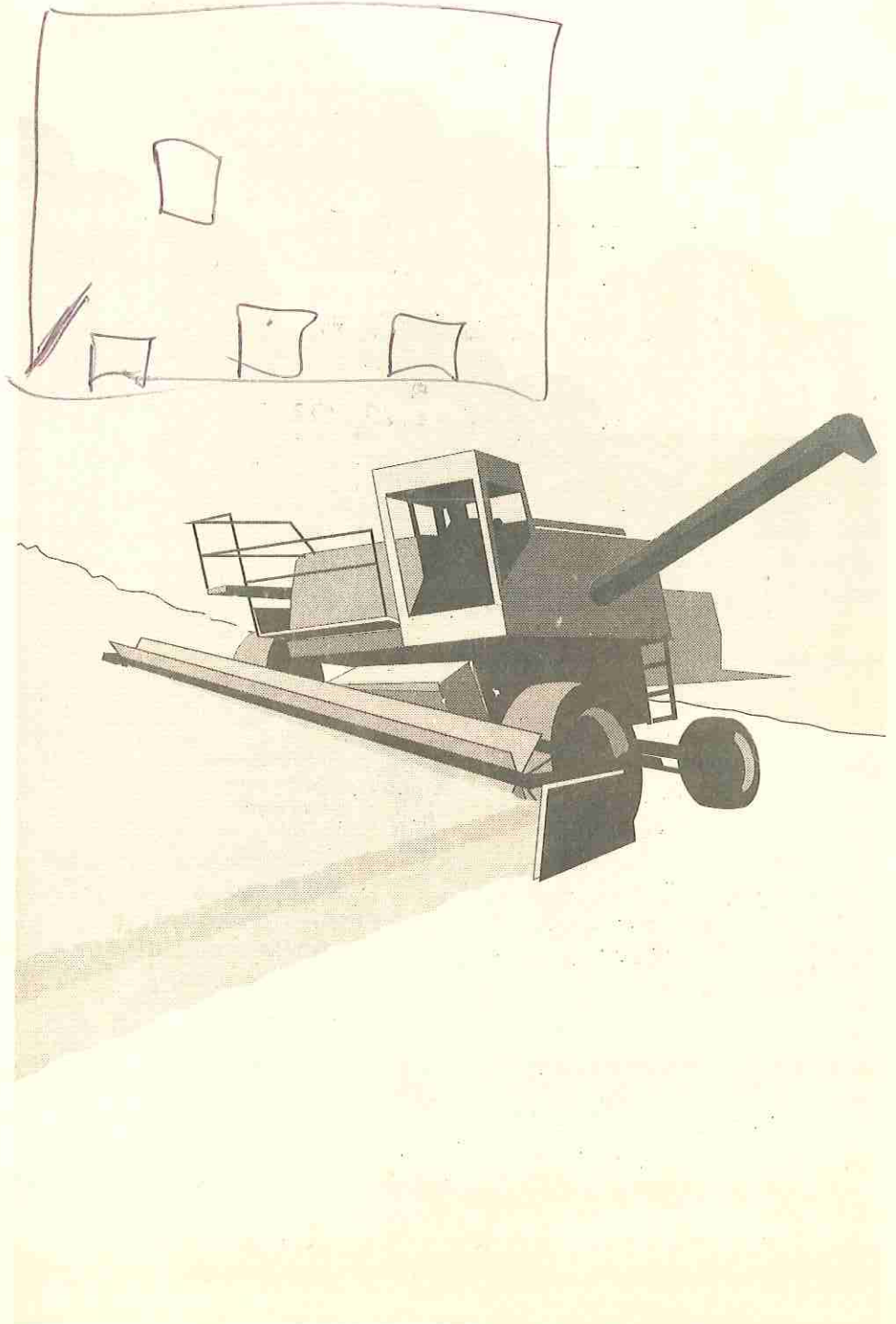


ADF



Saskatchewan
Agriculture
Development Fund

Varieties of grain crops for Saskatchewan 1991



Saskatchewan Agriculture Development Fund (ADF)

On October 1, 1989, the Government of Saskatchewan renewed its 1985 commitment to the future of Saskatchewan's agriculture and food sector through the proclamation of **The Agriculture Development Fund Act**. The Agriculture Development Fund (ADF) funds research, development and demonstration projects in the province's agri-food sector.

The ADF support efforts in areas such as crops and forages, soils, livestock, land improvement, engineering, economics, extension, marketing, new product development and agri-food processing.

