

Conservation
LEARNING  **ATION**
CENTRE

1993 RESULTS AND 1994 PLANS

A. Introduction

The Conservation Learning Centre, a conservation demonstration farm south of Prince Albert, Sk., was established in the spring of 1993. A partnership of producers, government and non-government organizations, and industry has made this possible.

A steering committee, composed of producers and agency representatives, has guided the project through a successful initial year of operation. Many accomplishments have been achieved, from finding a suitable land base, to producing and harvesting successful crops of wheat and canola. Producers have indicated significant interest in the site activities, and many have shown interest in being included on the CLC mailing list and wish to be at field tours already being planned for the next growing season.

The Conservation Learning Centre, as the name would suggest, is designed to show practical methods of conserving soil, water, and wildlife, within the agricultural context. Several topics are being researched and demonstrated at the CLC, including forages, shelterbelts and direct-seeding.

B. Objectives of the Conservation Learning Centre (CLC):

- * Demonstrate land management techniques which focus on the optimum utilization of the landscape for annual crop and forage production, employ appropriate soil and water conservation techniques and facilitate wildlife habitat enhancement.

- * Provide a Learning Centre for farmers, agrologists, students of all ages, and the general public interested in agricultural sustainability and environmental quality.

- * Collect scientific information to evaluate the interaction of crop production and livestock-based agriculture with the environment, utilizing the landscape relief characteristic of the Parkland Region of Saskatchewan.

- * Provide a common location for the interaction of public and private interests concerned with issues related to production agriculture and resource conservation.

C. Field Projects in 1993

1. Polish canola was successfully direct-seeded and harvested on 224 acres, resulting in an average yield of 20 bushels per acre.
2. CPS Biggar Wheat was successfully direct-seeded and harvested on 95 acres, resulting in an average yield of 45 bushels per acre.
3. A field-scale canola variety trial compared the establishment, growth and productivity of 5 polish canola varieties.
4. A field-scale trial compared 0-70 pounds of actual Nitrogen, in the form of urea, seed-placed with canola.
5. Forty-five acres of dense nesting cover was planted and established by Ducks Unlimited Canada.
6. A small alternative crops garden of 41 different "new to the area" crops was established. No yields were taken, but it was a very popular visual introduction to crops which may or may not have potential in the Parkland Region.
7. Greenhouse gas monitoring by the University of Saskatchewan, Soil Science Department. They began a comparison of the emissions of Greenhouse gases from summerfallow, cropped and forage sites.
8. A small research plot was established by the Melfort Research Station, comparing several forages with potential as dense nesting cover species.
9. A small demonstration plot was established by the Melfort Research Station, showing canola tolerance to several herbicides mixed with glyphosate as a pre-seeding application.

D. Results of Two Field-scale Comparisons:

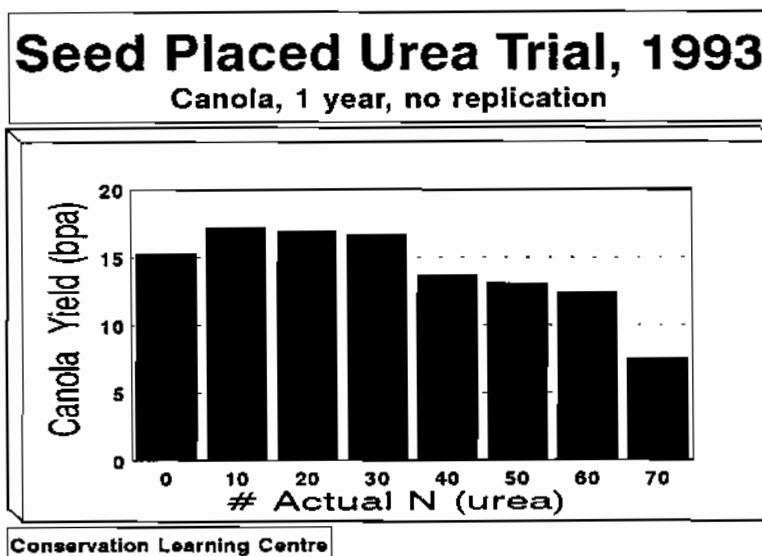
1. Seed placed urea with canola:

Placement of fertilizer is likely the most challenging of issues facing beginning direct seeding producers at present. If a producer's preference is a minimal disturbance one-pass system, widely available, inexpensive, and proven equipment is not available for applying sufficient fertilizer quantities to meet soil test recommendations.

Often, producers wonder if they can seed place most, if not all, of the fertilizer with the seed. There are significant risks in this practice, particularly associated with narrow seed openers, but also related to other equipment characteristics, as well as soil conditions, and crop and fertilizer choice. A useful guide to follow is 'Farm Facts: Guidelines for Safe Rates of Fertilizer Applied with the Seed' which was prepared by the Sask. Soil Fertility Subcouncil and is widely available.

The Conservation Learning Centre established a field trial with canola in 1993. A narrow opener (Eagle beak) was used at 7" spacing and essentially all of the N (urea) was placed with the seed. The phosphorus was deep banded prior to seeding. The soil is a combination of fine sandy loam to silty loam and the landscape is gently sloping.

The following graph summarizes the yield results:



Comments:

There was no yield advantage after the initial 10# actual N per acre was applied with the seed. Yields were maintained at the same or slightly lower levels up to 30# N/acre, then dropped significantly at 40# and again at 70# N/acre.

