ADF

Saskatchewan Agriculture
Development Fund

# Varieties of grain crops for Saskatchewan 1992

**The Saskatchewan Agriculture Development Fund (ADF)** is the provincial funding agency for agri-food related research, development and demonstration projects in Saskatchewan.

ADF is an integral part of the Saskatchewan Department of Agriculture and Food and operates to fund, co-ordinate and facilitate agri-food activities from research and production to processing and demonstrations.

ADF supports crop variety development activities at the University of Saskatchewan and the Crop Development Centre as part of the Strategic Funding Agreement. A new five-year agreement was recently signed totalling $17.5 million.

In addition, ADF has contributed $211,100, through its demonstration program, to the Regional Spring Grain Variety Trials conducted throughout the province by University of Saskatchewan.

The printing of this publication and its distribution is paid for by ADF.

**The Saskatchewan Agricultural Services Coordinating Committee (SASCC)** is the agency which coordinates agricultural research and extension activities in Saskatchewan.

SASCC has a system of advisory councils representing the major subject areas: extension, economics, forage crops, grain crops, soils and agronomy, crop protection, horticulture, agriculture and food engineering, food production and marketing, animal health, animal production, and agricultural meteorology. The advisory councils are further divided to cover specific subject areas. For example, the Advisory Council on Agricultural and Food Engineering works through sub-councils on power and machinery, structures and environment, soils and water, and food process engineering.

The Advisory Council on Grain Crops is responsible for the recommendations in the **Varieties of Grain Crops for Saskatchewan** publication as well as other recommendations for grain crop production. The council, like all others, makes recommendations on research and extension to SASCC. The membership on the council is made up of representatives from: Agriculture Canada, Saskatchewan Agriculture and Food, University of Saskatchewan, Crop Development Centre, Saskatchewan Wheat Pool, Saskatchewan Rural Development, Canadian Seed Trade Association, Saskatchewan Seed Grower's Association, and farmers.

The Advisory Council on Grain Crops gratefully acknowleges the contribution of Agriculture Canada, University of Saskatchewan, the Crop Development Centre and all other researchers involved in the research and analysis which comprise the recommendations in this publication.

## *Contributing Agencies*

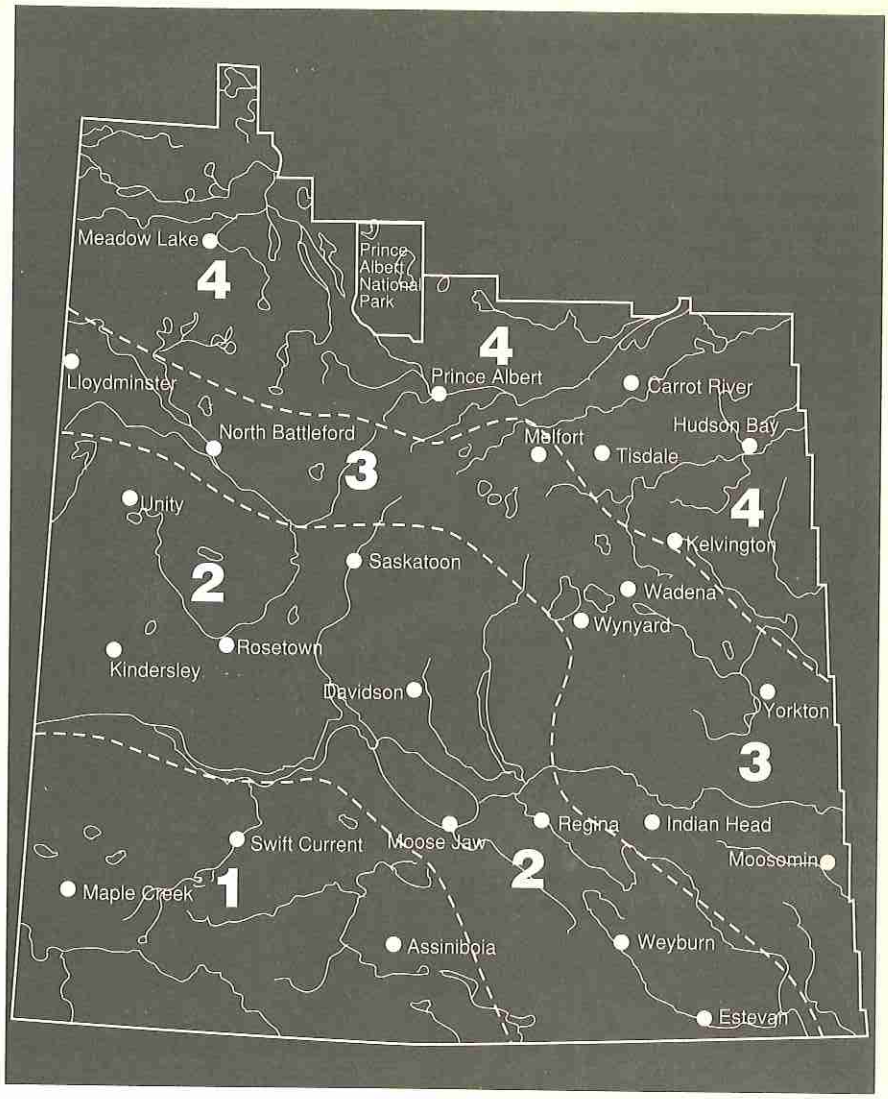
Agriculture Canada

Saskatchewan Agriculture and Food

Soils and Crops Branch

## Table of Contents






## Grain Crop Production Areas

The cropland of Saskatchewan has been divided into four areas based roughly on climate, vegetation and soil type. The relative yields of crop varieties tend to vary from area to area. In choosing a variety a farmer will want to consider the yields in his area and special requirements such as early maturity, disease resistance or sawfly resistance.

Area 1: Drought is a definite hazard and high winds are common. Sawfly outbreaks often occur in this area. Cereal rust may be a problem in the southeastern section.

Area 2: Drought and sawflies may be problems in the western and central sections of the area. Cereal rust may be a problem in the southeastern section.

Area 3: Drought is not as likely to be a problem in this area, particularly in the east. Cereal rust may occur in the eastern portion. The frost-free period can be fairly short in the northwestern and northeastern sections.

Area 4: Rainfall is usually adequate for crop production. However, early fall frosts and wet harvest weather are frequent problems.

The dividing lines do not represent distinct changes over a short distance. The change from one area to another is gradual.