In 1990 the ADF contributed \$211,100 to the Spring Grain Variety Trials conducted throughout the province by the University of Saskatchewan. In addition, ADF funds the printing and distribution of the **Varieties of Grain Crops for Saskatchewan**.

Saskatchewan Agricultural Services Coordinating Committee

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 and 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 acknowledges 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 recommendation in this publication.

Contributing Agencies



Agriculture
Canada



Saskatchewan
Agriculture
and Food

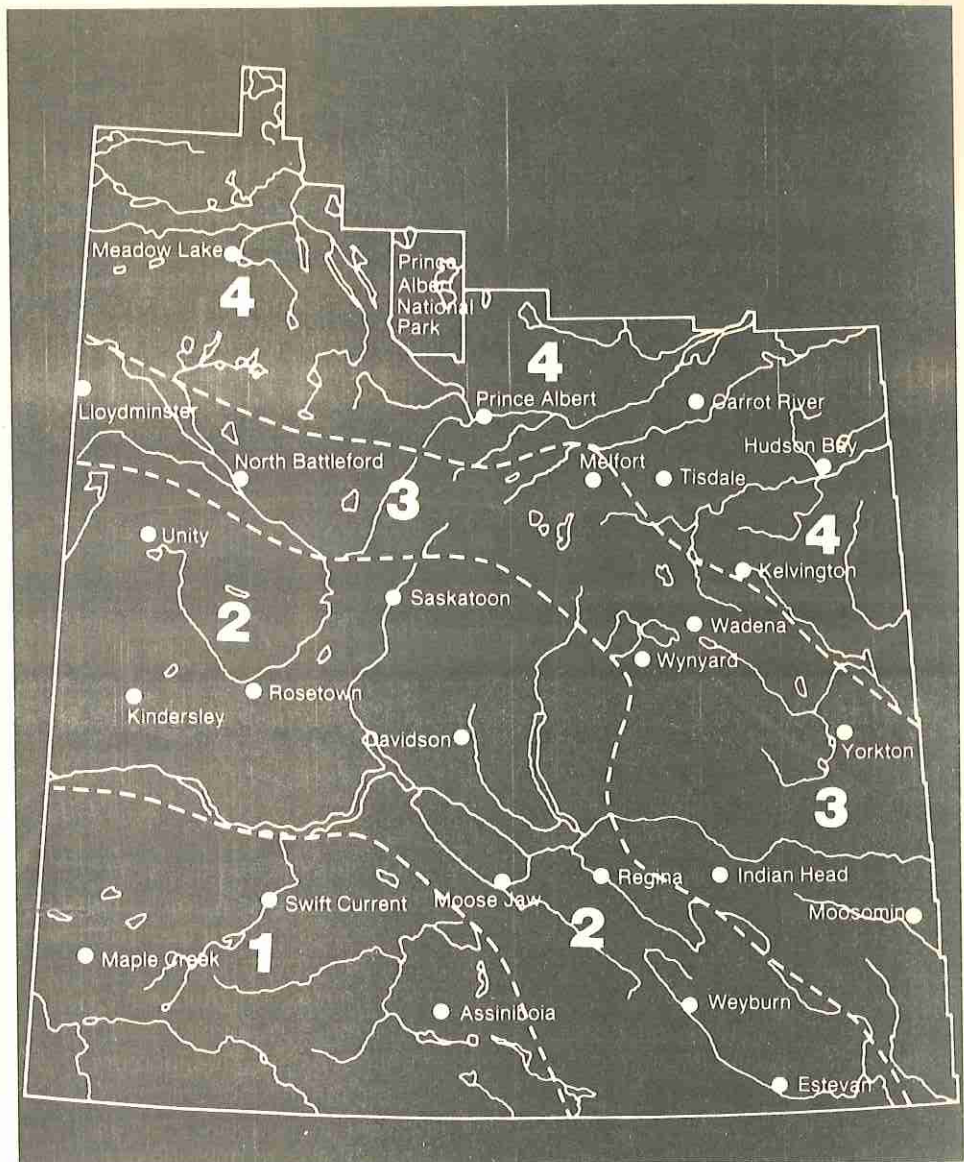
Soils and Crops
Branch



University of
Saskatchewan

Table of Contents

Cereal Crops	Page
Wheat	2
Barley	4
Planting Lines, Interim Registration	5
Oat	7
Rye	6
Triticale	6
Oilseed Crops	
Canola	8
Flax	9
Mustard	9
Sunflower	10
Pulse Crops	
Field Pea	10
Lentil	11
Faba Bean	11
Other Crops	
Canary Seed	11
Safflower	12
Testing Varieties in Saskatchewan	3
Seed Facts.	12
References	7
Seeding Institutions and Seed Distributors	13



