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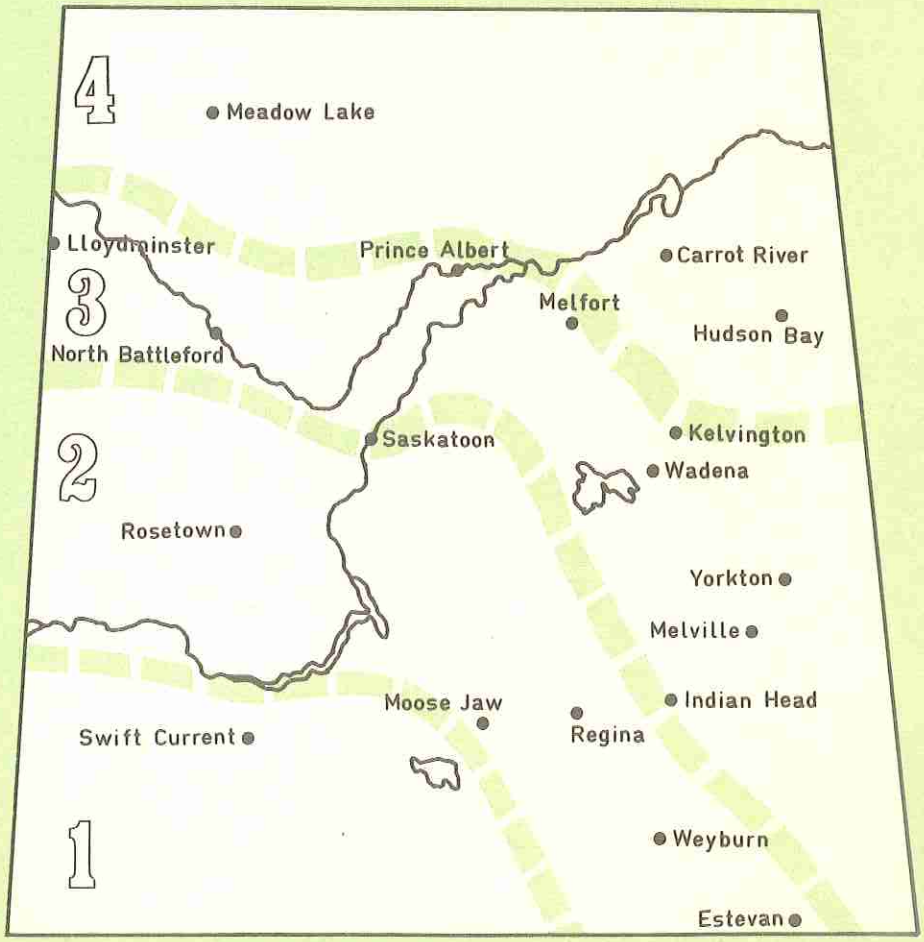
Varieties of Grain Crops for Saskatchewan 1978



Descriptions as prepared by:
THE SASKATCHEWAN ADVISORY COUNCIL
ON GRAIN CROPS

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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 occur in the extreme 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
Betzes	Two	111	97	97	88	90	Poor	Poor	Poor	Poor	Good
Conquest	Six	92	90	90	93	88	Good	Good	Fair	Fair	Fair
Klages	Two	109	103	103	99	94	Fair	Poor	Poor	Poor	Good
Feed											
Fairfield*	Two	121	108	103	100	91	Fair	Poor	Poor	Fair	Good
Fergus	Two	109	99	95	88	93	Fair	Poor	Fair	Fair	Good
Hector*	Two	114	105	99	89	92	Fair	Fair	Fair	Fair	Good
Klondike**	Six	110	114	105	105	91	Good	Good	Fair	Poor	Fair
Melvin**	Six	111	115	106	102	92	Good	Good	Poor	Good	Fair
Peguis**	Six	87	106	101	99	91	Good	Good	Fair	Poor	Fair
Windsor	Six	106	98	100	98	91	Good	Good	Poor	Fair	Fair

* See comments

** Yield figures for area 4 based on less than 3 years data.

COMMENTS:

Loss appraisal studies in Saskatchewan indicate an estimated average yield reduction of 12% due to common root rot. HECTOR and BONANZA appear to have superior field tolerance to the disease.