# Cereal Crops

## Wheat

### Main Characteristics of Varieties

| Variety | Irr++ | Area 1 | Area 2 | Area 3 | Area 4 | Average Maturity in Days | Resistance to** Lodging | Shattering | Stem Rust | Leaf Rust | Loose Smut | Bunt | Root Rot |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Yield as % of Katepwa | | | | | | | | | | | |
| **Bread Wheat** | | | | | | | | | | | | | |
| Katepwa | 100 | 100 | 100 | 100 | 100 | 98 | G | G | VG | F | G | G | F |
| Benito+ | - | 94 | 95 | 95 | 97 | 97 | G | G | G | G | G | F | F |
| Columbus* | - | 98 | 101 | 101 | 97 | 102 | G | F | G | VG | F | VG | F |
| Conway | 100 | 101 | 98 | 97 | 97 | 98 | G | G | G | P | G | F | F |
| Kenyon | 98 | 97 | 96 | 97 | 95 | 98 | G | G | VG | VG | G | F | F |
| Laura | 89 | 103 | 104 | 104 | 103 | 100 | G | G | G | G | F | P | G |
| Leader | - | 95 | 95 | - | - | 100 | F | F | G | F | F | G | P |
| Lancer | - | 94 | 94 | - | - | 100 | F | VG | G | G | G | G | F |
| CDC | | | | | | | | | | | | | |
| Makwa | 102 | 102 | 104 | 101 | 101 | 98 | G | G | G | F | G | F | F |
| AC Minto | 97 | 103 | 103 | 104 | 102 | 100 | G | G | VG | G | VG | G | F |
| Neepawa | - | 99 | 100 | 99 | 98 | 98 | G | VG | G | P | G | F | F |
| Pasqua | 100 | 104 | 103 | 104 | 101 | 99 | G | G | G | VG | F | F | F |
| Roblin | 89 | 92 | 89 | 93 | 92 | 97 | VG | G | G | VG | G | P | G |
| CDC Teal | 88 | 98 | 94 | 101 | 99 | 98 | VG | G | VG | G | G | F | F |
| **Canada Prairie Spring Wheat** | | | | | | | | | | | | | |
| Biggar* | 121 | 121 | 118 | 121 | 120 | 102 | G | G | G | G | VP | VP | F |
| Cutler | - | - | 93 | 102 | 88 *** | 98 | G | G | G | P | F | VP | F |
| Genesis* | 115 | 123 | 125 | 127 | 125 | 102 | F | VG | G | F | F | VP | F |
| Oslo | 99 | 96 | 101 | 102 | 97 | 98 | G | G | G | G | P | F | F |
| AC Taber* | 121 | 121 | 120 | 123 | 121 *** | 103 | G | G | VG | G | P | G | F |
| **Canada Western Utility** | | | | | | | | | | | | | |
| Bluesky | - | 93 | 89 | 93 | 95 | 99 | G | G | G | F | VG | F | G |
| Glenlea | - | 95 | 105 | 108 | 110 | 101 | G | G | G | G | VG | F | G |
| Wildcat | - | 85 | 82 | 87 | 91 | 98 | G | G | G | P | VG | VP | G |
| | | Yield as % of Kyle | | | | | | | | | | | |
| **Durum Wheat** | | | | | | | | | | | | | |
| Kyle | 100 | 100 | 100 | 100 | 100 | 103 | F | VG | VG | VG | P | VG | F |
| Arcola | 115 | 92 | 93 | 97 | 96 | 99 | G | VG | VG | VG | F | VG | F |
| Medora | 105 | 96 | 96 | 97 | 97 | 100 | G | VG | VG | VG | F | VG | F |
| Plenty | 114 | 104 | 109 | 111 | 108 | 102 | G | VG | VG | VG | P | VG | G |
| Sceptre | 107 | 97 | 97 | 99 | 100 | 100 | G | VG | VG | VG | F | VG | G |
| Wakooma | 88 | 92 | 97 | 97 | 97 | 102 | F | VG | VG | VG | F | VG | G |
| Wascana | - | 96 | 96 | 95 | 90 | 101 | F | VG | VG | VG | F | VG | F |

*These varieties are variable in maturity and may mature later under cool conditions.
**Resistance ratings: **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.
***Relative yield based on less than three years of data in Area 4.
+This variety will not be described in 1993.
++Relative yields under irrigation are based on limited data.
- No data available.

### Comments

Seed of varieties rated poor and very poor to bunt and loose smut should be treated. Please refer to the Seed Treatment section of this pamphlet or **Seed Treatments and Foliar Fungicides, 1992** pamphlet. During wet harvest weather grades drop more rapidly due to sprouting in swathed than in standing crops.

## Canada Western Red Spring Wheat

**AC Minto** has high yield potential and matures about two days later than Katepwa. It has very good resistance to stem rust and loose smut, good resistance to leaf rust and common bunt, and fair resistance to common root rot. It is slightly taller than Katepwa. Limited quantities of certified seed of **AC Minto** may be available in 1992.

**CDC Teal** has very good resistance to stem rust, good resistance to leaf rust and loose smut, and fair resistance to bunt. **CDC Teal** is intermediate to Katepwa and Roblin for maturity, height, and straw strength. Certified seed of **CDC Teal** will not be available in 1992.

**Conway** has performed well in the Brown soil zone. **Conway** has poor leaf rust resistance and is not suited for the eastern Prairies.

**Columbus** has good leaf rust resistance and has better sprouting and weatheng resistance than the other varieties except **Leader** and **Lancer**. **Columbus** is late maturing and must be sown early, particularly in Area 4.

**Katepwa** is similar to **Neepawa** but has better stem and leaf rust resistance and is easier to thresh.

**Kenyon** is similar to **Neepawa** and has very good leaf and stem rust resistance.

**Laura** has high yield potential and matures about two days later than **Katepwa**. **Laura** has an awned head and good shattering resistance.

**CDC Makwa** is higher yielding than **Katepwa** and has a similar time to maturity. It has good resistance to stem rust and loose smut; and fair resistance to leaf rust, common bunt, and common root rot.

**Pasqua** has performed well in all areas. It has good resistance to leaf rust and stem rust; and fair resistance to loose smut, common bunt, and common root rot. **Pasqua** is slightly shorter and stronger strawed than **Katepwa** and slightly later maturing than **Katepwa**. Limited quantities of certified seed of **Pasqua** may be available in 1992. It is sprouting tolerant intermediate to Katepwa and Columbus.

Under drought stress grain yield of **Roblin** can be reduced more than other varieties. **Roblin** is early maturing and has strong straw making it best suited to northern areas. Generally, **Roblin** has higher protein content than other cultivars.

**Leader** and **Lancer** are resistant to wheat stem sawfly. **Lancer** has better resistance to wheat stem sawfly, seed shattering and root rot than **Leader**.

## Canada Prairie Spring Wheat

**AC Taber** has very good resistance to stem rust, good resistance to leaf rust and common bunt. It is similiar in many respects to **Biggar** except that it is slightly taller and later in maturity. Certified seed will not be available in 1992. **AC Taber, Biggar, Cutler,** and **Olso** are red-seeded.

**Biggar** is a high yielding, awned, semi dwarf wheat. Both **AC Taber** and **Biggar** are late maturing and must be sown early particularly in Area 4.

**Cutler** is lower yielding than **Katepwa** and has a similar time to maturity. Certified seed will not be available in 1992.

**Oslo** is similar in maturity to **Katepwa** and lower yielding than **Biggar**.

**Genesis** is white-seeded and sprouts similar to durum wheat under wet harvest conditions. It is high yielding and late maturing. **Genesis** is slightly taller and weaker strawed than **Katepwa.** It is best suited to Areas 1 and 2.

## Canada Western Utility

**Bluesky** and **Wildcat** are earlier maturing than **Glenlea** and lower yielding.

## Canada Western Amber Durum

All durum varieties are susceptible to two new races of loose smut. Seed can be treated to provide control. See the **Seed Facts** section for details.

**Arcola, Medora** and **Sceptre** are early maturing and have short, strong straw.

**Kyle** has high yield potential but is a little tall and late maturing, making it best suited to the Brown and Dark Brown soil zones.

**Plenty** has performed well in all areas. It is similar to **Kyle** in height, but is stronger strawed and slightly earlier maturing.

**Sceptre** is the shortest, strongest-strawed durum variety, and has performed well under both dryland and irrigated conditions.

## Soft White Spring Wheat

**SWS-52** is about 5 days later maturing and stronger strawed than **Fielder. SWS-52** has moderate resistance to black point, bunt, powdery mildew and shattering. They are both susceptible to loose smut and sprouting of the grain before harvest. **Fielder** is susceptible to bunt. **SWS-52 will be deregistered in 1993 and after that time will be eligible only for Canada Feed grade.**

## Winter Wheat

Winter survival is the chief factor limiting winter wheat production in Saskatchewan. However, with proper management successful production is possible. This means that, in most years, some form of snow trapping is necessary in most of Saskatchewan to ensure overwintering.

**Norstar** is the most winter-hardy variety of winter wheat available.

**Norwin** is a semi-dwarf variety. It has very short, strong straw. Its winter hardiness and yield are inferior to **Norstar**. **Norwin** should be grown only under low winter stress, high moisture conditions where lodging and excessive straw production are problems.

**CDC Kestrel** is a tall semi-dwarf variety that was registered in 1991. Its yield has been equal to **Norstar** under drought conditions often associated with the no-till management used to overwinter winter wheat in Saskatchewan. Shorter, stronger straw makes **CDC Kestrel** better adapted than **Norstar** to high moisture environments and irrigation. **CDC Kestrel** has stem rust tolerance that is superior to **Norstar**. **CDC Kestrel** is taller, higher yielding, and more winter hardy than **Norwin**. Seed of **CDC Kestrel** will not be available in 1992.

**AC Readymade** is a medium tall, strong straw variety that was registered in 1991. **AC Readymade** is less winter hardy than **Norwin** and lower yeilding than both **Norstar** and **CDC Kestrel**. Seed of **AC Readymade** will not be available in 1992.