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	Yield as % of Katepwa				Average Maturity in Days	Resistance to**						
		Area 1	Area 2	Area 3	Area 4		Shat-Lodging	Stem-tereing	Stem-Rust	Leaf-Rust	Loose-Smut	Bunt	Root-Rot
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	-	102	98	98	97	98	G	G	G	P	G	F	F
Kenyon	-	98	97	97	95	98	G	G	VG	VG	G	F	F
Laura	88	103	105	105	104	100	G	G	G	F	F	P	G
Leader	-	95	96	-	-	100	F	F	G	F	F	G	P
Lancer	-	94	95	-	-	100	F	VG	G	G	G	G	F
CDC													
Makwa***	103	103	104	101	101	98	G	G	G	F	G	F	F
Neepawa	-	99	100	99	98	98	G	VG	G	P	G	F	F
Pasqua***	-	105	103	105	102	99	G	G	G	VG	F	F	F
Roblin	82	92	89	92	92	97	VG	G	G	VG	G	P	G
Canada Prairie Spring Wheat													
Biggar*	121	119	120	127	125	102	G	G	G	G	VP	VP	F
Genesis*	115	122	125	125	123	102	F	VG	G	F	F	VP	F
Oslo	99	95	100	100	95	98	G	G	G	G	P	F	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	F	VG	VP	G
Durum Wheat													
Kyle	100	100	100	100	100	103	F	VG	VG	VG	P	VG	F
Arcola	108	92	93	97	96	99	G	VG	VG	VG	F	VG	F
Medora	100	96	96	97	96	100	G	VG	VG	VG	F	VG	F
Plenty***	108	100	107	107	108	102	G	VG	VG	VG	P	VG	G
Sceptre	102	97	97	98	100	100	G	VG	VG	VG	F	VG	G
Wakooma	88	91	96	96	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.

- 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, 1991** pamphlet. During wet harvest weather grades drop more rapidly due to sprouting in swathed than in standing crops.

Canada Western Red Spring Wheat

CDC Makwa is higher yielding than **Katepwa** and has the same maturity. It has good resistance to stem rust and loose smut; and fair resistance to leaf rust, common bunt, and common root rot. Certified seed of **CDC Makwa** will not be available in 1991.

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**. **Pasqua** might have sprouting tolerance intermediate to **Katepwa** and **Columbus**. Certified seed of **Pasqua** will not be available in 1991.

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 is higher yielding than other varieties and matures about two days later than **Katepwa**. **Laura** has an awned head and good shattering resistance.

Roblin has very good leaf and good stem rust resistance. Under drought stress grain yield of **Roblin** can be reduced more than other varieties.

Roblin is early maturing, and strong strawed making it best suited to northern areas. Generally, **Roblin** has higher protein content than other varieties

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

Biggar is a high yielding, awned, semi-dwarf wheat. It is late maturing and must be sown early particularly in Area 4.

Oslo is similar in maturity to **Katepwa** and lower yielding than **Biggar**. Both **Biggar** and **Oslo** are red-seeded.

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. Certified seed of **Plenty** will not be available in 1991.

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

Soft White Spring Wheat

Fielder and **SWS-52** are semidwarf varieties and are the only varieties eligible for grades of this class. **SWS-52** is 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. Certified seed of **SWS-52** will not be available in 1991. **Owens will be deregistered February 28, 1991 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. In addition, it is high-yielding and has acceptable baking quality.

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.

Testing Varieties in Saskatchewan

Information in the pamphlet "Varieties of Grain Crops in Saskatchewan" is based on the performance of varieties at a number of locations across the province. Data from these trials are summarized and interpreted by the Grain Crops Sub-council to the Saskatchewan Advisory Council on Grain Crops.

These trials are conducted by researchers from Agriculture Canada and the University of Saskatchewan. The most recently registered varieties and promising experimental lines that might become registered are

compared to standard varieties. Wheat, oat, barley and flax varieties are grown at all locations, whereas canola, mustard, field pea, lentil and minor crops are tested in those regions in which they are considered to be adapted. Information on sunflower production is received from trials conducted under the auspices of the Saskatchewan Sunflower Committee. The reaction of varieties to diseases and seed treatment recommendations are updated and forwarded to the Grain Crops Sub-council by pathologists who meet as members of

the Plant Disease Sub-council of the Council on Crop Protection.

