



Saskatchewan
Agriculture

Plant Industry
Branch

Varieties of Grain Crops for Saskatchewan 1981

ISSN 0382-3601



GRAIN CROP PRODUCTION AREAS

(See map on front page)

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 can 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.

The following tables contain the main characteristics of new and commonly grown varieties of cereals, oilseed crops and minor crops. Varieties that are not listed are considered to be inferior for production in Saskatchewan, except under certain localized conditions. The comments in the tables are based on averages for several stations in each area for at least three years.

BARLEY

Main Characteristics of Varieties

Type and Variety	Six or Two Rowed	Yield as % of Bonanza				Average Maturity in Days	Resistance to				
		Area 1	Area 2	Area 3	Area 4		Lodging	Stem Rust	Loose Smut	False Loose and Covered Smut	Shattering
Eligible for C.W. Grades											
Bonanza	Six	100	100	100	100	89	Good	Good	Fair	Fair	Fair
Conquest	Six	92	92	91	93	88	Good	Good	Fair	Fair	Fair
Beacon	Six	84	86	81	84	87	Good	Good	Fair	Fair	Fair
Betztes*	Two	110	99	98	92	90	Poor	Poor	Poor	Poor	Good
Elrose**	Two	103	105	103	99	90	Fair	Poor	Poor	Fair	Good
Klages	Two	106	105	102	100	94	Fair	Poor	Poor	Good	Good
Feed											
Fairfield*	Two	114	109	104	100	91	Fair	Poor	Poor	Fair	Good
Fergus	Two	107	102	98	92	93	Fair	Poor	Fair	Fair	Good
Hector*	Two	114	107	101	91	92	Fair	Fair	Fair	Fair	Good
Summit	Two	101	106	106	102	93	Good	Poor	Poor	Fair	Good
Bedford**	Six	100	103	100	101	92	Good	Good	Fair	Fair	Fair
Johnston**	Six	117	126	114	115	94	Poor	Good	Fair	Poor	Fair
Klondike	Six	107	111	108	105	91	Good	Good	Fair	Fair	Fair
Melvin	Six	111	113	110	105	92	Good	Good	Poor	Fair	Fair

* See comments

**Less than three years' data for yield figures in area 4.

COMMENTS:

Loss appraisal studies in Saskatchewan indicate an estimated average yield reduction of 10% due to common root rot. BONANZA, BETZES, CONQUEST, KLAGES, ELROSE, SUMMIT and HECTOR have fair tolerance to the disease.

KLAGES is a two-rowed malting variety with superior quality to BETZES and thus is preferred by the malting industry. KLAGES germinates very readily therefore care should be taken to avoid sprouting during harvest.

ELROSE is a new two-rowed malting variety with

similar quality to KLAGES. The acceptance of this variety by the malting and brewing industry will be determined by plant scale tests in 1980-81. ELROSE is similar in disease resistance to KLAGES. In the traditional two-row area these two varieties are similar in performance but ELROSE is 4-5 days earlier maturing.

BEACON is an American six-rowed variety with white aleurone. It has been granted a temporary license for production in Canada to meet the needs of a limited American market for malting barley. Growers should be aware of the low yield of Beacon when considering this variety.

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HECTOR and FAIRFIELD are high yielding two-rowed varieties which are technically eligible for C.W. Grades. The malting industry prefers other varieties thus little of these varieties is being purchased for malting.

SUMMIT is a two-rowed feed variety. It is strong strawed and high yielding especially in area 3. SUMMIT is similar in maturity to FERGUS and provides a good alternative due to its superior yield.

BEDFORD is a new six-rowed feed variety which is adapted to eastern Manitoba. It does not appear to have any advantages for Saskatchewan production.

JOHNSTON is a new six-rowed feed barley. It is taller and weaker strawed than other six-rowed feed varieties and is 4-5 days later than BONANZA. It is a high yielder in all areas.

KLONDIKE is a six-rowed feed barley. It is 2-3 days later than BONANZA, 7-13 cm shorter and is higher yielding in all areas.

MELVIN is a six-rowed feed barley. It is 3-4 days later than BONANZA and similar to KLONDIKE in height. It has some field tolerance to scald and yields well in all areas.