## Barley
### Main Characteristics of Varieties

| Type & Variety | 2 or 6 row | Rough or Smooth Awns | Irr Yield as % of Duke | Yield as % of Harrington: Area 1 | Area 2 | Area 3 | Area 4 | Average Maturity in Days | Resistance to*: Lodging | Shattering | Net Blotch | Stem Rust | Loose Smut | Other Smuts | Root Rot |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Malting** | | | | | | | | | | | | | | | |
| Harrington | 2 | R | - | 100 | 100 | 100 | 100 | 92 | G | VG | P | P | P | P | VP | G |
| Argyle | 6 | S | - | 92 | 92 | 96 | 93 | 91 | VG | VP | F | G | P | P | VP | G |
| Bonanza | 6 | S | - | 93 | 91 | 93 | 93 | 89 | G | VP | F | G | P | P | P | G |
| B1602 | 6 | R | - | 89 | 93 | 94 | 87 | 90 | G | P | F | G | P | P | F | VG |
| Tankard | 6 | S | - | 98 | 101 | 103 | 96 | 92 | G | VG | F | G | P | P | P | G |
| Manley | 2 | R | - | 99 | 106 | 105 | 105 | 94 | G | VG | F | G | P | P | P | G |
| **Feed** | | | | | | | | | | | | | | | |
| Abee | 2 | R | - | 101 | 104 | 104 | 100 | 94 | P | VG | P | P | P | P | F | G |
| Bridge | 2 | R | - | 109 | 105 | 108 | 96 | 93 | G | VG | P | F | P | P | P | F |
| Brier | 6 | S | - | 119 | 108 | 111 | 104 | 92 | F | F | G | G | VG | P | G | VP |
| Deuce | 2 | R | - | 97 | 98 | 99 | 98 | 92 | G | VG | F | G | P | P | G | G |
| CDC Guardian | 2 | R | - | 95 | 101 | 103 | 102 | 93 | F | G | G | G | VG | P | VG | F |
| AC Lacombe | 6 | S | - | 100 | 103 | 109 | 91 | 92 | F | F | F | G | P | P | VG | F |
| Noble | 6 | S | - | 99 | 101 | 103 | 98 | 92 | G | G | F | G | P | P | F | P |
| Virden | 6 | S | - | 106 | 105 | 108 | 108 | 95 | VG | G | F | G | P | P | F | VG |
| **Hulless** | | | | | | | | | | | | | | | |
| CDC Buck | 6 | R | - | 80 | 81 | 84 | 78 | 90 | G | F | F | G | P | P | F | G |
| CDC Richard-2 | | R | - | 76 | 93 | 92 | 83 | 91 | F | F | P | G | VG | F | P | G |
| Condor | 2 | R | - | 84 | 83 | 82 | 78 | 92 | G | G | P | F | P | P | P | G |
| **Intensive Management** | | | | | | | | | | | | | | | |
| Duke | 6 | R | 100 | 92 | 90 | 91 | 88 | 93 | VG | F | F | G | VG | P | F | G |
| Samson | 6 | R | 95 | 91 | 88 | 87 | 85 | 92 | VG | F | F | G | P | P | F | G |
| Winchester | 6 | R | 94 | 97 | 85 | 87 | 90 | 90 | VG | F | G | P | VG | P | G | G |

*Resistance ratings; **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.

### Comments

A new race of stem rust which attacks all of our previously resistant varieties has appeared in the eastern prairies and the northern great plains. It is not yet clear how persistent this race will be over time. Early sowing is the only practical measure which can be taken at this time.

None of the current two-rowed varieties have good field resistance to all races of net blotch. Therefore, growers who must plant barley on barley stubble should select six-rowed varieties which are more tolerant.

None of the available varieties are resistant to all three types of smut. Therefore, seed should be treated on a regular basis. See the Seed Facts section for details.

In hulless varieties the hull is left in the field, therefore comparable yields are 10-15% lower. Hulless seed is more susceptible to damage than hulled seed, so handling should be minimized. Markets for hulless barley have not been clearly defined but it should be valuable for hog feed, pet food and human consumption.

**CDC Guardian** is a new two-rowed feed variety with excellent disease resistance. It combines resistance to the old races of stem rust, net blotch, scald and surface borne smuts. It has moderate resistance to root rot and is susceptible to loose smut.

**AC Lacombe** is a new six-rowed feed variety with excellent yield, good straw strength and disease resistance.

**Noble** is a six-rowed variety. It has yielded well in drier locations. It has good lodging and shattering resistance. **Virden** is a six-rowed feed variety. It has a very high yield potential but is very late. It has very good straw strength. **Brier** is a six-rowed feed variety. It has very good yield potential and good disease resistance. **AC Stacey** is a new early maturing 6-row feed variety. While it is slightly better than **Jackson**, it is still 10-20% lower yielding than **Harrington. Bridge** is a new two-rowed feed variety with good yielding ability; it is slightly later than **Harrington** with similar disease resistance.

**Manley** is a new two-rowed malting variety with very good yield potential and better disease resistance than **Harrington**. It has moderate resistance to the spot-form of net blotch. **Manley** is later maturing than

**Harrington** and should be sown early. Manley has completed plant scale malting and brewing trials and has been rated as acceptable by the Brewing and Malting Barley Research Institute. Growers are reminded, however, that the industry is very cautious about moving into the use of new varieties. **B1602** has also been judged to have suitable malting and brewing quality. It is a six-rowed white aleurone variety and thus cannot be distinguished from feed varieties. Therefore, it should only be grown under contract. Saskatchewan tests have shown it to be slightly lower yielding than **Bonanza**, otherwise similar to it. Growers are cautioned that malting varieties, especially two rows, are very susceptible to sprouting.

Harvesting grain over 16% moisture and then using aeration bins for drying can lead to sprouting and embryo death. Seed with reduced germination is undesirable for seeding or malting purposes.

## Irrigation

Under irrigation, disease resistance, straw strength and maturity are more critical. Growers should select early, strong-strawed, disease resistant varieties.

**Samson**, **Duke** and **Winchester** are semidwarf feed varieties. They should be grown only under high moisture, high fertility conditions which would cause severe lodging of conventional varieties. High productivity tests in Saskatchewan have shown **Duke** to outyield **Samson** and **Winchester**. **Duke** is 1-2 days later than **Samson** and **Winchester** is 1-2 days earlier.

## Lines under Interim Registration for Evaluation of malting and Brewing Quality

Small scale tests are a good measure of malting potential but are not sufficient to determine the commercial acceptability of malting varieties. Final acceptance is given only after two years of successful plant scale evaluation. Several carload lots of barley are malted and subsequently brewed. The beer is then given the ultimate test — a taste panel. This process will normally take a minimum of three years. Crop grown in 1991 will be malted in January-February, 1992. It will be brewed in May-June, 1992, aged and tested in October-November, 1992. A crop grown in 1992 will be tested in October-November, 1993. To facilitate this testing "Interim Registration" has been established as a special category. This registration is granted for one year at a time renewable for a total of three years. It allows seed increase and marketing in a normal manner but automatically expires if performance of the line is not satisfactory. If performance is satisfactory then a full registration is granted. Production of the carload lots for evaluation is done by contract through the Canadian Wheat Board. **The following lines are currently under test:**

## Lines under Interim Registration

### Main Characteristics of Lines

| | Yield as a % of Harrington | | | | | Resistance to* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type and Line | Area 1 | Area 2 | Area 3 | Area 4 | Average Maturity in Days | Lodging | Shattering | Net Blotch | Loose Smut | Other Smuts | Root Rot | Stem Rust |
| **Two Row** | | | | | | | | | | | | |
| B1215 | 103 | 104 | 107 | 100 | 93 | G | G | P | P | P | P | P |
| TR118 | 95 | 102 | 100 | 91 | 93 | VG | G | F | P | F | F | G |
| Stein | 103 | 106 | 107 | 107 | 92 | G | G | F | P | F | G | G |
| AC Oxbow | 93 | 96 | 99 | 98 | 92 | G | VG | F | VG | G | F | G |
| **Six Row** | | | | | | | | | | | | |
| Duel | 93 | 98 | 100 | 93 | 92 | G | VP | G | P | P | G | G |
| Creme | 89 | 92 | 98 | 85 | 91 | G | VP | F | P | P | G | G |
| BT926 | 90 | 88 | 98 | 85 | 91 | G | F | P | VP | G | G | G |

*Resistance ratings; **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.

**Comments:**

**TR118** is a new two-rowed malting variety. Its performance and quality are similar to **Harrington**. It has very strong straw. Its most interesting feature is sprouting resistance.

**Stein** has higher yield potential, and better disease resistance than **Harrington**. **B1215** is similar in performance and disease reaction to **Harrington**, **AC Oxbow** is lower yielding than **Harrington** but has good disease resistance. It is the only variety with loose smut resistance. **Duel** is a blue aleurone six-row with superior yield to **Bonanza** and **Argyle**. **Creme** is of interest because it has a white aleurone. It may be suitable for the US market for white aleurone six-row.