Variety Trials are grown both on Research Stations and farmers' fields. Multiple small plots (30 ft. to 45 ft.) of the various varieties are sown and harvested with miniature press-drills and combines.

Grain yield results from the interplay of genetic factors and non-genetic factors. Variety trials are designed to measure the differences between varieties that are due to

Continued on Page 6

Barley

Main Characteristics of Varieties

Type & Variety	2 or 6 row	Rough or Smooth Awns	Irr Yield as % of Duke	Yield as % of Harrington				Average Maturity in Days	Resistance to*							
				Area 1	Area 2	Area 3	Area 4		Lodging	Shattering	Net Blotch	Stem Rust	Loose Scald	Other Smut	Root Smuts	
Malting																
Harrington	2	R	-	100	100	100	100	92	G	VG	P	P	P	P	VP	G
Argyle	6	S	-	92	92	95	94	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	-	86	90	90	87	90	G	P	F	G	P	P	F	VG
Ellice	2	R	-	92	95	97	96	92	G	VG	F	G	P	P	P	P
Klages	2	R	-	98	92	95	93	94	F	VG	P	P	P	P	G	G
Manley	2	R	-	98	104	104	106	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	-	108	105	108	94	93	G	VG	P	F	P	P	P	F
Brier	6	S	-	119	108	110	108	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
Heartland	6	S	102	96	100	100	100	92	VG	F	VG	G	P	P	P	G
Johnston	6	S	-	107	106	107	107	94	VP	P	F	G	G	P	VP	P
Leduc	6	R	99	106	107	103	99	91	P	P	G	G	VG	F	G	F
Noble	6	S	-	98	101	101	100	92	G	G	F	G	P	P	F	P
Virден	6	S	-	106	104	106	108	95	VG	G	F	G	P	P	F	VG
Hulless																
CDC Buck**6	R	-	79	86	83	87	90		G	F	F	G	P	P	F	G
CDC Richard**2	R	-	70	92	91	83	91		F	F	P	G	VG	F	P	G
Condor	2	R	-	83	84	82	80	92	G	G	P	F	P	P	P	G
Scout	2	R	-	91	85	84	79	91	P	VG	VP	P	P	P	VP	G
Tupper	6	R	-	74	77	83	76	90	G	P	F	G	P	F	VP	G
Intensive Management																
Duke	6	R	100	91	89	88	89	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.

**Less than 3 years yield data in Area 4.

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 selected 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 Richard** and **CDC Buck** are hulless replacements for **Scout** and **Tupper** respectively. They both have improved yield, threshability and disease resistance.

Noble is a new six-rowed variety. It has yielded well in drier locations. It has good lodging and shattering resistance and is similar to **Leduc** in maturity. **Virден** is a new six-rowed feed variety. It has a very high yield potential but is very late. It has very good straw strength. **Brier** is a new 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 spotted form of net blotch. **Manley** is similar in maturity to **Klages** and thus 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** by 5%, **Winchester** is intermediate. **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 1990 will be malted in January-February, 1991. It will be brewed in May-June, 1991, aged and tested in October-November, 1991. A crop grown in 1991 will be tested in October-November, 1992. 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

Type and Line	Yield as a % of Harrington				Average Maturity in Days	Resistance to*						
	Area 1	Area 2	Area 3	Area 4		Lodging	Shattering	Net Blotch	Loose Smut	Other Smuts	Root Rot	Stem Rust
Two Row												
TR930	99	101	106	100	93	G	G	P	P	P	P	P
Stein	102	102	103	103	92	G	G	F	P	F	G	G
TR226	90	94	96	95	92	G	VG	F	VG	G	F	G
Six Row												
Duel	92	96	98	94	92	G	VP	G	P	P	G	G
Tankard	94	101	101	97	92	G	VP	F	P	P	G	G
Creme	80	88	85	83	91	G	VP	F	P	P	G	G

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

Comments:

Stein has higher yield potential, and better disease resistance than **Harrington**. **TR930** is similar in performance and disease reaction to **Harrington**, **TR226** is lower yielding than **Harrington** but has good disease resistance. It is the only variety with

loose smut resistance. **Duel** and **Tankard** are both blue aleurone six rows with superior yield to **Bonanza** and **Argyle**. **Creme** is of interest because it has a white aleurone. It may be suitable to meet the US market for white aleurone six row.