WHEAT

Main Characteristics of Varieties

Variety	Area 1	Area 2	Area 3	Area 4	Average Maturity in Days	Resistance to					
						Lodging	Shattering	Stem Rust	Leaf Rust	Loose Smut	Root Rot
Yield as % of Neepawa											
Bread Wheat:											
Neepawa	100	100	100	100	98	Good	Good	Good	Poor	Good	Fair
Benito	97	100	98	99	97	Good	Good	Good	Good	Good	Fair
Canuck	101	98	—	—	101	Fair	Good	Fair	Poor	Fair	Fair
Chester	103	98	—	—	100	Fair	Good	Fair	Poor	Fair	Fair
Manitou	95	98	97	98	98	Good	Good	Good	Poor	Good	Fair
Napayo	95	95	95	107	99	Good	Good	Good	Poor	Good	Fair
Sinton	92	96	97	107	99	Good	Fair	Good	Good	Poor	Fair
Utility Wheat											
Glenlea*	99	105	109	120	101	Good	Good	Good	Good	Good	Fair
Pitic 62*	117	118	121	114	104	Good	Good	Poor	Fair	Poor	Fair
Yield as % of Wascana											
Durum Wheat											
Wascana	100	100	100	100	101	Good	Good	Good	Good	Good	Poor
Coulter	93	94	99	104	99	Good	Good	Good	Good	Fair	Fair
Hercules	85	88	90	99	98	Good	Good	Good	Good	Good	Poor
Macoun	95	91	96	102	100	Good	Good	Good	Good	Good	Poor
Wakooma	99	98	100	102	102	Good	Good	Good	Good	Fair	Fair

* These varieties are variable in maturity and may mature later under cool conditions.

COMMENTS

CANUCK and CHESTER are sawfly resistant varieties and should only be grown where sawfly damage is likely to occur. CANUCK has a slightly lower (desirable) level of alpha-amylase activity than CHESTER. The Canadian Grain Commission prefers CANUCK over CHESTER.

BENITO, an awnless variety, licensed in 1979, has good leaf rust resistance. It is similar to Neepawa in many respects but it matures slightly earlier. COLUMBUS, licensed in 1980, has good leaf rust resistance and has better sprouting and weathering resistance than other varieties; however, seed of this variety will not be available in 1981. SINTON is the only other bread wheat variety with good leaf rust resistance but is free-threshing and shattering can occur. SINTON should be treated for loose smut prior to seeding.

The high yielding variety PITIC 62 will be eligible only for "Canada Feed" after 1 August 1981.

COULTER and WAKOOMA have better quality than the other durum varieties. COULTER and MACOUN are early maturing short-strawed varieties of durum wheat which should be grown where these characteristics are important.

WINTER WHEAT

Winter survival is the chief factor limiting winter wheat production in Saskatchewan. However, with proper management successful production is possible in Areas 3 and 4 and the southern portion of Area 1.

If a reasonable stand survives the winter, winter wheat should yield about 25 percent higher than Neepawa spring wheat. It also has the additional advantages of early maturity, redistribution of labor requirements and increased competition with weeds.

NORSTAR is the most winterhardy variety of winter wheat available. In addition, it is high yielding and has acceptable baking quality.

OATS Main Characteristics of Varieties

Variety	Yield as % of Harmon				Average Maturity in Days	Resistance to				Test Wt. Kg./hl.
	Area 1	Area 2	Area 3	Area 4		Lodging	Stem Rust	Leaf Rust	Smut	
Harmon	100	100	100	100	91	Fair	Poor	Fair	Fair	47
Athabasca	102	99	101	101	91	Fair	Poor	Poor	Poor	48
Cascade*	110	104	115	123	92	Fair	Poor	Poor	Poor	46
Cavell	104	101	100	99	86	Poor	Poor	Poor	Poor	48
Fidler*	105	93	100	111	92	Good	Good	Good	Good	46
Foothill*	107	96	103	105	95	Poor	Poor	Poor	Poor	45
Hudson	107	106	109	107	91	Good	Good	Good	Fair	45
Kelsey	99	105	106	104	89	Fair	Poor	Fair	Fair	47
Random	110	106	110	107	90	Good	Poor	Fair	Poor	46
Sioux	104	103	104	102	88	Good	Poor	Poor	Poor	49

*2 year's data only

COMMENTS:

ATHABASCA, CAVELL, KELSEY and SIOUX mature earlier than HARMON but ATHABASCA, CAVELL and SIOUX have somewhat poorer disease resistance, ATHABASCA has lower test weight and CAVELL has weaker straw.

