

# Conservation

LEARNING CENTRE

## FIELD NOTES 1994



Ducks Unlimited Canada



CANADA'S GREEN PLAN



SASKATCHEWAN  
SOIL CONSERVATION  
ASSOCIATION

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## 1. CANOLA AND SEED PLACED UREA, AMMONIUM NITRATE TRIAL

Purpose: 1) To evaluate the influence of seed placed urea and ammonium nitrate fertilizers on the emergence and yield of direct seeded canola.  
2) To evaluate how the landscape topography influences the emergence of canola with high rates of seed placed fertilizer.

Treatments: 0, 20, 40, and 60 kg. N/acre as urea as well as ammonium nitrate, seed placed with a narrow opener.

Crop: Legacy Canola seeded on May 27

Previous Crop: CPS Biggar Wheat

Fertilizer: N applied as treatments described  
Phosphorus applied at time of seeding

Pesticides: Roundup applied at 1 L/acre May 9  
Lontrel and Poast used as post emergent herbicides

Rainfall Notes: 4 inches of rain fell during the 2 weeks previous to seeding, 1 inch of rain fell during the 2 days following seeding.

Sponsorship: This is a project of the Sask. Wheat Pool, under the supervision of Mr. Garry Hnatowich.

## 2. CROP ROTATION BY NITROGEN PLACEMENT

Purpose: To evaluate several different fertilizer N application options associated with direct seeding of CPS wheat, barley, canola and flax.

Treatments: This is the first year of a 4 year project. N fertilizer will be applied at soil test recommended rates using 4 different application methods:

- \* pre-seeding banding of N, followed by direct seeding (two pass system)
- \* side banded at seeding (one pass system)
- \* post-seeding spoke injection (two pass system)
- \* seed and fertilizer applied with sweep opener at seeding (one pass system)

Crop: Area split to include a crop rotation of barley - flax  
- CPS wheat - canola, having all four crops at the site  
in every year.

Previous Crop: CPS Biggar Wheat

Fertilizer: Fertilizer applied according to treatments

Sponsorship: This is a project of the Melfort Research Station,  
under the supervision of Dr. Adrian Johnston.

### 3. WOODLOT, TREE ESTABLISHMENT AND VEGETATION CONTROL TRIAL

Purpose: 1) Woodlot: To demonstrate a small woodlot that is  
planted for potential future cash value, wildlife  
habitat, aesthetic value, and shelter.

2) Tree establishment and vegetation control trial: To  
evaluate several different methods of controlling weeds  
and achieving successful establishment of trees.

Species: 1) Woodlot: poplar, birch, siberian larch, jack pine,  
scots pine, white spruce, various fruit-bearing shrubs.

2) Trial: white spruce (1994)  
siberian larch (1995)

Treatments: 1) Woodlot: weed control through herbicide use

2) Trial: weeds controlled through the use of:  
herbicides only  
tillage only  
plastic mulch  
wood shavings mulch  
no weed control

Sponsorship: This is a joint project of the PFRA and the  
Canadian Forest Service

4.

#### NITRO ALFALFA

Purpose: To evaluate the success and use of a non-dormant alfalfa, named Nitro Alfalfa, in a Saskatchewan Parkland location.

Planting method: \* June 21, broadcasted alfalfa into a three acre block of cereal stubble previously sprayed with Roundup.

\* Randomly harrow packed, also rolled with pea roller for additional packing.

Sponsorship: Ducks Unlimited Canada  
Saskatchewan Agriculture and Food

5.

#### VARIABLE RATE N FERTILIZATION TRIAL

Purpose: To assess variable versus uniform N fertilizer application rates for cereal and oilseed crop production under conservation tillage.

Treatments: This is the first year of a 3 year project. N fertilizer rates will be applied according to:

- \* uniform application
- \* different soil residual nitrate-N levels delineated by soil grid sampling to a 30 cm. depth
- \* different soil organic matter contents delineated by soil grid sampling to a 15 cm. depth
- \* different landform element complexes (topography)

Crop: Flax

Previous Crop: CPS Biggar Wheat

Fertilizer: Fertilizer applied according to treatments.

Sponsorship: This is a project of the Melfort Research Station, under the supervision of Dr. Hugh Beckie.

6.