Triticale

Main Characteristics of Varieties

Variety	Yield as % of Carman				Average Maturity in Days	Resistance to*				
	Area 1	Area 2	Area 3	Area 4		Lodging	Stem Rust	Leaf Rust	Bunt	Root Rot
Carman	100	100	100	100	107	G	VG	VG	VG	F
Frank	115	117	110	127	105	G	VG	VG	VG	F
Wapiti	109	119	111	106	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.

Rye

Main Characteristics of Varieties

Variety	Yield as % of Puma				Winter Killing	Resistance to*			
	Area 1	Area 2	Area 3	Area 4		Shattering	Lodging	Stem Smut	Straw Length
Musketeer	100	100	100	100	G	G	G	G	Tall
Prima	109	108	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.

Continued from Page 3

Testing Varieties in Saskatchewan

genetic causes. It is important to minimize variability due to non-genetic factors such as soil type, nutrients, moisture, weeds, diseases, and other pests. Experimental designs using replication (repeated plantings of the varieties) and randomization (the position of the varieties within the test are assigned by chance) are then used to estimate the precision with which the genetic factors can be measured. Yield potential of a variety is estimated by measuring the weight of grain produced per unit area. Comparisons among varieties for yield potential involves an evaluation of both their absolute amounts of grain and their relative yield. Relative yield is the yield of one variety expressed as a

percentage of a second variety.

Yields obtained in these trials are not likely to be identical to those obtained under commercial production conditions. However, the average yield for these varieties, obtained over a number of years at several locations, would remain in relatively the same ratio regardless of whether the grain yields were measured in small plots or large-scale fields. **Relative yields** presented in this pamphlet are the best estimates of expected yield advantage in the areas indicated. They are considerably more relative than estimates based on data from a single test or from a single location. Farmers should be aware, however, that actual yields within an area, or in a particular year, may vary substantially from the average figures reported because of natural variability. For example, Laura wheat is expected to outyield Katepwa by 5% in Area 2. A farmer in this area

may find that Laura will yield anywhere in the range of about 7 percent less than Katepwa to about 17 percent more than Katepwa.

One out of three times, Laura may even yield outside this range. Similar variation in relative yields can be expected for most crops.

Relative maturity ratings are average number of days from seeding to swathing ripeness. The actual number of days to reach maturity depends on local climate and to some extent management practices. For example, Neepawa will often mature in less than 98 days in Area 1 and may require 120 days in Area 4. The maturity ratings should be considered as a guide to the relative maturity of the varieties, that is, whenever and wherever, Neepawa and Columbus are both seeded at the same time, Neepawa will reach maturity sooner than Columbus.

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	105	98	99	97	47.4	26.0	48	92	G	VP	VP	P
Derby	100	100	99	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
Riel	93	96	92	96	50.0	21.0	46	93	G	VG	VG	G
Robert	94	94	92	95	48.5	22.5	87	93	VG	VG	VG	G
Waldren**	93	96	101	105	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.

Comments

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 is a new variety, having 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**.

Calibre, **Cascade** and **Derby** are susceptible to oat-rusts and may be at

risk if grown in the oat-rust area of southeast Saskatchewan.

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. **Jasper** is also rust susceptible.

Riel and **Robert** have tan colored grain. They have 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.

Waldren is a new variety with 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.

Waldren is rust susceptible so should not be considered for the oat-rust area of southeastern Saskatchewan.

Certified seed of **Waldren** will not be available for seeding in 1991.

Reading Material

Agriculture Canada

Ergot of Grains and Grasses, Publ. 1438.
Growing Buckwheat, Publ. 1986-7E.
Heated Air Grain Driers, Publ. 1700.
Insects and Mites of Farm-Stored Grain, Publ. 1595.

Canadian Grain Commission

Insect Control in Stored Grain, A Producers Guide.

Canola Council of Canada

Canola Production Manual.
Fertilizer Practices for Canola.

Flax Council

Growing Flax

Saskatchewan Agriculture & Food

Aeration of Grain in Storage
Blackleg: A Disease of Canola.
Chemical Weed Control in Cereal, Oilseed, Pulse and Forage Crops, 1991.
Control of Canada Thistle.
Durum Production.
Forage Crop Recommendations.
Grasshopper Control.
Hullless Barley Production
Interpreting Cultivar Grain Yield Potential
Insect Control in Field Crops.
Irrigation Handi-Facts; Sask. Water Corp.
Milling & Race Horse Oat Production.
Mustard Growers Manual.
Natural Air Grain Drying.
Orange Wheat Blossom Midge.
Russian Wheat Aphid

Saskatchewan Fertilizer Practices.