## Oat

### Main Characteristics of Varieties

| Variety | Yield as % of Calibre | | | | Test wt. (kg/hl) | % Hull | % Plump | Average Maturity in days | Resistance to* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Area 1 | Area 2 | Area 3 | Area 4 | | | | | Lodging | Stem Rust | Leaf Rust | Smut |
| Calibre | 100 | 100 | 100 | 100 | 50.0 | 22.9 | 44 | 93 | G | VP | VP | P |
| Cascade | 104 | 99 | 99 | 98 | 47.4 | 26.0 | 48 | 92 | G | VP | VP | P |
| Derby | 101 | 99 | 100 | 104 | 50.1 | 22.2 | 74 | 93 | G | VP | VP | F |
| Dumont | 96 | 98 | 96 | 95 | 48.8 | 23.5 | 64 | 94 | F | VG | VG | G |
| Jasper*** | 93 | 90 | 92 | 93 | 50.0 | 22.5 | 42 | 89 | F | VP | VP | P |
| AC Marie** | 100 | 99 | 101 | 100 | 45.5 | 20.7 | 35 | 94 | F | VG | G | G |
| Robert | 94 | 95 | 92 | 94 | 48.5 | 22.5 | 87 | 93 | VG | VG | VG | G |
| Waldern | 97 | 100 | 104 | 107 | 45.7 | 25.0 | 74 | 94 | G | VP | VG | F |

*Resistance ratings: **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.
**Less than 3 years data available in Area 4.
***This variety may not be described in 1993.

### Comments

**AC MARIE** is a new variety with excellent disease resistance and is thus adapted to south-east Saskatchewan. It has good yield potential and very low hull content, however it has low test weight and poor grain plumpness, both of which are not desirable for milling and specialty markets. It is also later maturing than Calibre. Certified seed of **AC Marie** will not be available in 1992.

**Calibre** has high yield potential and superior kernel quality, having very high test weight and low percent hull.

**Cascade** has high yield potential but poorer kernel quality being lower in test weight with higher hull content.

**Cascade** is one to two days earlier maturing than **Calibre**.

**Derby** has high yield potential and test weight, but plumper grain and lower hull content than **Calibre**. It is slightly earlier than **Calibre** but not as early as **Cascade**.

**Dumont** has excellent disease resistance and good kernel quality, however it has weaker straw and lower yield potential and is one to two days later maturing than **Calibre**. **Dumont** should be considered for use in the oat rust-area of southeastern Saskatchewan.

**Jasper** is an earlier maturing variety with kernel quality similar to **Calibre,** however its yield potential is considerably lower.

**Robert** has tan colored grain. It has very good kernel quality and disease resistance, however, yield potential is generally lower than other varieties available. **Robert** has somewhat better tolerance to Barley Yellow Dwarf Virus than other varieties.

**Waldern** has high yield potential and large grain size. However, it has very low test weight and high hull content and as such is not as likely to be desirable for milling and specialty markets. It is later maturing than **Calibre**.

**Calibre, Cascade, Derby, Jasper** and **Waldern** are susceptible to oat-rusts and may be at risk if grown in the oat-rust area of southeast Saskatchewan.

## Rye

### Main Characteristics of Varieties

| Variety | Yield as % of Musketeer | | | | Resistance to* | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area 1 | Area 2 | Area 3 | Area 4 | Winter Killing | Shat-tering | Lodging | Stem Smut | Straw Length |
| Musketeer | 100 | 100 | 100 | 100 | G | G | G | G | Tall |
| Prima | 110 | 110 | 106 | 108 | G | G | F | G | Tall |
| Puma | 95 | 99 | 97 | 94 | G | G | F | P | Tall |

*Resistance ratings: **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.

### Comments

**Gazelle** is the only registered variety of spring rye.
**Danko**, a new variety, is very susceptible to winter killing.

## Triticale

### Main Characteristics of Varieties

| Variety | Yield as % of Frank: Area 1 | Area 2 | Area 3 | Area 4 | Average Maturity in Days | Resistance to*: Lodging | Stem Rust | Leaf Rust | Bunt | Root Rot |
|---|---|---|---|---|---|---|---|---|---|---|
| Frank | 100 | 100 | 100 | 100 | 105 | G | VG | VG | VG | F |
| Wapiti | 95 | 102 | 101 | 83 | 107 | G | VG | VG | VG | G |
| Banjo | 96 | 100 | 104 | 95 | 107 | G | VG | VG | VG | G |

*Resistance ratings: **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.

### Comments

**Triticale** matures 3-5 days later than **Biggar** wheat therefore, should be seeded as early as possible. Triticale matures very late in Area 4. Seed of **Banjo** will not be available in 1992.

# Oilseed Crops

## Canola

### Main Characteristics of Varieties

| Type & Variety | Yield as % of Westar: Area 2 | Area 3 | Area 4 | % Oil | Average Maturity in days | Resistance to*: Lodging | White Rust | Blackleg** | Sclerotinia Stem Rot |
|---|---|---|---|---|---|---|---|---|---|
| **Argentine** | | | | | | | | | |
| Westar | 100 | 100 | 100 | 42.9 | 96 | F | VG | VP | P |
| Alto | 101 | 96 | 98 | 42.8 | 96 | F | VG | VP | P |
| Bounty | 117 | 106 | 105 | 42.4 | 97 | G | VG | P | P |
| Celebra | 110 | 99 | 97 | 43.3 | 101 | VG | VG | F | P |
| Delta | 122 | 107 | 106 | 41.7 | 99 | VG | VG | F | P |
| AC Excel | 108 | 98 | 99 | 43.4 | 98 | G | VG | F | P |
| HC 120 | 109 | 112 | 105 | 43.0 | 98 | G | VG | P | P |
| Hyola 401 | 132 | 110 | 98 | 42.4 | 99 | VG | VG | P | P |
| Legend | 110 | 101 | 101 | 42.2 | 98 | G | VG | F | P |
| Profit | 104 | 91 | 91 | 44.0 | 99 | F | VG | F | P |
| Vanguard | 110 | 94 | 102 | 42.7 | 98 | G | VG | F | P |
| AC Tristar (TT) | 86 | 77 | 78 | 41.3 | 98 | P | VG | VP | P |
| Stallion (TT) | 91 | 72 | 75 | 40.3 | 100 | G | VG | F | P |
| Tribute (TT) | 68 | 67 | 70 | 39.5 | 97 | VP | VG | VP | P |
| **Industrial Oil Rapeseed** | | | | | | | | | |
| Hero (HE) | 101 | 81 | 81 | 43.7 | 96 | VG | VG | G | P |
| | **Yield as % of Tobin** | | | | | | | | |
| **Polish** | | | | | | | | | |
| Tobin | 100 | 100 | 100 | 41.5 | 85 | G | G | P | P |
| Colt | 103 | 99 | 97 | 42.3 | 87 | G | VP | P | P |
| Eclipse | 102 | 96 | 96 | 42.7 | 87 | G | F | P | P |
| Eldorado | 102 | 101 | 96 | 42.6 | 86 | G | P | P | P |
| Goldrush | 103 | 101 | 108 | 41.3 | 87 | G | G | P | P |
| Horizon | 105 | 101 | 102 | 42.2 | 87 | G | VP | P | P |
| AC Parkland | 102 | 101 | 104 | 43.0 | 87 | G | VG | P | P |
| Reward | 102 | 99 | 102 | 42.9 | 86 | G | VG | P | P |

TT = Triazine tolerant; HE = High erucic acid.
*Resistance ratings; **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.
****A minimum of 3 years between canola crops (4 year rotation) is essential to reduce the incidence of blackleg.**

### Comments

Argentine varieties yield, on average, 20% more seed than Polish varieties, and mature in approximately 100 days. These varieties are best suited to the longer season growing areas of central Saskatchewan. Polish varieties mature 10 to 14 days earlier than Argentine varieties, and are therefore well adapted to the short season growing areas of northern Saskatchewan. Under conditions of drought or early fall frost, which shorten the growing period, the yield of Polish varieties can be equal to or greater than that of Argentine varieties. Polish varieties are also less likely to produce green seed.