HUDSON and RANDOM are high yielding, short, strong-straw varieties with lower test weight than HARMON. RANDOM is earlier maturing than HARMON. HUDSON is resistant to race C10 of stem rust.

CASCADE is a newer variety with a very high yield

potential. CASCADE is slightly later maturing than HARMON.

FIDLER is a new variety with excellent disease resistance, however its performance in the absence of disease is no better than HARMON. FIDLER is shorter, slightly later than HARMON, and lighter in test weight. FIDLER should only be considered for late seeding in the south-east where rust may be a problem.

FOOTHILL is a later maturing, weak strawed, low test weight forage oat with no advantage over other higher yielding varieties.

FLAX Main Characteristics of Varieties

Variety	Yield as % of Dufferin				Average Maturity in Days	Resistance to		Seed Size	Flower Color
	Area 1	Area 2	Area 3	Area 4		Rust	Wilt		
Dufferin	100	100	100	100	102	Good	Good	Medium	Blue
Culbert	76	89	85	86	95	Good	Good	Medium	Blue
Linott	86	95	92	88	100	Good	Good	Medium	Blue
Noralta	86	101	101	92	99	Poor	Good	Small	Blue
Norland	103	98	96	86	105	Poor	Fair	Large	White
Raja	71	80	77	70	95	Good	Good	Large	Blue
Redwood 65	102	104	102	95	105	Poor	Good	Medium	Blue

COMMENTS:

DUFFERIN, LINOTT, CULBERT and RAJA are the rust resistant varieties presently available. DUFFERIN should be considered a replacement for REDWOOD 65. Although late seeding of flax is not advised, LINOTT usually yields better than other varieties when seeded late. CULBERT is a United States bred variety adapted to late seeding in the Red River Valley area of Manitoba.

NORALTA, NORLAND and REDWOOD 65 are

susceptible to several races of rust currently found in Saskatchewan. Rust and other flax diseases overwinter in Saskatchewan. To minimize these diseases, avoid planting flax on or near flax stubble. Use clean seed since the refuse or debris in the seed may be infected with the disease.

Frozen flax should be analysed by the Saskatchewan Feed Testing Laboratory to determine that it is free from Prussic acid before using it for livestock feed.

RYE

Main Characteristics of Varieties

Type and Variety	Yield as % of Puma				Resistance to			Kernel		Straw Length
	Area 1	Area 2	Area 3	Area 4	Winter Killing	Shattering	Lodging	Color	Size	
Winter Rye										
Puma.....	100.....	100.....	100.....	100.....	Good....	Good....	Fair.....	Green...	Medium...	Tall.....
Cougar.....	94.....	97.....	93.....	97.....	Fair.....	Good....	Good....	Green...	Medium...	Medium...
Frontier.....	86.....	90.....	94.....	97.....	Good....	Fair.....	Poor.....	Green...	Medium...	Tall.....
Kodiak.....	77.....	93.....	92.....	100.....	Poor.....	Fair.....	Fair.....	Tan.....	Large.....	Tall.....

COMMENTS:

COUGAR, FRONTIER and PUMA are the most commonly grown varieties. Although COUGAR is not as winter hardy as FRONTIER and PUMA, it is popular because of its short straw.

PUMA is similar in height and winterhardiness to FRONTIER, but more resistant to lodging and shattering. PUMA on the average is higher yielding than COUGAR or FRONTIER.

KODIAK is less winter-hardy, taller and more prone to lodging than COUGAR. Kernel size is about 10% larger than COUGAR, FRONTIER and PUMA.

GAZELLE is the highest yielding variety of spring rye licensed for production in Saskatchewan. Winter rye is approximately 35% higher yielding than spring rye.