Seed Treatments and Foliar Fungicides, 1991.
Soft White Spring Wheat, Sask. Water Corp.
To Spray or Not to Spray.
Weed Identification Series.
Weed Seedling Identification.
Saskatchewan Seed Grower's Association.
Seed Guide, 1991.
University of Saskatchewan
Canaryseed Production in Saskatchewan, Publ. 462.
Dry Pea Production in Saskatchewan, Publ. 225
Fababean Production in Saskatchewan, Publ. 416
Inoculation, Publ. 381.
Lentil Production in Western Canada.
Winter Wheat Production Series.

Oilseed Crops

Canola

Main Characteristics of Varieties

Type & Variety	Area 2	Area 3	Area 4	% Oil	Average Maturity in days	Resistance to*			
						Lodging	White Rust	Blackleg**	Sclerotinia Stem Rot
Yield as % of Westar									
Argentine									
Westar	100	100	100	43.1	96	F	VG	VP	P
AC Excel	108	101	100	43.6	99	G	VG	F	P
Alto	101	96	98	43.0	97	F	VG	VP	P
Bounty	115	108	105	42.8	98	G	VG	P	P
Celebra	107	99	97	43.4	102	G	VG	F	P
Delta	116	107	109	41.8	100	VG	VG	P	P
Hyola 40	107	102	106	41.6	98	G	VG	F	P
Legend	108	101	102	42.3	99	G	VG	F	P
Profit	102	90	93	44.1	99	F	VG	F	P
Vanguard	110	94	105	42.9	98	G	VG	F	P
AC Tristar (TT)	88	79	80	41.7	99	F	VG	VP	P
Stallion (TT)	88	73	77	40.5	101	G	VG	F	P
Tribute (TT)	68	67	70	39.7	98	VP	VG	VP	P
Yield as % of Tobin (See Comments Section)									
Polish									
Tobin	100	100	100	41.6	86	G	G	P	P
AC Parkland	103	101	104	43.1	88	G	VG	P	P
Colt	103	99	97	42.4	88	G	VP	P	P
Eclipse	104	98	98	43.0	87	G	F	P	P
Horizon	107	99	103	42.3	88	G	VP	P	P

TT = Triazine tolerant

*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 in 88 days, 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.

All Argentine varieties are black seeded, they all have very good white rust resistance, but their resistance to sclerotinia stem rot is poor. **Westar** is early maturing, has high oil content, fair lodging resistance, and very poor blackleg resistance. **AC Excel** has high yield, high oil content and fair blackleg resistance. **Alto** is similar to

Westar. Bounty has very high yield, good oil content and is medium in maturity. **Celebra** is late maturing.

Delta has very high yield, but has low oil content and tends to mature later.

Hyola 40, a hybrid variety, has high yield but low oil content. **Legend** has high yield and fair blackleg resistance.

Profit has very high oil content and fair blackleg resistance. **Vanguard** has high yield and medium maturity.

Varieties that are susceptible to blackleg should not be grown in blackleg prone areas because of severe yield losses that can occur through infestations with blackleg in those areas.

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 "Chemical Weed Control in Cereal, Oilseed, Pulse and Forage Crops 1991". **AC Tristar** is a high yielding, high oil content TT-variety, but has very poor resistance to blackleg. **Tribute** has low yield and oil content and has also very poor blackleg resistance. **Stallion** has high yield and fair blackleg resistance.

All Polish varieties are yellow-brown seeded. They all have poor blackleg and sclerotinia stem rot resistance. **Tobin** is an early maturing variety with good white rust resistance, its oil content is low. **AC Parkland** is high yielding, has high oil content and very good white rust resistance. **Colt** and **Horizon** have high oil content, but have very poor white rust resistance. **Eclipse** has high oil content and fair resistance to white rust. A new race of

white rust, found in 1988, can attack all Polish type varieties.

Argentine type varieties respond well to irrigation, but blackleg susceptible varieties should be avoided. Irrigation may increase the incidence of blackleg. Irrigation might

delay maturity by one week or more under cooler conditions at harvest.

Industrial Oil

For special industrial oil markets, a high erucic acid oil is needed. Varieties producing such oils are available, and

information on the contract production of these varieties should be obtained from the industry. A high erucic acid variety, **Hero**, that is registered for the production of high erucic acid oil is available for this market.