WINDSOR is a six-rowed feed barley and the only variety with good scald resistance.

BEACON is a white aleurone, six-rowed barley which is being grown under contract. It is 2-3 days earlier than BONANZA and 10-30% lower yielding.

HECTOR is a two-rowed, rough-awned variety that does well in areas 1 and 2.

While it is technically eligible for C.W. grades the Canadian and American malting industries have indicated that they prefer other varieties. Thus very little of this variety is being purchased for malting.

FAIRFIELD is a high yielding two-rowed variety. It is equal in malting quality to BETZES, but the kernels of this variety tend to resemble those of the variety FERGUS. It will be selected for malting only if the sample contains fewer than 15% of kernels which resemble FERGUS. FAIRFIELD provides an excellent alternative to FERGUS due to its superior yield and earlier maturity.

KLAGES is a new two-rowed malting barley with superior quality to BETZES. This variety has been fully accepted by the malting industry and is preferred over existing two-rowed varieties. KLAGES is shorter and stronger strawed than BETZES but it is 3-5 days later maturing. Because of its late maturity it should be sown early to avoid harvesting problems. It is a good yielder as long as moisture is not limiting. This variety should not be grown in eastern Saskatchewan since it lacks disease resistance.

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

PEGUIS is a new 6-rowed feed barley which has good field tolerance to leaf diseases.

MELVIN is a new 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. MELVIN is adapted to the west-central portion of the province and outyields other six-rowed varieties in this area.

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
Canuck	99	94	—	—	101	Fair	Good	Fair	Poor	Good	Fair
Chester	101	95	—	—	100	Fair	Good	Fair	Poor	Fair	Fair
Manitou	95	98	97	98	98	Good	Good	Good	Poor	Good	Fair
Napayo	94	94	96	101	99	Good	Good	Good	Poor	Good	Fair
Sinton	91	96	96	108	99	Good	Fair	Good	Good	Fair	Fair
Utility Wheat											
Glenlea	102	110	111	121	101*	Good	Good	Good	Good	Good	Fair
Pitic 62	116	117	118	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	93	98	103	99	Good	Good	Good	Good	Good	Fair
Hercules	85	88	90	95	98	Good	Good	Good	Good	Good	Poor
Macoun	92	89	94	98	100	Good	Good	Good	Good	Good	Poor
Wakooma	99	97	100	101	102	Good	Good	Good	Good	Good	Fair

	Yield as % of Sundance			Resistance to	
	Area 3	Area 4	Plant Height	Winter Killing	Lodging
Winter Wheat**					
Sundance	100	100	Tall	Fair	Poor
Norstar	102	103	Medium	Good	Fair
Winalta	88	88	Medium	Poor	Good

* These varieties are variable in maturity and may mature later under cool conditions.
** Failure to show yield data for Areas 1 and 2 is due to absence of test sites.

COMMENTS

CHESTER and CANUCK are sawfly resistant varieties which are higher yielding and more resistant to lodging than CYPRESS.

SINTON is the only bread wheat variety that is resistant to leaf rust but it is free-threshing and shattering can occur, particularly if swathing is delayed. SINTON seems adapted to all areas except the drier Area 1.

COULTER is a newly licensed variety of durum wheat which is earlier and shorter than the other varieties. It outyields HERCULES and MACOUN in all areas and should be grown where an early variety is

desired. The seed supply of COULTER may be limited in 1978.

WASCANA, WAKOOMA, MACOUN and HERCULES all possess improved quality for spaghetti and macaroni production and are more desirable for the export market than the older varieties STEWART 63, RAMSEY and PELISSIER. these older varieties are also lower yielding and should not be grown.

Soft white wheat should be grown only on irrigated land and under contract with a milling company. SPRINGFIELD has acceptable quality and has higher yield and better leaf rust resistance than LEMHI 62. FIELDER, licensed in 1976, is superior to SPRINGFIELD in yielding ability, test weight and resistance to powdery mildew.