RAPESEED — CANOLA

Main characteristics of Varieties

Variety	Yield as % Of Torch		Average Maturity in days		% Oil	Glucosinolate Content	Seed Color	Resistance to White Rust
	Areas 2&3	Area 4	Areas 2&3	Area 4				
B. campestris (Turnip rape)								
Torch.....	100.....	100.....	85.....	85.....	41.0.....	High.....	Brown.....	Poor
Candle.....	88.....	87.....	86.....	86.....	43.0.....	Low.....	Yellow-brown.....	Poor
R-500*.....	89.....	89.....	95.....	93.....	45.6.....	High.....	Yellow.....	Poor
B. napus (Argentine type)								
Altex.....	119.....	114.....	99.....	104.....	43.9.....	Low.....	Black.....	Good
Midas.....	127.....	124.....	101.....	107.....	44.2.....	High.....	Black.....	Good
Regent.....	121.....	118.....	101.....	107.....	44.1.....	Low.....	Black.....	Good
Tower.....	117.....	113.....	100.....	107.....	43.5.....	Low.....	Black.....	Good

* High erucic acid variety.

COMMENTS:

Canola is the term now widely used to refer to varieties such as CANDLE, TOWER, REGENT and ALTEX which produce both low erucic acid oil and low glucosinolate meal. Because of their superior meal quality they are preferred in the domestic and export markets over the high glucosinolate varieties TORCH and MIDAS.

R-500, which has large yellow seed, produces oil with a very high erucic acid level and should only be grown under contract for specialized industrial oil markets.

Under irrigation **B. napus** varieties will produce higher returns than **B. campestris** varieties because of their higher yield potential. Maturity may, however, be delayed by 4 or 5 days with irrigation.

OTHER INFORMATION RELATING TO GRAIN CROP PRODUCTION

Bulletins on fertilizers and weed control, generally revised annually, are available from sources given. Information on crops, plant diseases, insect pests and other aspects of production can be found in the Guide

to Farm Practice in Saskatchewan and other pamphlets. These publications may be obtained from Agricultural Representatives, Research Stations and the University of Saskatchewan.

FIELD PEAS
Main Characteristics of Varieties

Variety	Yield as % of Century	Average Maturity in Days	Seed Size	Cotyledon Color	Vine Length	Seeding Rate
						kg/ha
Century	100	100	Large	Yellow	Tall	190
Tara	131	100	Medium	Yellow	Medium	175
Trapper	109	98	Small	Yellow	Medium	125

COMMENTS:

Field peas are best adapted to the parkland area of the province. Growers should investigate potential markets such as home-grown protein, industrial use, export or pea soup before seeding. Protein content varies considerably among fields of the same variety and, thus, it is advisable to obtain a protein analysis on

peas used in livestock rations. Field pea seed should be inoculated before planting. See SEED INOCULATION section.

TARA is a recently licensed variety with greater powdery mildew resistance than CENTURY or TRAPPER. The irregular seed shape of TARA may result in a lower market value.

FABABEAN
Main Characteristics of Varieties

Variety	Yield as % of Ackerperle	Average Maturity in Days	Seed Size	Plant Height	Seeding Rate
					kg/ha.
Ackerperle	100	112	Small	Tall	150
Diana	102	106	Medium	M. Tall	160
Herz Freya	105	106	Medium	Tall	165

COMMENTS:

Fababeans are a promising source of protein for livestock feeding and are exported for human food. They should be sown early and are best adapted to irrigated areas in the Dark Brown soil zone. Higher seeding rates are used under irrigated conditions. They also are fairly well adapted to that portion of the Black soil zone with the longest growing season. Only the

earliest varieties should be considered for the northern areas. Seed 7 cm deep in rows 15 to 17 cm apart. Fababean seeds are very large and a seeder with a deep-fluted cup must be used to prevent seed cracking. In order to reduce shattering losses, swathing can be done as the lowermost pod turns dark on 25 percent of the plants. FABABEAN SEED SHOULD BE INOCULATED BEFORE PLANTING. See SEED INOCULATION SECTION.

TAME MUSTARDS

Main Characteristics of Varieties

Variety	Type	Yield as % of Lethbridge 22A
Lethbridge 22A	Oriental	100
Stoke*	Oriental	105
Domo	Oriental	116
Blaze	Brown	102
Ekla	Brown	95
Commercial	Brown	92
Gisilba	Yellow	80
Sabre**	Yellow	69
Kirby	Yellow	71
Ochre	Yellow	79

* relatively late

**very short, and early

COMMENTS: SABRE yellow mustard is suitable both as a condiment and as an industrial oil source. EKLA brown mustard is particularly high in allyl isothiocyanate, the hot substance in brown and oriental mustards.