Flax

Main Characteristics of Varieties

Variety	Yield as % of NorLin						Resistance to*			
	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	98	92	95	93	100	Medium	VG	F	G
Flanders**	102	98	110	105	107	102	Small	VG	G	VG
McGregor	102	97	98	99	94	103	Small	VG	G	VG
NorMan	98	102	100	99	99	101	Medium	VG	G	G
Somme**	105	97	106	108	99	101	Medium	VG	G	G
Vimy	86	108	106	101	98	101	Large	VG	G	F

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

**Limited Data

Comments

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

Flanders is a new variety expected to be a high yielding replacement for **McGregor**. Seed of **Flanders** will not be available in 1991.

McGregor is a high yielding but later maturing variety. It has better straw strength 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 strength 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**. Seed will not be available in

1991.

Vimy is a medium-late variety with large seed that is very well adapted to zones 1 and 2.

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
Domo	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 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** and **Domo** are high yielding and early maturing. **Forge** has good yield and superior seed quality. **Lethbridge 22A** is low yielding and susceptible to lodging. **Cutlass**, **Domo**

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 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.

Mustard is usually grown under contract. Differences in yield between the types is normally compensated for by contract price.

Sunflower (oilseed)

Main Characteristics of Varieties

Variety	Yield as %		Oil %
	of IS 7111	Average Maturity in days	
IS 7111	100	120	47.9
IS 7000	99	120	47.6
DO 855	106	121	46.5
DO 707	118	122	46.0
S 1296	107	121	46.3

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, Brownless, Outlook, and Carievale.

Pulse Crops

Field Pea

Main Characteristics of Varieties

Variety	Seed Color (yellow or green)	Yield as % of Century		Average Maturity in Days	Vine length (cm)	Resistance to*			Seed Weight (g/1000)
		Area 2 and Southern 3	Area 4 and Northern 3			Ascochyta Blight	Powdery Mildew	Seed Coat Breakage	
Century	Y	100	100	101	102	P	P	F	250
Bellevue	Y	107	104	105	97	P	P	G	190
Danto	G	-	60	95	53	P	P	F	290
Express	Y	120	126	96	61	P	VP	P	260
Fortune	Y	120	117	104	81	P	VP	F	210
Miranda	Y	109	101	93	51	P	VP	P	330
Princess	G	107	90	93	61	P	P	F	190
Radley	G	122	112	98	61	P	VP	F	200
Tara	Y	124	117	103	97	F	VG	F	230
Tipu	Y	97	104	99	104	P	P	P	240
Titan	Y	111	107	102	104	P	P	G	270
Trapper	Y	105	110	100	94	P	P	F	150
Victoria	Y	108	121	95	86	P	VP	F	190

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

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, **Danto**, **Tipu**, **Radley**, **Miranda**, **Express**, and **Princess** provide particularly poor weed competition. As well, the short vines of **Danto**, **Miranda**, **Express** and **Princess** makes harvesting difficult.

Danto, **Tipu** and **Radley** are semi-leafless. The main advantage of this plant type is easier harvesting as vines do not lay as flat on the ground.

Danto, **Princess** and **Radley** are green seeded varieties for which there is considerable risk of low grades due to bleaching. **Radley** is semi-leafless, and has higher yield and longer vines than **Princess** or **Danto**.

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 *		Seed Size	Seeding Rates kg/ha(lb/A)
				Ascochyta Blight	Anthracnose		
Laird	100	41	51	F	P	Large	90-100 (80-90)
Eston	106	30	48	VP	VP	Small	45-50 (40-45)
Rose	93	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-borne ascochyta and anthracnose and avoid planting next to the previous year's lentil residues. Growers from northern areas and pedigree 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.

Outlook 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.

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.

Seed 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.

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 ever year, POOR every second year, and FAIR very third year.**

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 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 seeding disease. Flax, rye and winter wheat seed should be treated to promote good seeding 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 area 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		
Head Wheat		
Armito	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
Neepawa	Ag Canada (Winnipeg)	public
Pasqua	Ag Canada (Winnipeg)	SeCan Members
Roblin	Ag Canada (Winnipeg)	SeCan Members
Canada Prairie Spring Wheat		
Biggar	Ag Canada (Swift Current)	SeCan Members
Genesis	Ag Canada (Swift Current)	SeCan Members
Oslo	NAPB; Sask Wheat Pool	Sask Wheat Pool
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
Receptre	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		
Norstar	Ag Canada (Lethbridge)	public
Norwin	Montana Ag Exp. Station & USDA (Aberdeen); Univ. of Sask. -- Crop Development Centre	public
Winter Rye		
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. -- Crop Development Centre	public
Triticale		
Carman	Univ. of Manitoba	SeCan Members
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
B1602	Busch Ag. Res. Inc.	Sask Wheat Pool
Ellice	Ag Canada (Winnipeg)	SeCan Members
Harrington	Univ. of Sask. -- Crop Development Centre	SeCan Members

