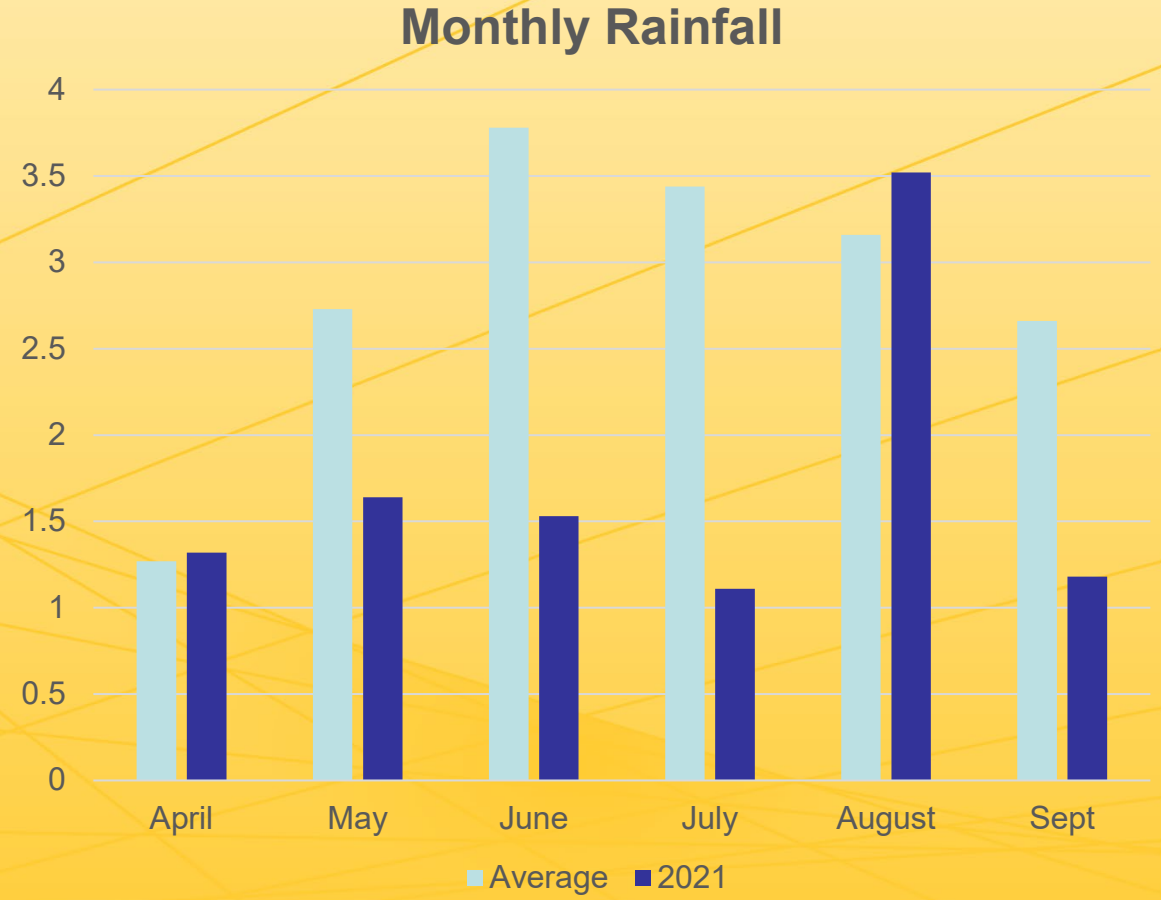
Presentation Today

- **Variety Trial**
 - **Shatter Trial**
 - **Soil Applied Insecticides**
 - **Winter Canola**
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- **MN Annual Canola Conference Dec 7th, in Roseau**
 - **Annual Report will be posted on web:
www.mncanola.org**