The mustards are less drought resistant than wheat,

but are grown more extensively in drier regions of the province than is rapeseed, because of the better seed quality obtained under these conditions.

The three types of mustard grown commercially are Yellow, Brown and Oriental. All are intermediate in maturity between Argentine and Turnip rape. Yellow mustard is slightly lower yielding than turnip rape and is similar in plant height. It is quite resistant to shattering, and because of the risk of loss due to wind damage to the fluffy swath, should preferably be straight combined. Brown and Oriental mustards usually yield 10-15% more than Argentine rapeseed and 20-30% more than yellow mustard. They are more susceptible to shattering than yellow mustard, and are usually swathed although straight combining is feasible.

Mixtures of mustard and rapeseed due to volunteer plants or to handling on the farm cause substantial losses through a grade reduction.

The mustards are almost exclusively contract crops, yield differences between the types being compensated for by contract price differences.

LENTILS

Lentils are grown only for human food. They are best adapted to the brown, dark brown and southern areas of the black soil zones. Disease problems may reduce seed quality in parts of area 3 if rainfall is abundant in late July and August. Lentils do best when seeded on stubble land. They have about the same season requirement as wheat, but should be sown early. Young lentil plants are frost hardy whereas immature pods of late sown plants are easily damaged by fall frosts. Lentils should be sown at a rate of 56 to 66 kg/ha.

A new variety LAIRD is taller and has a larger seed size. LAIRD should be sown at 75-80 kg/ha.

The main problems in lentil production are weed control and harvesting. Lentils do not compete well with weeds so should be sown on relatively clean land. Some herbicides are now available for use on lentils. Growers should consult the Crop Development Center in Saskatoon or the Plant Industry Branch, Saskatchewan Department of Agriculture in Regina regarding weed control.

Lentils should be sown on relatively level, stone-free land. Since the plants are short, swathing must be carried out at ground level to avoid harvest losses.

Lentil seed should be inoculated before planting. See SEED INOCULATION section.

Ascochyta may be a serious problem in years and areas with wet weather just before and after swathing. Seed should be analysed for the incidence of this disease before using it for seed.

SAFFLOWER

Safflower is a higher risk crop than sunflowers, requiring 120 to 140 days to mature. It can tolerate some frost in the early seedling stage but is easily damaged by fall frosts. Clean land is required because safflower is a poor weed competitor in its early stages of growth. Dry atmospheric conditions are required during flowering for maximum seed set, otherwise many empty hulls are produced which lower both yield and oil content. Seed yields are extremely variable. Safflower can be planted and harvested with conventional grain equipment. Its most suitable area of production is the southern part of the province.

CANARY SEED

This is an annual grass with the same maturity requirement as wheat. The seed is about the size of flax and should not be sown deeply. Hot dry weather at heading time can reduce yields to very low levels.

Average yields in Saskatchewan during the past three years have been 800 kg/ha. Herbicides can be used for the control of broadleaved weeds.

Seed and detailed information are available from contract buyers of the crop.

CORN

Corn is recommended for silage purposes only since grain corn does not usually mature in most areas in Saskatchewan. For information on varietal performance see Forage Crops Recommendations Bulletin.

TAME BUCKWHEAT

Buckwheat is a short season cash or honey crop.

When grown for grain it is usually by contract to ensure a market.

Four varieties, MANCAN, MANOR, TEMPEST and TOKYO are recommended for growing in Saskatchewan. Each have a requirement of about 80 frost-free days and are susceptible to high temperatures and dry weather. MANCAN and MANOR have larger seed for which a premium may be paid. Buckwheat yields have been quite variable. It is recommended that buckwheat be grown on summerfallow or on the stubble of a crop such that separating of similar sized seeds will not be a problem.

Buckwheat is very susceptible to frost; therefore, early June seeding is recommended.

Buckwheat has an indeterminate growth habit and should be swathed when the majority of the seeds are ripe or promptly after the first killing frost. Adjust equipment to minimize shattering losses.

TRITICALE

CARMAN, ROSNER and WELSH are the only licensed varieties. All are 3 to 5 days later maturing than Glenlea wheat, and under cool conditions this difference may be greater. All have fair leaf rust resistance and good lodging, loose smut and stem rust resistance. CARMAN is the highest yielding variety available, yielding some 12-14% more than Glenlea wheat.