Crop Kind, Class & Variety	Breeding Institution	Distributor
Klages	USDA (Idaho); Univ. of Sask. -- Crop Development Centre	public
Manley	Univ. of Sask. -- Crop Development Centre	SeCan Members
Feed		
Abee	Alta Ag (Lacombe)	SeCan Members
Bridge	Ad Canada (Lethbridge)	SeCan Members
Brier	Univ. of Sask. -- Crop Development Centre	SeCan Members
Deuce	Univ. of Sask. -- Crop Development Centre	SeCan Members
Heartland	Ag Canada (Brandon)	SeCan Members
Johnston	Ag Canada (Brandon)	SeCan Members
Leduc	Ag Canada (Brandon)	SeCan Members
Noble	Alta Ag (Lacombe)	SeCan Members
Virден	Ag Canada (Brandon)	SeCan Members
Hulless		
CDC Buck	Univ. of Sask. -- Crop Development Centre	SeCan - UGG
CDC Richard	Univ. of Sask. -- Crop Development Centre	SeCan - UGG
Condor	Alta Ag (Lacombe)	SeCan Members
Scout	Univ. of Sask. -- Crop Development Centre	SeCan Members
Tupper	University of Sask -- Crop Development Centre	SeCan Members
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
Harmon	Ag Canada	public
Jasper	Ag Canada (Lacombe)	SeCan Members
Riel	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.	Can Alta Grain, Canbra Foods Ltd., Northern Sales, United Oilseeds
Bounty	Allelix Inc.	United Grain Growers
Celebra	Svalof; Bonis	Newfield Seeds, Canadian Seed Coaters
Delta	Allelix Inc.	United Grain Growers
Hyola 40	Garst Seed Company Canada	Garst Seed Agents
Global	Svalof; Bonis	Sask Wheat Pool, Canbra Foods Ltd.
Legend	Svalof; Bonis	Sask Wheat Pool
Profit	Ag Canada (Saskatoon)	SeCan Members
Tribute (TT)	Ag Canada (Saskatoon); University of Guelph	SeCan Members

Breeding Institutions and Seed Distributors of Varieties Listed in This Publication

Crop Kind, Class & Variety	Breeding Institution	Distributor
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
Polish		
Colt	Svalof; Bonis	Sask Wheat Pool
Eclipse	Univ. of Alberta	
Horizon	Svalof; Bonis	Sask Wheat Pool
AC Parkland	Ag Canada (Saskatoon)	SeCan Members
Tobin	Ag Canada (Saskatoon)	SeCan Members
Industrial		
Herc	Univ. of Manitoba	CSP Foods
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
Domo	Ag Canada (Saskatoon)	Trade
Forge	Garst Seed Company Canada	Garst Seed Agents, Trade
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

Crop Kind, Class & Variety	Breeding Institution	Distributor
Field Pea		
Bellevue	Univ. of Sask -- Crop Development Centre	SeCan Members
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
Princess	Wilbur Ellis Co; CanMar Grain	Ron McKinnon Stu Robson
Radley	Booker Seeds Ltd; Columbia Seeds	Columbia Seeds (Alta)
Tara	Ag Canada (Morden)	SeCan Members
Tipu	Ag Canada (Morden)	SeCan Members
Titan	Ag Canada (Morden)	SeCan Members
Trapper	Ag Canada (Morden)	public
Victoria	Svalof; Bonis	Newfield Seeds
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
Faba Bean		
Aladin	Univ. of Manitoba	public
Orion	Ag Canada (Lacombe)	Roger Lee (Alta) Lyster Farms Ltd (Alta)
Outlook	Univ. of Sask -- Crop Development Centre	SeCan Members
Pegasus	University of Manitoba	Roy Legumex (Man)
Canary Seed		
Elias	University of Minnesota; U of S Crop Development Centre	public
Keet	Univ. of Minnesota; U of S Crop Development Centre	public
Safflower		
Saffire	Ag Canada (Lethbridge)	Jerry Hubick Alberta