2021 Growing Season Was Hot



2021 Growing Season Was Dry



Canola Variety Trial - Methods

- **Fertilizer applied PPI - 140-30-30-20s**
- **Seeding rate - 12 PLS/ft² (PLS from seed companies)**
- **Seeding date - 5/12/21**
- **Grizzly Too - 1.5 oz/ac applied on 5/28/21**
- **Proline - 5.7 oz/ac applied at first petal drop**
- **Swathing date - 8/4/21**
- **Harvest date - 8/25/21**

Canola VT - CPC July 31

RR - Heavier Soil



LL - Lighter Soil



Hot, Dry Conditions at CPC in 2021



Canola Variety Trial - Results

- **Data Table - See Handout**
- **Average Yield = 1,825 #/ac; RR = 1,999 #/ac; LL = 1,695#/ac**
- **Yields ranged from 1,446 - 2,329 #/ac**
- **CV for yield 9.7%**
- **Comparisons between RR and LL confounded due to soil moisture differences**
- **Average days of bloom for RR varieties = 18.2; LL = 16.5**
- **Canola thousand kernel weight (TKW) on selected varieties averaged 21% less in 2021 compared to 2020**



Canola Shatter Trial - Methods

- **Canola varieties submitted by seed companies**
- **Canola seeded in 12 inch rows @ 9PLS/ft² on 5/12/21**
- **Two collection pans, (7"x13") put out at swathing 8/4/21**
- **If swathed, canola harvest date would have been 8/25/21**
- **Seed collection dates:**
 - **8-12 (8 days in field)**
 - **8-18 (14 days in field)**
 - **8-23 (19 days in field)**
 - **8-30 (26 days in field)**

Collection Pans Placed Between Canola Seeded in 12 inch Rows



Canola Collection Pans

Seeds



Seeds, Pods & Branches



Canola Shatter Trial After 23 Days

Variety Prone to Shatter in Center



Seeds and Pods in Collection Pan



Barren Stems and Branches in 2021



Shatter Trial Summary

- **Significant seed and pod shatter from all varieties at first collection date on 8/12/21 (8 days after swathing)**
- **In past years, seed and pod drop delayed a couple weeks after pans placed between rows**
- **Total canola seed loss ranged from 133 to 1,076 #/ac**
- **Percent canola seed lost ranged from 8.2 to 60.4%**
- **In dry years, timely harvest is critical to reduce seed loss**
- **If direct harvest is a consideration choose a variety that has good seed and pod shatter tolerance**

Flea Beetles in NW MN

In Past Years - One Species



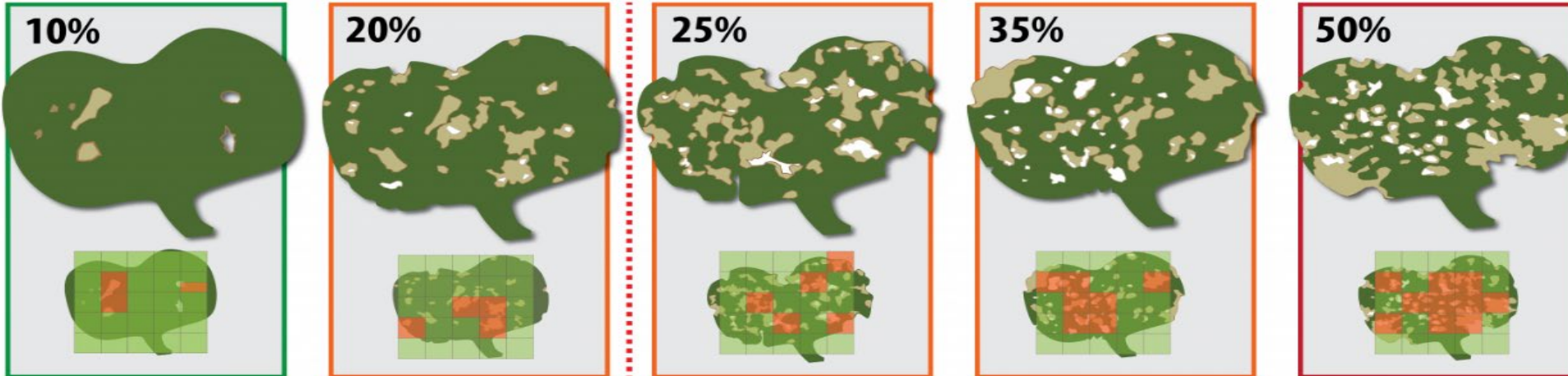
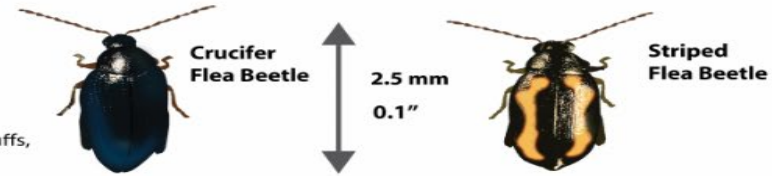
Today - a Mixture of Two Species