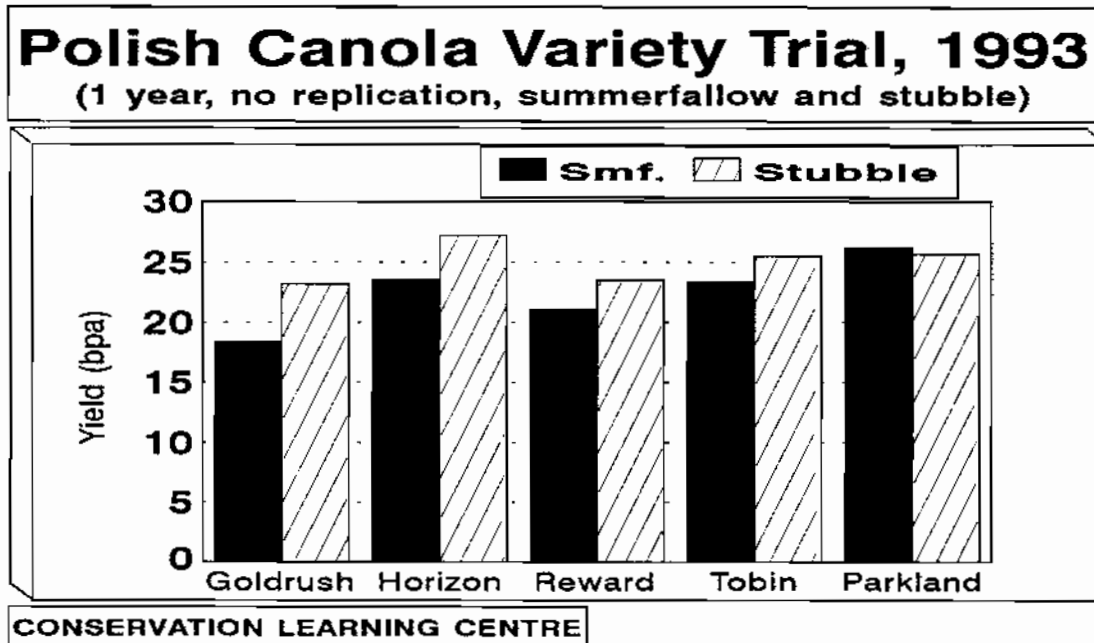
An observation which does not appear in this simple yield data summary, but which undoubtedly had a significant effect, is weed competition. In 1993, many producers in the area experienced difficulty with in-crop control of wild oats; the CLC was no different. The in-crop spraying program was effective in controlling the initial flush of wild oats, however late rains (post-spraying season) caused successive flushes which were not controlled. These successive flushes were particularly successful in the high N treatment strips. Two factors may have been significant here:

- a) Thinner, less vigorous canola stands provided an opportunity for weed populations to take advantage of the lack of crop competition.
- b) Thinner, less vigorous canola stands resulted in high rates of N which were available to the wild oats to take advantage of.

The CLC, in cooperation with the Sask. Wheat Pool, will conduct a similar demonstration in 1994.

2) Polish Canola Variety Trial:

One quarter section of land was used for a yield trial comparing 5 different polish canola varieties. These were seeded directly into both wheat stubble and summerfallow. The following graph illustrates the differences in yields:



E. Projects planned for 1994 at the Conservation Learning Centre:

The following potential projects are as a result of cooperation of many agencies, organizations, and industry. Cooperating agencies will be listed in the 1994 Results, as full sponsorship is not complete at time of writing this report.

For your information, reference has been made to level of information to be gathered, defined as demonstration only (D), research (R), and/or gross measurements taken for reference (M).

1) Forages:

- * species garden (D)
- * direct seeding methods for alfalfa and meadow brome grass (D,R)
- * saline tolerance of forages (D)
- * forage rejuvenation (D,M)
- * dense nesting cover (DNC) establishment (D)
- * investigation into new potential species for DNC (D,R)
- * short-term alfalfa included in crop rotation (D,R)

2) Shelterbelts:

- * species garden (D)
- * field shelterbelt establishment and enhancement (D)
- * wildlife shelterbelt establishment (D)
- * yard shelterbelt enhancement (D)

3) Annual Crop Production:

- * alternative crops garden (D)
- * salinity effect on annual crop species (D)
- * residual Lontrel effect on annual crop species in following year (D)
- * direct seeding:
 - flax, barley, peas, and wheat sown at field scale (D,M)
 - non-incorporation of historically incorporated products such as Avadex, Edge (D,M)
 - crop rotations and N placement and timing (D,R)
 - variable N rates (D,R)
 - seed-placement of urea and ammonium nitrate with canola (D,M,R)
 - Canada thistle control (D)
 - Quackgrass control (D)
 - Foxtail barley control (D)
 - Greenhouse gases monitored in comparison with tilled and forage sites, fert. and non-fert. (D,R)
 - weed numbers and species monitored (D,R)

F. Acknowledgements:

The Conservation Learning Centre wishes to thank all the agencies which were instrumental in establishing the demonstration farm in 1993:

- * Canada's Green Plan
- * Agriculture and Agri-Food Canada, through the Melfort Research Station, and the P.F.R.A.
- * Ducks Unlimited Canada
- * Saskatchewan Soil Conservation Association
- * Prince Albert A.D.D Board
- * Soil Science Department, University of Sask.
- * Saskatchewan Agriculture and Food

Special thanks go to the producers who provide their input into the ongoing planning and support of the project.