**FIELD-SCALE: EXPRESS PEAS**

**Purpose:** To produce a pea crop within a direct-seeding system, using products which are readily available.

**Treatments:** The entire field (80 acres) was treated similarly, with one exception, the south portion was rolled with no water in the roller drums, the north east portion was rolled with the drums half full, the north west portion was rolled with the drums a quarter full. During the harvesting operation, general observations will be made as to the benefit (ease of harvest) of one treatment over the other.

**Crop:** Express peas seeded at 2.75 bu./ac., May 13

**Previous Crop:** CPS Biggar Wheat

**Fertilizer:** Side banded 97# (26-31-0), Flexicoil sidebanding opener  
Seed treated with Enfix inoculant

**Pesticides:** Roundup applied at 1 L/acre May 9  
Sencor applied at recommended rate, June 10  
Poast applied at recommended rate, June 24, 3 days after rolling the peas.  
Reglone to be applied at harvest time.

**Sponsorship:** Express peas supported by Newfield Seeds  
Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Poast supplied by BASF  
Fertilizer supplied by Cominco  
Inoculant supplied by Esso Petroleum  
Reglone supported by Zeneca Agro

7.

**NON-INCORPORATED SPRING-APPLIED EDGE TRIAL**

**Purpose:** To evaluate the performance of Edge as a non-incorporated product within a direct-seeded pea crop.

**Treatments:** 1) Edge applied May 6, no incorporation other than the seeding operation.  
2) Edge applied May 6, immediately followed by a rotary harrow incorporation  
3) no Edge applied.

**Crop:** Express Peas seeded on May 13th.

Previous Crop: CPS Biggar Wheat

Fertilizer: 97# (26-31-0) sidebanded with a Flexicoil air drill, peas inoculated with Enfix.

Pesticides: Roundup applied at 1 litre per acre on May 9th. No other pesticides were applied so as not to interfere with the performance with Edge.

Sponsorship: Edge application and monitoring by DowElanco. Roundup supplied by Monsanto. Seeding implement supplied by Flexicoil. Fertilizer supplied by Cominco. Inoculant supplied by Esso Petroleum.

8. **SHELTERBELT SPECIES GARDEN**

Purpose: To demonstrate many of the shelterbelt species which are recommended for yard, field, wildlife shelterbelts, and forest belts.

Sponsorship: This is a project of the PFRA.

9. **EFFECTS OF ALFALFA WITHIN THE CROP ROTATION**

Purpose: To evaluate the influence of alfalfa stand length on subsequent crop production in a conservation tillage production system.

Treatments: This is the first year of a 9 year project. Alfalfa will be seeded in 1994, 1995, 1996, and 1997. In 1998, all alfalfa will be terminated by different methods and seeded into with annual crops.

Measurements: Soil, crop and weed characteristics will be monitored.

Sponsorship: This is a project of the Melfort Research Station, under the supervision of Dr. Adrian Johnston and Dr. Heather Loeppky.

10.

**FORAGE SEEDING METHODS STUDY**

**Purpose:** To determine the influence of eliminating tillage in seedbed preparation on establishment, weed populations, forage and seed production and economics of alfalfa and meadow brome grass production.

**Treatments:** This is the first year of a 4 year project. Alfalfa and meadow brome grass were seeded on June 21. Half was seeded into pre-tilled conditions, while the other half was seeded into standing wheat stubble, pre-treated with Roundup.

**Sponsorship:** This is a project of the Melfort Research Station, under the supervision of Dr. Heather Loepky.

11.

**DENSE NESTING COVER**

**Purpose:** To demonstrate the successful establishment of a forage stand intended for use as dense nesting cover (45 acres).

**Species seeded on June 1, 1993:**

- \* 37% Intermediate Wheatgrass
- \* 37% Tall Wheatgrass
- \* 10.5% Slender Wheatgrass
- \* 10.5% Meadow Brome grass
- \* 5% Alfalfa

**Sponsorship:** This is a project of Ducks Unlimited Canada.

12.

**POTENTIAL FORAGES FOR USE AS DENSE NESTING COVER**

**Purpose:** To evaluate the persistence of several forages within dense nesting cover.

**Species overseeded through traditional dense nesting cover mixture on June 1, 1993:**

- \* S-7133K Smooth Brome grass
- \* Greenleaf Pubescent Wheatgrass
- \* S-9051 Intermediate Wheatgrass
- \* James Dahurian ~~Wheatgrass~~ wild Ryegrass

- \* Lodorm Green Needlegrass
- \* Common Sheeps Fescue
- \* S-1755 Hard Fescue
- \* Oxley Cicer Milkvetch
- \* Yellowhead Alfalfa
- \* Anik Alfalfa

Sponsorship: This is a project of the Melfort Research Station and Ducks Unlimited Canada, under the supervision of Dr. Scott Wright.