Flea Beetle Damage – Canola Council Canada


Flea Beetle Damage on Canola

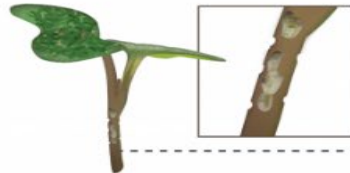
Scout for flea beetle damage in several places throughout the field, including field edges, hedgerows, and bluffs, ideally at five points, in a "W" pattern, checking 10 plants at each point (to get a representative sample).



25% is the action threshold and 50% is the economic threshold

Once the action threshold is reached, consider applying foliar insecticide if prior to the four-leaf stage and if flea beetles are still present and actively feeding (by checking for evidence of fresh feeding wounds and/or damage to newly-emerged leaves) to prevent reaching economic injury levels.


 Feeding damage is less of a concern with moderate temperatures, good soil moisture and an adequate plant stand, but it becomes a greater concern with lower plant stands, lower moisture and higher temperatures.



Stem Feeding

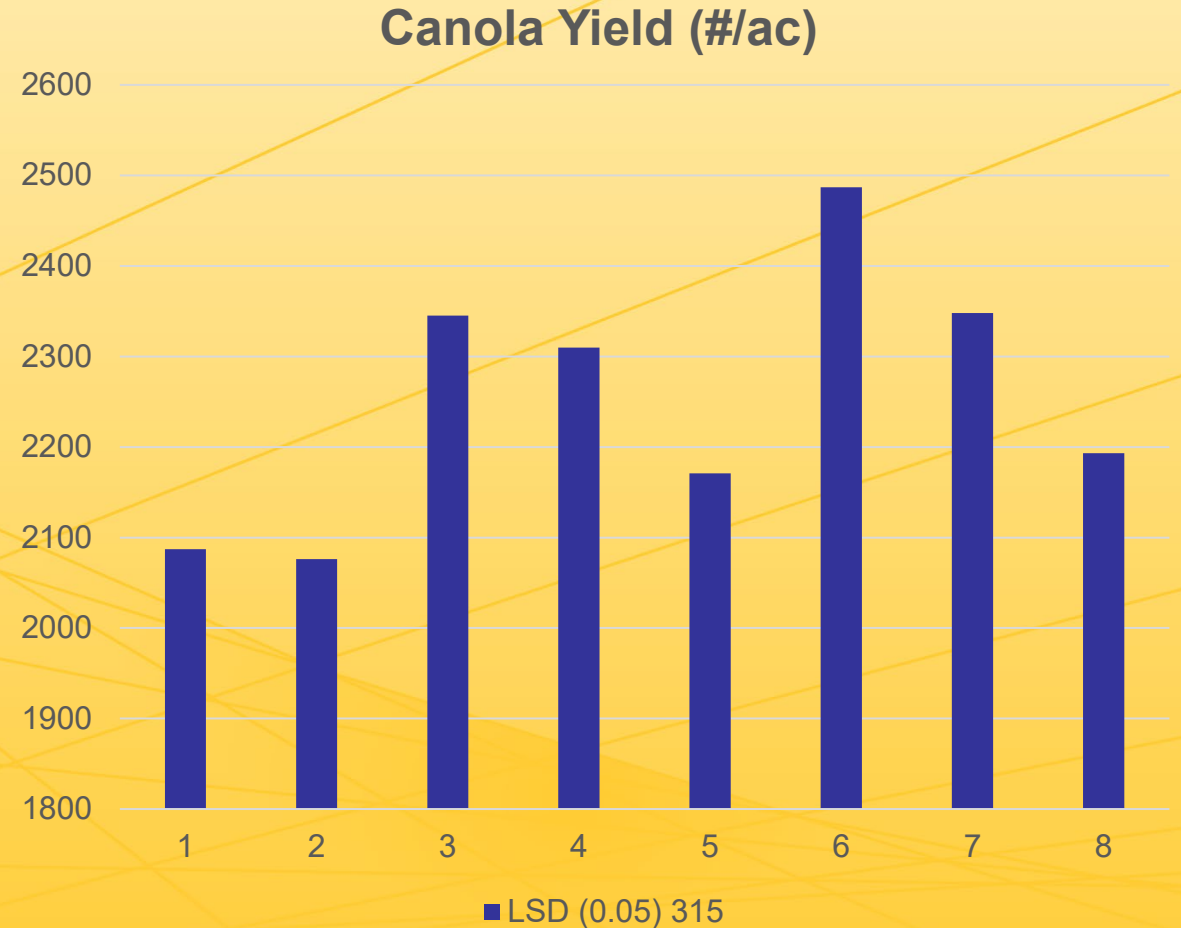
Include the inspection of cotyledon stems when flea beetle scouting. No specific threshold exists to evaluate the impact of stem feeding, but due to the function of the stem (supplying water to the leaves) and its fragility when young, stem feeding can be more damaging than leaf defoliation and even cause plant fatality (especially under hot and dry conditions).