Triticale is generally susceptible to ergot which, even in small amounts, can be toxic to humans and livestock. Both CARMAN and WELSH have better fertility and less ergot than ROSNER and therefore are the varieties of choice.

Exaggerated claims of yield and protein content have been made for some non-licensed varieties which have generally been too tall and late maturing for Saskatchewan. As some difficulty has been experienced in marketing triticale, producers are advised to grow licensed varieties only under contract.

SUNFLOWERS

Sunflowers are a long season crop requiring 120 to 130 days to mature, depending on the cultivar and growing season. Both the oilseed and confectionery seed-types are grown in Saskatchewan as contract cash crops.

Oilseed sunflowers are adapted to the Dark Brown and Black soil zones in southeastern Saskatchewan. Because of the need for early maturity, early open pollinated cultivars such as SATURN and CORONA are well adapted. Later maturing hybrids which require as much as 10 days more to mature are commonly offered by sunflower contractors. Several of these hybrids have exhibited vigorous growth, high yields and uniformity in maturity. These later maturing hybrids should be planted early, preferably before wheat and should be considered only in the extreme southeast of Saskatchewan and at Outlook. The following hybrids have been grown and have produced satisfactory returns in these areas: CMH 101, D0844, CARGILL 204, CARGILL 205.

COMMANDER and SUNDAK are confectionery cultivars which perform equally well at Outlook under irrigation. SUNDAK is a rust resistant variety which matures 1-2 days later than COMMANDER.

SEED FACTS

PEDIGREED SEED

A good practice is to 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 and sclerotia. Sclerotia (hard, black fungal bodies) of *Sclerotinia* are frequently present in seed of broad-leaved crops. These bodies should be removed. In rapeseed, screening and spiral cleaning are effective.

SEED TREATMENT

Chemical seed treatments can be used to control certain diseases and insects. The smuts that attack wheat, barley, oats and rye can be controlled in this manner. Seed of resistant varieties (see variety descriptions), and seed of susceptible varieties that is free of smut should not require treatment. If smut was observed in a crop which is being used for seed it should be treated. When growing cereal varieties which are susceptible to smuts and the presence of smut is uncertain, it may be a wise precaution to treat home-grown seed every two or three years depending on the susceptibility of the variety.

The virulent form of blackleg is now widespread on rape in central Saskatchewan. Treatment of seed with a recommended fungicide is advisable in order to reduce the risk of introducing the disease to unaffected areas. Growers with carry-over stocks of treated seed should have these tested for germination.

Various fungicides have been registered for the control of seedling diseases. Flax, rye and hulless oat seed should be treated to promote good seedling growth.

Wireworms, which attack all grain crops, and flea beetles, which attack all grain crops, and flea beetles, which attack rape and mustard, can be controlled by seed treatment with insecticides. A seed treatment may contain a fungicide alone, an insecticide alone or a dual-purpose mixture. 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. This means cleaning out bins, truck boxes and augers used for handling treated seed.

Unless left-over treated seed is being stored for future use it should be buried. Care should be taken to prevent exposure of treated grain to wildlife.

ERGOT

Ergot attacks all varieties of rye, triticale, wheat (both common and durum) and barley, as well as most common species of grass. Oats are rarely attacked, and all broadleaved species are immune. Cool, moist weather at flowering time increases risk of ergot infection. To minimize ergot infection use clean seed, cut nearby grasses before flowering, and avoid seeding

rye, wheat or barley on land which produced an ergoty crop in the previous year. Grain containing 0.1% ergot is considered poisonous and should not be used as feed.

SEED INOCULATION

The legume crops mentioned above (peas, lentils and fababeans) add nitrogen to the soil only if their roots are well nodulated with nitrogen-fixing bacteria. When growing a particular legume on a field for the first time, inoculate the seed immediately before planting. Packaged inoculant for specific crops is available from seed dealers. Peas and lentils are nodulated by the same bacterial strains. Fababeans require a different strain. Inoculants packaged for use on alfalfa and clovers are not effective on peas, fababeans and lentils. Be sure the inoculant is not outdated, and follow instructions on the package.

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 batch driers, 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.

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The Saskatchewan Advisory
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Published by the authority of
Gordon MacMurchy
Minister of Agriculture