### Argentine canola

Argentine varieties are black seeded and have very good white rust resistance, but are highly susceptible to sclerotinia stem rot. **Blackleg, which is now widespread in Saskatchewan, can cause severe yield losses in Argentine varieties that have very poor resistance.** **Westar** and **Alto** are highly susceptible to blackleg and will suffer severe yield losses if grown in blackleg prone areas. **Bounty** has high yield and good straw strength, its blackleg resistance is poor. **Celebra** has high oil content, has very good straw strength and fair blackleg resistance but tends to mature later. **Delta** has high yield, low oil content and fair blackleg resistance. **AC Excel** has high oil content and fair blackleg resistance. **HC 120** has high yield, high oil content, and poor blackleg resistance. **Hyola 401** has high yield, very good straw strength, and poor blackleg resistance. **Legend** and **Vanguard** have fair blackleg resistance. **Profit** has also fair blackleg resistance and very high oil content.

Argentine type varieties respond well to irrigation, but blackleg susceptible varieties should be avoided since irrigation may increase the incidence of blackleg. Irrigation might delay maturity by one week or more under cooler conditions at harvest.

### Triazine tolerant canola

**AC Tristar**, **Stallion** and **Tribute** are triazine tolerant (TT) varieties. Their seed yields under weed free conditions, are substantially lower than that of other Argentine varieties. They also have significantly lower oil contents. These varieties should only be considered for planting on fields where severe infestations of stinkweed and/or wild mustard weeds are expected. For registered herbicides, consult "Weed Control in field and forage crops 1992". **AC Tristar** and **Tribute** have very poor blackleg resistance. **Stallion** has fair blackleg resistance.

### Polish canola

Polish varieties are yellow-brown seeded. They all have poor blackleg and sclerotinia stem rot resistance. **Tobin** is early maturing, has low oil content and good white rust resistance. **AC Parkland** and **Reward** have very good white rust resistance; **Colt** and **Horizon** have very poor, and **Eldorado** has poor resistance to white rust. **Goldrush** has low oil content and good white rust resistance, while **Eclipse** has fair resistance. A new race of white rust, found in 1988, can attack all Polish type varieties.

### Industrial oil rapeseed

For special industrial oil markets, a high erucic acid oil is needed. **Hero** is a high erucic (HE) acid variety that has high oil content, good blackleg resistance and very good straw strength. Information on the contract production of **Hero** should be obtained from companies which contract such production.

## Flax

### Main Characteristics of Varieties

| | Yield as % of NorLin | | | | | | | Resistance to* | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variety | Irr | Area 1 | Area 2 | Area 3 | Area 4 | Average Maturity in Days | Seed Size | Rust | Wilt | Lodging |
| NorLin | 100 | 100 | 100 | 100 | 100 | 101 | Medium | VG | G | G |
| Andro | 89 | 97 | 88 | 94 | 91 | 100 | Medium | VG | F | G |
| Flanders | 100 | 96 | 107 | 101 | 104 | 102 | Small | VG | G | VG |
| McGregor** | 100 | 97 | 96 | 98 | 93 | 103 | Small | VG | G | VG |
| NorMan** | 98 | 104 | 98 | 98 | 98 | 101 | Medium | VG | G | G |
| Somme | 98 | 99 | 101 | 104 | 100 | 101 | Medium | VG | G | F-G |
| Vimy | 86 | 110 | 104 | 101 | 98 | 101 | Large | VG | G | F |

*Resistance ratings: **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.
**These varieties may not be described in 1993.

### Comments

**Andro** is an early-maturing, rust-resistant variety that should replace the old rust-susceptible variety **Noralta.**

**Flanders** is a new variety that is expected to be a high yielding replacement for **McGregor**. Limited quantities of certified seed may be available in 1992.

**McGregor** is a high yielding but later maturing variety. It has better straw stength than other varieties and should be considered for irrigation in areas where maturity is not a problem.

**NorLin** is high yielding and earlier

maturing than **McGregor**. **NorLin's** good straw stength also makes it a good choice for irrigation.

**NorMan** is a medium-late variety with similar characteristics to **NorLin**.

**Somme** is a new medium-early maturing variety that may replace **NorLin**.

**Vimy** is a medium-late variety with large seed that is very well adapted to Areas 1, 2, and the southern portion of Area 3.

Frozen flax should be analyzed by the Saskatchewan Feed Testing Laboratory to determine that it is free of prussic acid before using it as a livestock feed.

## Condiment Mustard

### Main Characteristics of Varieties

| Type & Variety | Yield as % of Cutlass | Average Maturity in days |
|---|---|---|
| **Oriental** | | |
| Cutlass | 100 | 92 |
| Forge | 96 | 94 |
| Lethbridge 22A | 88 | 93 |
| **Brown** | | |
| Commercial | 89 | 94 |
| | **Yield as % of Ochre** | |
| **White** | | |
| Ochre | 100 | 93 |
| Gisilba | 95 | 93 |
| Kirby | 99 | 92 |
| Tilney | 97 | 93 |

### Comments

Mustard is grown in the drier regions of the province because of the better seed quality obtained under these conditions. Oriental and Brown mustards are usually swathed, but straight combining is also possible. White mustard should be straight combined because of possible losses due to wind damage to the fluffy swath. Any mixtures of rapeseed or canola in mustard, due to volunteer plants in the field or to improper handling on the farm, cause substantial losses through grade reductions.

Oriental mustard varieties are yellow seeded. **Cutlass** is high yielding and early maturing. **Forge** has good yield and superior seed quality. **Lethbridge 22A** is low yielding and susceptible to lodging. **Cutlass** and **Lethbridge 22A** are resistant to white rust, while **Forge** is highly susceptible.

**Commercial Brown** mustard is brown seeded. It yields 10% less than **Cutlass** and is highly susceptible to white rust.

White mustard varieties are large seeded and the seed is light yellow in colour. They yield, on average, 30% less than the Oriental mustard variety **Cutlass**. **Ochre** and **Kirby** are high yielding while **Gisilba** and **Tilney** yield less.

All mustard varieties are resistant to blackleg.

Differences in yield between the types is normally compensated for by price.

## Sunflower (oilseed)

### Main Characteristics of Varieties

| Variety | Yield as % of IS 7111 | Average Maturity in days | Oil % |
|---|---|---|---|
| IS 7111 | 100 | 120 | 47.6 |
| IS 7000 | 99 | 119 | 47.5 |
| DO 855 | 107 | 121 | 46.4 |
| DO 707 | 118 | 122 | 46.0 |
| S 1296 | 106 | 122 | 46.2 |
| 6322 | 123 | 122 | 47.5 |

### Comments

Sunflower requires 110-125 days to mature, depending on the cultivar and the growing season. Oilseed sunflower has traditionally been grown in the Dark Brown and Black soil zones in southeastern Saskatchewan. The introduction of early maturing varieties and continued research may expand the production area north. Later maturing hybrids have been grown but should be considered only in the extreme southeast of Saskatchewan and at Outlook. Contractors and crushers may pay a premium for high oil content. The Saskatchewan Sunflower Committee conducted tests at Saskatoon, Watrous, Brownlee and Outlook.

## Environment Canada Weather Information

### (24 hours each day, seven days a week)

**Recorded weather information**

- Regina 780-5744
- Saskatoon 975-4266
- Prince Albert 929-2114

**Weatheradio**

- continuous up-to-the-minute forecasts and reports
- transmitted over VHF-FM radio
- VHF-FM — 162.400 MHz
  — 162.475 MHz
  — 162.550 MHz
- there are presently 9 broadcasting stations; call Environment Canada weather office for more details

Public phone numbers

- Regina 780-6674, staffed 24 hrs.
- Saskatoon 975-4255, staffed 24 hrs.
- Prince Albert 953-8640, Mon.-Sat., 5 a.m.-6:30 p.m. Sun., 8 a.m.-4 p.m.