Canola Seed Treatment Trial - Results

- **Data Table - See Handout**
- **Two varieties: DTKFLL21SC provided by Bayer and Star 402 provided by Jim Johnson**
- **An untreated (bare seed) was included for both varieties**
- **Two locations: U of MN Magnusson Research Farm (MF) and Northern Resources (NR)**
- **At MF, Prosper Evergol+Fortenza+Buteo Start: 400# more canola yield than untreated; LSD (0.05) = 315**
- **NR site, bird predation & drought (data not reliable)**

Canola Insecticide Trial U of MN Mag Farm - 2021

- **Variety: DTKFLL21SC**
- **1 = Untreated**
- **2 = EverGol (EG) Prime**
- **3 = Prosper (P) + EG**
- **4 = P+EG+Buteo Start (B)**
- **5 = P+EG+Fortenza (F)**
- **6 = P+EG+F+B**
- **7 = Helix Vibrance (H)**
- **8 = H+F**



Canola Flea Beetle Damage - 2021

Leaf Feeding



Leaf and Stem Feeding



Canola Insecticide Trial - 2021

Untreated – 38 Dap



Prosper EverGol+Fortenza+Buteo



Winter Canola in NW MN

Why the Interest in Winter Canola?

- Improved genetics
- Favorable price
- Improved yield potential - 1.3 to 1.5 times vs spring canola
- Soil conservation - plants growing in fall and early spring
- Less spring field work
- Warmer temps and delayed killing frost in the fall?

Small Plot Trial Seeded - 2021

- Three canola varieties seeded with good winter hardiness score
- Mercedes
- Surefire
- KS4719
- Two seeding dates: 8/11 & 9/1
- Contacts: Mike Stamm KS, Jim Davis ID, Perry Miller MT, Brian Caldbeck KY



Winter Canola in NW Minnesota

What's the Future of Winter Canola



Trial Overview - Oct 2021



Winter Canola Crown Set - 10/20/21

Canola Crown at Soil Surface



Elevated Hypocotyl



Winter Canola Height - 10/20/21

Early Seeding



Late Seeding



Winter Canola Rooting - 10/20/21

Early Seeding



Late Seeding



Questions



Contact Information

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- **Complete canola research reports from 2020 and previous years are posted on the MN Canola web site: mncanola.org**