13.

### FORAGE GRASS VARIETY GARDEN

Purpose: To demonstrate 35 different grass varieties and species which may be of interest to farmers in the Parkland area.

Varieties seeded June 1, 1993:

- \* Reed Canarygrasses: Rival, Palaton, Venture, Vantage

- \* Russian Wildryes: Cabree, Mayak, Swift, Tetracan, Eejay, Pearl, Prairieland

- \* Wheatgrasses: Elbee Northern, Walsh Western, Sodar Streambank, Orbit Tall, Greenleaf Pubescent, Clarke Intermediate, Chief Intermediate, Summit Crested, Nordan Crested, Parkway Crested, Fairway Crested, Kirk Crested

- \* Bromegrasses: Rebound Smooth, Baylor Smooth, Regar Meadow, Magna Smooth, Paddock Meadow, Carlton Smooth, Fleet Meadow, Signal Smooth

- \* Lodorm Green Needlegrass

- \* Short Lived Grasses: Arthur Dahurian Wildrye, James Dahurian Wildrye, Adanac Slender Wheatgrass, Revenue Slender Wheatgrass

Fertilizer: 50 # actual N /acre as liquid, spoke wheel injected, June 9

Sponsorship: Seed and seeding provided by the Sask. Forage Council

## ALTERNATIVE ANNUAL CROPS GARDEN

Purpose: To demonstrate 45 different crops which may be of interest to farmers in the Parkland area, either for curiosity or for potential cropping.

Crops seeded June 1:

- \* Peas: Radley Green, Emerald Green, Majoret Green, Marrowfat Green, Maple, Trapper Yellow, Express Yellow, Bohatyr Yellow, Patriot Yellow, Highlight Yellow, Lathyrus.
- \* Desi Chickpea
- \* Lentils: Laird, Richlea, Rose, Eston, French Green.
- \* Triticale
- \* Sierra Sunola
- \* Sunwheat
- \* Beans: Othello Pinto, Great Northern, V136 Red Mexican, Viva Pink, Black, Mung, Soya, Fababean.
- \* Lupin
- \* Quinoa
- \* Borage
- \* Fenugreek
- \* Coriander
- \* Poppy
- \* Buckwheat
- \* Summer Savory
- \* Fennel
- \* Dill
- \* Yellow Flax
- \* Canary Seed
- \* Proso Millet
- \* Oilseed Radish
- \* Cramby
- \* Low Lino Canola (Stellar)
- \* Anise

Fertilizer: No fertilizer applied

Pesticides: No pesticides used

Sponsorship: Prince Albert Agriculture, Development and Diversification Board

15.

**FIELD-SCALE HARRINGTON BARLEY**

- Purpose: To produce a barley crop using a direct seeding techniques (20 acres).
- Crop: Harrington Barley seeded with a Flexicoil air drill, sidebanding openers, at 1.5 bpa., May 12
- Previous Crop: Parkland Canola
- Fertilizer: Sidebanded 97# (26-31-0), Flexicoil sidebanding opener  
Spokewheel injected 50# actual N/acre, liquid
- Pesticides: Roundup applied at .5 L/acre May 9  
Granular Avadex applied on Oct. 21, 1993  
Seed treated with Vitavax Single solution, liquid  
Refine Extra @ recommended rate applied June 9
- Sponsorship: Granular fertilizer supplied by Cominco  
Avadex and Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Refine Extra supplied by DuPont  
Vitavax supplied by Gustafson  
Liquid N supplied by Simplot  
Avadex applied by Esso Farm-Tek  
Spoke wheel equipment supplied by Pattison Bros.

16.

**WHITE SPRUCE FIELD SHELTERBELT**

- Purpose: To demonstrate the establishment of an evergreen shelterbelt.
- Site: A road allowance has been allowed to grow a stand of poplars on the north side of the field property. This provides significant protection to the fields adjacent to it. It also provides an ideal area for white spruce to grow well in. The spruce will add aesthetic value to the area as well as diversifying the habitat.
- Sponsorship: This is a project of the PFRA.

17.

**BARLEY AND SEED PLACED UREA**

Purpose: To demonstrate the results of seed placing all of a barley crop's N requirements.

Treatments: 0, 15, 30, 45, 60, 75, and 90 # actual N/acre in the form of urea seed placed with a knife opener at 7 inch spacing.