# Pulse Crops

## Field Pea

### Main Characteristics of Varieties

| Variety | Seed Color (yellow or green) | Yield as % of Century: Area 2 and Southern 3 | Yield as % of Century: Area 4 and Northern 3 | Average Maturity in Days | Vine length (cm) | Resistance to*: Ascochyta Blight | Resistance to*: Powdery Mildew | Resistance to*: Seed Coat Breakage | Seed Weight (g/1000) |
|---|---|---|---|---|---|---|---|---|---|
| Century | Y | 100 | 100 | 101 | 106 | P | P | F | 230 |
| AC Tamor** | Y | 113 | 109 | 99 | 57 | VP | VG | G | 280 |
| Bellevue | Y | 104 | 105 | 104 | 87 | P | P | G | 180 |
| Bohatyr** | Y | 106 | 120 | 97 | 73 | F | VP | G | 270 |
| Danto | G | 92 | 73 | 98 | 52 | P | P | F | 290 |
| Express | Y | 121 | 131 | 95 | 62 | P | VP | P | 240 |
| Fortune | Y | 118 | 120 | 104 | 69 | P | VP | F | 200 |
| Miranda | Y | 91 | 103 | 95 | 44 | P | VP | P | 350 |
| Patriot** | Y | 107 | 119 | 93 | 73 | F | VP | F | 210 |
| Princess | G | 100 | 91 | 92 | 58 | P | P | G | 200 |
| Radley | G | 101 | 113 | 96 | 57 | F | VP | F | 210 |
| Tara | Y | 117 | 118 | 102 | 96 | F | VG | F | 210 |
| Tipu | Y | 99 | 103 | 99 | 103 | P | P | P | 230 |
| Titan | Y | 108 | 105 | 101 | 109 | P | P | G | 250 |
| Topper** | Y | 120 | 115 | 97 | 102 | VP | P | F | 290 |
| Trapper | Y | 105 | 112 | 100 | 95 | P | P | F | 140 |
| Trump** | G | 124 | 107 | 98 | 63 | P | VP | F | 250 |
| Victoria | Y | 106 | 120 | 96 | 84 | P | VP | F | 190 |
| Yellowhead** | Y | 120 | 114 | 103 | 107 | VP | VP | G | 250 |

*Resistance ratings: **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor.
** Limited data

**Comments**

Field pea is best adapted to the more northerly Black and Gray soil zones. Early seeding will usually result in late August maturity and increase the likelihood of harvesting high quality seed. Seed splitting may be reduced by harvesting pea tough and drying in an aeration bin. The recommended seeding rate for **Trapper** is 135 kg/ha (120 lb/ac). Other varieties should be sown at higher rates in proportion to seed weight.

Under dry conditions, **AC Tamor, Danto, Express**, **Miranda**, **Patriot, Princess, Radley, Tipu** and **Trump** could provide poor weed competition, due to their short vines and/or semi-leafless characteristic. As well, short vines make harvesting more difficult. On the other hand, the semi-leafless characteristic of **Danto, Patriot, Radley** and **Tipu** has the advantage of facilitating harvest, as vines do not lay as flat on the ground.

**Danto, Princess, Radley** and **Trump** are green seeded varieties for which there is a higher risk of low grades due to bleaching.

Of the new varieties **AC Tamor, Bohatyr, Patriot, Topper, Trump** and **Yellowhead,** certified seed may not be available in 1992, except for **Yellowhead.** However Woodstone Foods Ltd., of Portage La Prairie, has exclusive rights to Yellowhead and it can only be grown under contract with this company.

Damaged and uncleaned seed of all varieties may be utilized for feed purposes, but some varieties are of lower quality and are only suitable for the feed market. When growing field pea for feed, one should select a high-yielding variety, such as **Tara**. **Sirius**, **Stegholt** and **Whero** are newly-registered feed varieties and only limited yield data are available. Small seed size is desirable for reducing the cost of seeding feed varieties, but **Stegholt** has very large seed.

Provided that adequate moisture is available, the field pea, like other legumes, offers considerable benefit when grown in rotation with other crops. Proper seed inoculation results in symbiotic nitrogen fixation which reduces input costs by supplying most of the nitrogen required by a productive pea crop. In addition, succeeding crops require less nitrogen fertilizer to attain high yields. See seed inoculation section.

## Lentil

### Main Characteristics of Varieties

| Variety | Yield as % of Laird | Height (cm) | Days to First Flower | Resistance to * Ascochyta Blight | Resistance to * Anthracnose | Seed Size | Seeding Rates kg/ha(lb/A) |
|---|---|---|---|---|---|---|---|
| Laird | 100 | 41 | 51 | F | P | Large | 90-100 (80-90) |
| Eston | 106 | 30 | 48 | VP | VP | Small | 45-50 (40-45) |
| Rose | 95 | 32 | 47 | VP | VP | Medium | 60-70 (53-62) |

* Resistance ratings; **VG** — very good; **G** — good; **F** — fair; **P** — poor; **VP** — very poor

### Comments

Lentil is best adapted to the Brown, Dark Brown and southernmost areas of the Black soil zones. It has about the same growing season requirement as durum wheat. However, lentil has an indeterminate growth habit and some stress is required during flowering to stimulate heavy pod set. A nitrogen stress can be induced by seeding early on cereal stubble. A drought stress occurs naturally during most years in the Brown and Dark Brown soil zones or can be induced by early seeding on light soils in the Black soil zone.

Young lentil plants can tolerate a light frost; a heavier frost will kill the tops, but they will regrow from axillary buds at or below the soil surface. Thus lentil can and should be seeded early, even earlier than wheat and as soon as the soil temperature at seeding depth exceeds 5°C. Early seeding is also important from the standpoint of reducing the hazard from early fall frosts which severely damage immature seeds. Lentil will not tolerate flooding or salt-affected soils.

Lentil plants are short (30-45 cm) and must be swathed close to the ground using a pick-up reel. Thus, they should be seeded on a smooth, rock-free seedbed to facilitate swathing.

Three lentil varieties have been developed for Western Canada. **Laird** is a tall, late-maturing variety with extra-large seeds and has become the industry standard for quality. **Laird** has fair resistance to ascochyta leaf, stem and pod blight. **Eston** is a short, erect, early-maturing variety with small seeds and is highly susceptible to ascochyta blight.

**Laird** and **Eston** have yellow cotyledons, while **Rose** has red cotyledons. **Rose** seed is flat and splits poorly, limiting its use in the red split lentil market.

**Indianhead**, a black seeded lentil, is very late maturing and was developed as a green manure lentil. It has small seed which reduces the cost of establishment. The seeding rate is 39 - 44 kg/ha (35-40lbs/A). **Indianhead** will produce an average yield if planted early and subjected to a drought stress in July and August.

Lentil producers should plant lentil seed that has been tested for seed-born ascochyta and anthracnose and avoid planting next to the previous year's lentil residues. Growers from northern areas and pedigreed seed producers should use only disease-free seed (none-detected). In the drier areas up to 4% seed-borne ascochyta does not normally cause a problem. The risks associated with seed-borne anthracnose have not been fully determined.

## Faba Bean

### Main Characteristics of Varieties

| Variety | Yield as % of Outlook | Average Maturity in Days | Seed Size |
|---|---|---|---|
| Outlook | 100 | 109 | small |
| Aladin | 106 | 112 | large |
| Orion | 68 | 102 | small |
| Pegasus | 100 | 111 | small |

### Comments

Faba bean should be seeded early (late April to early May). It is best adapted to irrigated areas in the Dark Brown Soil Zone and to that portion of the Black Soil Zone with the longest growing season.

**Aladin** and **Pegasus** are the highest yielding varieties under irrigation production. **Orion** is the earliest maturing variety and is a good performer in areas with a short growing season.

Faba bean is a legume and thus is able to use nitrogen from the air provided the seed is inoculated with the proper bacteria prior to planting. Faba bean requires a special strain of inoculum which is different from other pulse crops.

## Pinto Bean

Pinto bean can be grown under irrigation in Saskatchewan in regions that have a warm, long growing season (110 days). **Topaz, Fiesta** and **Othello** are registered varieties. For dryland production on summerfallow in the Dark Brown soil zone, **Othello** is recommended.

The crop does not tolerate frost, flooding or salt-affected soils. Seed in late May at 80-100 kg/ha (70-100 lb/A). Plant seed at 6cm depth in a firm, moist seedbed. Minimize seed damage by using a hoe or press drill with a metering mechanism suitable for large seeds.

The plants are short and pods may hang to ground level. The field should be smooth, level and rock-free to facilitate swathing or direct harvesting with a flex header equipped with an air reel. Seed should be free of common bacterial blight.

# Other Crops

## Canary Seed

The seed of annual canarygrass, more commonly called canary seed, is used as food for caged and wild birds. It is generally grown under contract with the contracting companies providing the seed. Two registered varieties are available. **Elias** and **Keet** are similar in yield, but **Keet** is earlier maturing and more resistant to lodging. The maturity requirements are equal to wheat. Canary seed plants have a dense shallow root system and thus growing the crop on sandy soils is not recommended. Summerfallow is generally used, but canary seed may be grown successfully on well-prepared stubble, providing adequate moisture is available for rapid germination and emergence.

