Canola Dormant Seeding in North Dakota

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INTRODUCTION

Canola (Brassica napus L.) is produced primarily in North Dakota, Minnesota, South Dakota, and Montana. It has expanded tremendously in recent years. From 1990 to 2002, statewide acreage increased from 8,005 to 1,291,804 acres (North Dakota Farm Service Agency, 1990 and 2002). Canola is a new specialty crop in the northern plains with many different cropping systems. Dormant seeding has been shown to increase yields and the viability of dormant seeding; however, traditional crops in this region are normally harvested by early fall, and farmers have more time available for seeding in the late fall; thus, many farmers are considering this practice. Dormant seeding can protect the seed from fall germination and avoid fall germination is seeding immediately before soil temperatures drop below 0°C. Dormant seeding results in shorter plants and less susceptibility to lodging. Dormant-seeded canola was observed in almost all site-years.

Canola dormancy is a key factor that determines the success of dormant planting. Dormant canola has less viable seed than non-dormant canola. Dormant canola may protect the seed from fall germination and avoid fall germination is seeding immediately before soil temperatures drop below 0°C. Dormant-seeded canola was observed in almost all site-years.

RESULTS & DISCUSSION

The general objective of this project was to determine the feasibility of full-plant stand of canola in North Dakota. Specific objectives include evaluation of the performance of the following factors in dormant seeding of canola;

- Commercial polymer seed coating to reduce frost germination.
- Seed size (diameter vs. apoplastic growth) and its effect on seedling,
- Maturity and its effect on seedling,
- Seeding rate,
- Residue coverage (tillage effects), and
- Geographic area within the state.

MATERIALS & METHODS

The research was conducted in the periods 1999-2000 and 2001-2002 at the North Dakota State University (NDSU) Central Research and Extension Centers in Minot and Fargo, North Dakota.

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LITERATURE CITED


Canola seed.

Canola plants during initial stage of flowering.

SUMMARY

In general, full-seeded canola produced significantly poorer stands and lower yields than spring-seeded. The data suggest that the minimum plant stand to equal spring planting varies with tillage, site, and year.

Dormant (mature) and spring seeded (green canola).

+ Seed coating with Extender or increasing the seeding rate generally had a minimal effect on stand and yield, but the effects were inconsistent. Further improvements in seed coating technology and residue management which lead to improved stands should increase yields and the viability of dormant seeding.

+ No-till generally provided a more favorable environment for dormant seeding due to the buffering effect on soil moisture and residue. The residue improves soil surface characteristics, enslave and protects seedlings from wind. This result is especially meaningful for the typically driest western part of North Dakota where no-till is a common practice. Traditional crops in this region are normally harvested by early fall and farmers have more time available for seeding in the late fall.

+ As a time management tool, dormant seeding effectively distributes labor and equipment demands at planting, however it did not significantly advance crop development and subsequent field operations in all site-years.

+ Dormant seeding involves considerable risk. Inadequate stands and reduced yields were common in these research plots. Growers interested in this practice need to be aware of the risks and avoid over-committing resources.