Crop: Harrington Barley seeded at 1.5 bpa., May 12

Previous Crop: Parkland Canola

Fertilizer: N applied at 0-90 # actual N/acre  
No phosphorus applied  
No spokewheel injection of N

Pesticides: Roundup applied at .5 L/acre May 9  
Avadex surface applied October 21, 1993  
Refine Extra @ recommended rate applied June 9

Measurements taken: Barley and weed counts, yields

Moisture Notes: 3.5 days after seeding, rain began to fall - 4 inches over a period of 2 weeks.

Sponsorship: Avadex applied by Esso Farm-Tek  
Avadex and Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Refine Extra supplied by DuPont

18.

**NON-INCORPORATED AVADEx TRIAL**

Purpose: To see how Avadex will work to control wild oats in a direct seeded barley crop, with no incorporation other than the seeding operation.

Treatments: 1) Late fall application, Oct. 21, 1993  
2) Early spring application, April 22, 1994  
3) No Avadex

Crop: Harrington Barley seeded at 1.5 bpa., May 12

Previous Crop: Parkland Canola

Fertilizer: Sidebanded 97# (26-31-0), Flexicoil sidebanding opener  
Spokewheel inject 50# actual N/acre, liquid

Pesticides: Roundup applied at .5 L/acre May 9  
Seed treated with Vitavax Single solution, liquid  
Refine Extra @ recommended rate applied June 9

Sponsorship: Avadex applied by Esso Farm-Tek  
Avadex and Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Refine Extra supplied by DuPont  
Vitavax supplied by Gustafson  
Liquid N supplied by Simplot  
Spoke wheel equipment supplied by Pattison Bros.  
Granular fertilizer supplied by Cominco

19. **FIELD-SCALE HARRINGTON BARLEY**

Purpose: To produce a barley crop using a direct seeding  
techniques.

Treatments: The entire field was treated similarly (80 acres).

Crop: Harrington Barley seeded with a Flexicoil air drill,  
sidebanding openers, at 1.5 bpa., May 12

Previous Crop: Parkland Canola

Fertilizer: Sidebanded 97# (26-31-0), Flexicoil sidebanding  
opener  
Spokewheel injected 50# actual N/acre, liquid on  
June 9

Pesticides: Roundup applied at .5 L/acre May 9  
Prevail applied at recommended rate on June 10  
Seed treated with Vitavax Single solution, liquid

Sponsorship: Granular fertilizer supplied by Cominco  
Prevail supplied by DowElanco  
Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Vitavax supplied by Gustafson  
Liquid N supplied by Simplot  
Spoke wheel equipment supplied by Pattison Bros.

20.

**FIELD-SCALE CDC MAKWA WHEAT**

Purpose: To produce a wheat crop using direct seeding techniques (38 acres).

Treatments: The entire field was treated similarly.

Crop: CDC Makwa Wheat seeded with a Flexicoil air drill, knife openers at 1.5 bpa., May 11

Previous Crop: Polish Canola

Fertilizer: Seedplaced 97# (26-31-0), Flexicoil knife opener  
Spokewheel injected 50# actual N/acre, liquid,  
June 9

Pesticides: Roundup applied at 1 L/acre May 9  
Buctril M applied at recommended rate on June 10  
Seed treated with Vitavax Single solution, liquid

Sponsorship: Liquid N supplied by Simplot  
Granular fertilizer supplied by Cominco  
Buctril M supplied by Rhone Poulenc  
Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Vitavax supplied by Gustafson  
Spoke wheel equipment supplied by Pattison Bros.

21.

**GREEN ASH FIELD SHELTERBELT**

Purpose: To demonstrate the establishment of a deciduous tree shelterbelt.

Site: Green ash have been planted near the property line of the farm. They will provide a border as well as providing some shelter to the fields nearby.

Sponsorship: This is a project of the PFRA.

22.

**FIELD-SCALE: EXPRESS PEAS**

**Purpose:** To produce a pea crop within a direct-seeding system, using products which are readily available.

**Treatments:** The entire field (18 acres) was treated similarly, with one exception, the west portion was rolled with no water in the roller drums, the east portion was not rolled.

**Crop:** Express peas seeded at 2.75 bu./ac., May 13

**Previous Crop:** Polish Canola

**Fertilizer:** Sidebanded 97# (26-31-0), Flexicoil sidebanding opener.  
Check strip with 50# actual N spoke wheel applied at west edge.  
Seed treated with Enfix inoculant (check strip with no inoculant at east edge).