Sow early in May at 34 kg/ha (30 lb/A) (germination greater than 85 percent). Plant the seed 3.5 to 5 cm deep into a firm seedbed. A grain drill is recommended.

Fertilizer recommendations are similar to those for cereal crops. No serious insect or disease problems have been identified. Canary seed is very sensitive to diclofop methyl and trifluralin. It should not be seeded on land that was treated with trifluralin the previous year.

Canary seed is resistant to shattering. It may be straight-combined or swathed when fully matured.

## Safflower

Safflower is an annual oilseed or birdseed crop which can be grown successfully in the brown soil zone. Safflower must be sown early. **Saffire** matures in about 119 days. Seed shallow but into a firm moist seedbed at about 27 lbs/A. **Saffire** has moderate resistance to Sclerotinia head rot and Alternaria leaf spot. Contract production is advisable.

**AC Stirling** is a newly registered variety with acceptable birdfeed quality and higher oil content compared to Saffire. Seed is not available for 1992.

# Seed Facts

**Pedigreed Seed**

Use certified seed regularly, and especially when changing to a different variety. This assures that the seed has high genetic purity, high germination and is relatively free from weeds and other crop seeds. Pedigreed seed may be paid for by an over-quota delivery of commercial grain. Ask your elevator agent or seed dealer for details.

**Seed Cleaning**

Seed should be carefully cleaned to remove weed seeds, trash, small or broken kernels, ergot and sclerotia. **Country grain elevators are not equipped to clean grain to seed standards, and the risk of mixing varieties and types of grain is very high.**

**Seed Treatment**

Smuts that attack wheat, barley, oat and rye can be controlled by chemical seed treatments. If bunt or smut was observed in a crop which is being used for seed it should be treated. Seed of susceptible varieties known to be free of smut or resistant cultivars should not require treatment. **If the presence of smut is uncertain then varieties rated VERY POOR should be treated every year, POOR every second year, and FAIR every third year.**

Only systemic fungicides (ie. containing carbathiin) will control true loose smut of barley, and wheat and stem smut of rye because the pathogens are harbored within the seed. The other types of smut (covered, false loose, oat, and bunt) may be controlled by non-systemic seed treatments because the pathogen is borne on the outside of the seed. Examples of active ingredients of non-systemic seed treatments are maneb and formaldehyde. Formaldehyde may result in reduced seed germination. **Read the provincial publication "Seed Treatments and Foliar Fungicide Sprays for Cereal, Oilseed, Forage and Pulse Crops" for detailed instructions and recommended rates.**

The virulent form of blackleg is now widespread on canola in Saskatchewan. Treatment of seed with a recommended fungicide can be beneficial to reduce the risk of disease and the risk of introducing the disease into unaffected areas. Growers with carryover stocks of treated seed should have these tested for germination.

Coating of canola with the appropriate seed dressing is a convenient alternative to on farm seed treatment.

Various fungicides have been registered for the control of seedling disease. Flax, canola, rye, and winter wheat seed should be treated to promote good seedling growth.

Wireworms, which attack all grain crops and flea beetles, which attack canola and mustard, can be controlled by seed treatment with insecticides. Read the label carefully and follow all directions.

**Treated seed must not be allowed to contaminate grain delivered to an elevator or used for feed.**

**Ergot**

Ergot attacks all varieties of rye, triticale, wheat and barley, as well as most common species of grass. Oat is rarely attacked and all broadleaved species are immune. Grain containing 0.1% ergot is considered poisonous and should not be used as food. For details on the disease obtain a copy of 'Ergot of Grains and Grasses'. Publ. 1438.

**Seed Inoculation**

Legume crops are only able to fix atmospheric nitrogen if their roots are well nodulated with nitrogen-fixing bacteria. Whenever a legume is planted in a field it is important that the seed be inoculated with the **proper** strain of nitrogen-fixing bacteria immediately before seeding. The use of a sticker such as a syrup solution or a powdered milk solution will help assure proper inoculation.

**Seed-borne Diseases of Lentil**

Lentil producers should plant lentil seed that has been tested for seedborne ascochyta and anthracnose and avoid planting next to the previous year's lentil residue. See lentil section for suggested tolerances.

**Damp and Frozen Seed**

**Seed which is stored damp or tough may be low in germination.** Grain which is being saved for seed should be dried if necessary, soon after harvest. Drying temperature should be kept below 37°C for batchdriers, or 43°C for recirculating and continuous driers. Frozen grain should never be sown without a laboratory germination test. There is frequently a high percentage of abnormal seedlings which may be unnoticed by an inexperienced observer.

**Production Notes**

All classes of wheat including durum and triticale are susceptible to wheat midge. Farmers in the infested areas should be prepared to spray these fields with recommended insecticides if necessary. Refer to **Orange Wheat Blossom Midge** Publication.

Residue of infected crops may harbour disease agents. Seeding into stubble of the same crop kind may increase disease risk, particularly in the higher rainfall areas.

Inspect fields weekly for the presence of Russian wheat aphid. Infested plants will show white or purple longitudinal stripes. Biology and control of this aphid are described in the leaflet "Russian Wheat Aphid".

# Breeding Institutions and Seed Distributors of Varieties Listed in This Publication

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|---|---|---|
| **Wheat** | | |
| **Bread Wheat** | | |
| Benito | Ag Canada (Winnipeg) | SeCan Members |
| Columbus | Ag Canada (Winnipeg) | SeCan Members |
| Conway | Univ. of Sask. — Crop Development Centre | Sask Wheat Pool |
| Katepwa | Ag Canada (Winnipeg) | SeCan Members |
| Kenyon | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Laura | Ag Canada (Swift Current) | SeCan Members |
| Leader | Ag Canada (Swift Current) | SeCan Members |
| Lancer | Ag Canada (Swift Current) | SeCan Members |
| CDC Makwa | Univ. of Sask. — Crop Development Centre | SeCan Members |
| AC Minto | Ag Canada (Winnipeg) | SeCan Members |
| Neepawa | Ag Canada (Winnipeg) | public |
| Pasqua | Ag Canada (Winnipeg) | SeCan Members |
| Roblin | Ag Canada (Winnipeg) | SeCan Members |
| CDC Teal | Univ. of Sask. — Crop Development Centre | Value Added Seeds Inc. |
| **Canada Prairie Spring Wheat** | | |
| Biggar | Ag Canada (Swift Current) | SeCan Members |
| Cutler | Univ. of Alberta | United Grain Growers |
| Genesis | Ag Canada (Swift Current) | SeCan Members |
| Oslo | NAPB; Sask Wheat Pool | Sask Wheat Pool |
| AC Taber | Ag Canada (Swift Current) | SeCan Members |
| **Canada Western Utility** | | |
| Bluesky | Ag Canada (Beaverlodge) | SeCan Members |
| Glenlea | Univ. of Manitoba | public |
| Wildcat | Ag Canada (Beaverlodge) | SeCan Members |
| **Durum** | | |
| Arcola | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Kyle | Ag Canada (Swift Current) | SeCan Members |
| Medora | Ag Canada (Winnipeg) | SeCan Members |
| Plenty | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Sceptre | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Wakooma | Ag Canada (Swift Current) | public |
| Wascana | Ag Canada (Swift Current) | public |
| **Soft White Spring Wheat** | | |
| Fielder | Idaho State Univ. & USDA; Ag Canada (Lethbridge) | public |
| SWS-52 | Ag Canada (Lethbridge) | SeCan Members |
| **Winter Wheat** | | |
| CDC Kestrel | Univ. of Sask — Crop Development Centre | SeCan Members |
| Norstar | Ag Canada (Lethbridge) | public |
| Norwin | Montana Ag Exp. Station & USDA (Aberdeen); Univ. of Sask. — Crop Development Centre | public |
| AC Readymade | Ag Canada(Lethbridge) | SeCan Members |
| **Winter Rye** | | |
| Danko | | Alberta Wheat Pool |
| Musketeer | Ag Canada (Swift Current) | SeCan Members |
| Prima | Ag Canada (Swift Current) | SeCan Members |
| Puma | Univ. of Manitoba | public |
| **Spring Rye** | | |
| Gazelle | Univ. of Sask. | public |
| **Triticale** | | |
| Banjo | Univ. of Manitoba | Value Added Seeds Inc. |
| Frank | Ag Canada (Swift Current) | SeCan Members |
| Wapiti | CIMMYT; Alta Ag | SeCan Members |
| **Barley** | | |
| **Malting** | | |
| Argyle | Univ. of Manitoba | SeCan Members |
| Bonanza | Ag Canada (Brandon) | public |
| B1215 | Busch Ag. Res. Inc. | Alberta Wheat Pool |
| B1602 | Busch Ag. Res. Inc. | Sask Wheat Pool |
| Creme | Univ. of Sask.— Crop Development Centre | United Grain Growers |
| Harrington | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Manley | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Tankard | Univ. of Sask. — Crop Development Centre | SeCan members |
| TR 118 | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Duel | Busch Ag. Res. Inc. | Alberta Wheat Pool |
| AC Oxbow | Ag Canada (Winnipeg, Brandon) | SeCan Members |
| Stein | Univ. of Sask. — Crop Development Centre | United Grain Growers |
| **Feed** | | |
| Abee | Alta Ag (Lacombe) | SeCan Members |
| Bridge | Ag Canada (Lethbridge) | SeCan Members |
| Brier | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Deuce | Univ. of Sask. — Crop Development Centre | SeCan Members |
| CDC Guardian | Univ. of Sask. — Crop Develoment Centre | SeCan Members |
| AC Lacombe | Ag Canada (Lacombe) | SeCan Members |
| Noble | Alta Ag (Lacombe) | SeCan Members |
| Virden | Ag Canada (Brandon) | SeCan Members |
| **Hulless** | | |
| CDC Buck | Univ. of Sask. — Crop Development Centre | United Grain Growers |
| Condor | Alta Ag (Lacombe) | SeCan Members |
| CDC Richard | Univ. of Sask. — Crop Development Centre | United Grain Growers |
| **Intensive Management** | | |
| Duke | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Samson | Alta Ag (Lacombe) | SeCan Members |
| Winchester | Western Plant Breeders; Prairie Pools | Sask Wheat Pool |
| **Oat** | | |
| Calibre | Univ. of Sask — Crop Development Centre | SeCan Members |
| Cascade | Ag Canada (Lacombe) | SeCan Members |
| Derby | Univ. of Sask. — Crop Development Centre | United Grain Growers |
| Dumont | Ag Canada (Winnipeg) | SeCan Members |
| Jasper | Ag Canada (Lacombe) | SeCan Members |
| AC Marie | Ag Canada (Winnipeg) | SeCan Members |
| Robert | Ag Canada (Winnipeg) | SeCan Members |
| Waldern | Ag Canada (Lacombe) | SeCan Members |
| **Canola** | | |
| **Argentine** | | |
| AC Excel | Ag Canada (Saskatoon) | SeCan Members |
| Alto | Univ. of Alta. | Cen Alta Grain, Canbra Foods Ltd., Northern Sales |
| Bounty | Allelix/UGG | United Grain Growers |
| Celebra | Svalof; Bonis | Newfield Seeds, Canadian Seed Coaters |
| Delta | Allelix/UGG | United Grain Growers |
| HC 120 | King Agro | Pride Dealers |