**Pesticides:** Roundup applied at 1 L/acre May 9  
Sencor applied at recommended rate, June 10  
Poast applied at recommended rate, June 24, 3 days after rolling the peas.  
Demonstration strip of Reglone applied on July 12, field scale application of Reglone to be applied before harvest.

**Sponsorship:** Express peas supported by Newfield Seeds  
Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Poast supplied by BASF  
Fertilizer supplied by Cominco  
Inoculant supplied by Esso Petroleum  
Reglone supported by Zeneca Agro

23.

**FIELD-SCALE CDC RICHARD HULLESS BARLEY**

**Purpose:** To produce a barley crop using a direct seeding techniques (45 acres).

**Treatments:** The entire field was treated similarly, with the exception of an unintended seeding error which has resulted in some acres being seeded 2 weeks later than the initial seeding.

**Crop:** CDC Richard Hulless Barley seeded with a Flexicoil air drill, knife openers at 1.5 bpa., May 11

Previous Crop: Polish Canola

Fertilizer: Seedplaced 97# (26-31-0), Flexicoil knife opener  
Spokewheel injected 50# actual N/acre, liquid,  
June 9

Pesticides: Roundup applied at 1 L/acre May 9  
Buctril M and Avenge applied at recommended rate  
on June 10  
Seed treated with Vitavax Single solution, liquid

Sponsorship: Seed supplied by Proven Seeds  
Liquid N supplied by Simplot  
Granular fertilizer supplied by Cominco  
Buctril M supplied by Rhone Poulenc  
Avenge supplied by Cyanamid  
Roundup supplied by Monsanto  
Seeder supplied by Flexi-coil  
Vitavax supplied by Gustafson  
Spoke wheel equipment supplied by Pattison Bros.

24.

#### FIELD-SCALE: PARKLAND CANOLA

Purpose: To produce a canola crop following a previous canola  
crop to see what disease problems may develop in 1994  
growing conditions. Direct seeding techniques used  
except for crop rotation recommendations.

Treatments: The entire field was treated similarly (32 acres).

Crop: Parkland (Polish) Canola seeded at 7#/acre, June 20.  
Norlin Flax had originally been seeded, but failed,  
likely due to seeding depth and heavy rains causing  
crusting of soil surface.

Previous Crop: Parkland Canola

Fertilizer: Sidebanded 114 # (46-0-0), Seedplaced 50# (12-51-  
0), ConservaPac seed drill.  
Previous N application for flax amounted to 15#  
actual N

Pesticides: Roundup applied at 1 L/acre May 9  
Roundup applied at .5 L/acre June 10  
Seed was pre-treated with Vitavax  
In-crop weed control may be done with Lontrel

Sponsorship: Roundup supplied by Monsanto  
Seeder supplied by Melfort Research Station  
Fertilizer supplied by Cominco

25.

#### GREENHOUSE GAS STUDY

**Purpose:** To measure nitrous oxide gas emissions from the soil.

**Background:** The loss of nitrogen from the soil to the atmosphere in the form of nitrous oxide is important both agronomically and environmentally. Nitrous oxide represents the unrecoverable loss of nitrogen from the soil-plant system. It has also been implicated as one of the gases involved in global warming and the destruction of the atmospheric ozone layer. Although nitrous oxide emission has been well characterized in the laboratory, considerable uncertainty exists regarding its significance in many ecosystems and regarding the factors regulating it in actual field conditions.

**Measurements taken:** This is the second year of a three year study of emissions from natural and agricultural soils. The effect of soil texture, topography, land use and precipitation are all included as factors in the study.

**Sponsorship:** This is a project of the University of Saskatchewan, Soil Science Department, as a post-graduate study by Ms. Marife Corre, under the supervision of Dr. Chris van Kessel and Dr. Dan Pennock.

26.

#### FOREST BELT

**Purpose:** To demonstrate the establishment of a forest belt.

**Site:** In the distant past, a field shelterbelt has been planted between quarter sections of the farm. These provide some protection to the bordering fields as well as shelter and food for wildlife. Parts of the shelterbelt are starting to die out and some of the bordering land has been left to grow grasses. New trees and shrubs have been planted in these grassed areas. The forest belt and other new additions will extend the benefits of the old shelterbelt as well as adding potential future cash value.

**Sponsorship:** This is a project of the PFRA.