# Breeding Institutions and Seed Distributors of Varieties Listed in This Publication

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|---|---|---|
| Hyola 401 | ICI Seeds Canada | ICI Seeds Canada |
| Legend | Svalof; Bonis | Sask Wheat Pool |
| Profit | Ag Canada (Saskatoon) | SeCan Members |
| Tribute (TT) | Ag Canada (Saskatoon); University of Guelph | SeCan Members |
| AC Tristar (TT) | Ag Canada (Saskatoon) | SeCan Members |
| Stallion (TT) | Svalof; Bonis | Sask Wheat Pool |
| Vanguard | Svalof; Bonis | Newfield Seeds, Canadian Seed Coaters |
| Westar | Ag Canada (Saskatoon) | SeCan Members |
| **Industrial Rapeseed** | | |
| Hero | Univ. of Manitoba | CSP Foods |
| **Polish** | | |
| Colt | Svalof; Bonis | Sask Wheat Pool |
| Eclipse | Univ. of Alberta | Alta. Wheat Pool |
| Eldorado | Univ. of Alberta | United Grain Growers, |
| Goldrush | Allelix/UGG | United Grain Growers |
| Horizon | Svalof; Bonis | Sask Wheat Pool |
| AC Parkland | Ag Canada (Saskatoon) | SeCan Members |
| Reward | Univ. of Manitoba | SeCan Members |
| Tobin | Ag Canada (Saskatoon) | SeCan Members |
| **Flax** | | |
| Andro | Univ. of Sask — Crop Development Centre | SeCan Members |
| Flanders | Univ. of Sask. — Crop Development Centre | SeCan Members |
| McGregor | Ag Canada (Morden) | SeCan Members |
| NorLin | Ag Canada (Morden) | SeCan Members |
| NorMan | Ag Canada (Morden) | SeCan Members |
| Somme | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Vimy | Univ. of Sask. — Crop Development Centre | SeCan Members |
| **Mustard (Condiment)** | | |
| **Brown** | | |
| Commercial | | Trade |
| **Oriental** | | |
| Cutlass | Ag Canada (Saskatoon) | Trade |
| Forge | ICI Seeds Canada | ICI Seeds Canada |
| Lethbridge 22A | Ag Canada (Saskatoon) | Trade |
| **White** | | |
| Gisilba | Kurt Behm GMBH; Ag Canada (Saskatoon) | Northern Sales |
| Kirby | Colman's of Norwich; Ag Canada (Saskatoon) | United Grain Growers |
| Ochre | Ag Canada (Saskatoon) | Trade |
| Tilney | Colman's of Norwich; Ag Canada (Saskatoon) | United Grain Growers |
| **Sunflower** | | |
| DO-707 | Dahlgren and Company | farmer dealers |
| DO-855 | Dahlgren and Company | farmer dealers |
| IS 7000 | Interstate Seeds | Sask. Wheat Pool |
| IS 7111 | Interstate Seeds | Sask. Wheat Pool |
| S 1296 | Northrup King | farmer dealers |
| 6322 | Pioneer | Pioneer |
| **Field Pea** | | |
| Bellevue | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Bohatyr | Selgen-Oseva | Sask. Wheat Pool |
| Century | Ag Canada (Morden) | public |
| Danto | L. Dsenfeldt | Brett Young Seeds |
| Express | Svalof; Bonis | Newfield Seeds |
| Fortune | Svalof; Bonis | Newfield Seeds |
| Miranda | Cebeco; Manitoba Pool | Manitoba Pool |
| Patriot | Svalof; Bonis | Newfield Seeds |
| Princess | Wilbur Ellis Co; CanMar Grain | Ron McKinnon Stu Robson |
| Radley | Booker Seeds Ltd; Columbia Seeds | Columbia Seeds (Alta.) |
| AC Tamor | Ag Canada (Morden) | SeCan Members |
| Tara | Ag Canada (Morden) | SeCan Members |
| Tipu | Ag Canada (Morden) | SeCan Members |
| Titan | Ag Canada (Morden) | SeCan Members |
| Topper | Ag Canada (Morden) | SeCan Members |
| Trapper | Ag Canada (Morden) | public |
| Trump | Ag Canada (Morden) | SeCan Members |
| Victoria | Svalof; Bonis | Newfield Seeds |
| Yellowhead | Ad Canada (Morden) | Woodstone Foods Ltd |
| **Lentil** | | |
| Eston | Univ. of Sask — Crop Development Centre | SeCan Members |
| Indianhead | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Laird | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Rose | Univ. of Sask. — Crop Development Centre | United Grain Growers |
| Selection 8 | Univ. of Sask. — Crop Development Centre | SeCan Members |
| **Faba Bean** | | |
| Aladin | Univ. of Manitoba | public |
| Orion | Ag Canada (Lacombe) | Roger Lee (Alta) Lyster Farms Ltd (Alta) |
| Outllook | Univ. of Sask. — Crop Development Centre | SeCan Members |
| Pegasus | Univ. of Manitoba | Roy Legumex (Man) |
| **Pinto Bean** | | |
| Othello | USDA/ARS (Prosser, WA) | WA & ID seed dealers |
| **Canary Seed** | | |
| Elias | Univ. of Minnesota; Univ. of Sask. — Crop Development Centre | public |
| Keet | Univ. of Minnesota; Univ. of Sask. — Crop Development Centre | public |
| **Safflower** | | |
| Saffire | Ag Canada (Lethbridge) | Jerry Kubic (Alta) |
| AC Stirling | Ag Canada (Lethbridge) | SeCan Members |

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