Winter survival is the chief factor limiting winter wheat production in Saskatchewan. However, **with proper management** successful production is possible in area 3 and 4 and the southern portion of area 1. If a reasonable stand survives the winter, winter wheat should yield about 25% higher than NEEPAWA spring wheat. It also has the additional advantages of early maturity, redistribution of labor requirements and increased competition with weeds.

SUNDANCE is the most commonly grown variety. It is superior to WINALTA in winterhardiness.

NORSTAR, licensed in 1977, is the most winter hardy variety of winter wheat available. In addition it is high yielding and has excellent baking quality.

OATS

Main Characteristics of Varieties

Variety	Yield as % of Harmon				Average Maturity in Days	Resistance to				
	Area 1	Area 2	Area 3	Area 4		Lodging	Stem Rust	Leaf Rust	Smut	Percent Hull
Harmon	100	100	100	100	91	Fair	Poor	Poor	Fair	24.1
Cavell	102	106	103	100	87	Poor	Poor	Poor	Poor	24.1
Garry	99	100	97	96	90	Fair	Poor	Fair	Fair	23.8
Hudson	106	109	109	109	92	Good	Fair	Good	Fair	24.7
Kelsey	96	108	106	106	89	Fair	Fair	Fair	Fair	22.6
Random	112	108	109	107	90	Good	Poor	Fair	Poor	24.1
Sioux	105	104	106	106	88	Fair	Poor	Poor	Fair	23.1
Terra*	79	81	79	81	92	Good	Poor	Fair	Poor	Hulless

* Yields of varieties in the hulless class cannot be directly compared with standard varieties which have from 22-25% hull. Groat (dehulled seed) yield of HARMON would be 76% of its total yield.

COMMENTS:

HARMON is a plump-seeded variety with moderately strong straw.

CAVELL, KELSEY and SIOUX mature earlier than HARMON but CAVELL and SIOUX have somewhat poorer disease resistance and CAVELL has weaker straw. CAVELL and SIOUX perform better than KELSEY in area 1.

HUDSON and RANDOM are high yielding varieties which have short, strong straw but have lower test weight than HARMON. RANDOM is better adapted to area 1 than HUDSON. HUDSON is the only listed variety with resistance to race C10 of stem rust and is therefore useful for the rust area.

TERRA is a hulless variety that is susceptible to stem rust and smut. Seed of TERRA should be treated with a chemical fungicide.

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.

FLAX

Main Characteristics of Varieties

Variety	Yield as % of Redwood 65				Average Maturity in Days	Resistance to		Seed Size	Flower Color
	Area 1	Area 2	Area 3	Area 4		Rust	Wilt		
Redwood 65	100	100	100	100	105	Poor	Good	Medium	Blue
Dufferin	99	96	97	102	102	Good	Good	Medium	Blue
Linott	88	92	90	94	101	Good	Good	Medium	Blue
Noralta	99	96	95	96	99	Poor	Good	Small	Blue
Norland	106	97	96	85	105	Poor	Fair	Large	White
Raja	62	73	76	71	94	Good	Good	Large	Blue

COMMENTS:

DUFFERIN, LINOTT and RAJA are the only 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.

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 as 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	95	94	96	97	Fair	Good	Good	Green	Medium	Medium
Frontier	91	89	95	96	Good	Fair	Poor	Green	Medium	Tall
Kodiak	76	94	89	98	Fair	Fair	Fair	Tan	Large	Tall

COMMENTS:

COUGAR, FRONTIER and PUMA are the most commonly grown varieties. Although COUGAR is not as winterhardy it is popular because of its short straw. PUMA is similar in height and winter hardiness to FRONTIER, but more resistant to lodging and shattering. It is higher yielding than either FRONTIER or COUGAR.

KODIAK is equal to COUGAR in winterhardiness but taller and more prone to lodging.

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
Main Characteristics of Varieties

Variety	Areas 2 and 3			Area 4		
	Yield as % of Torch	Average Maturity in Days	% Oil	Yield as % of Torch	Average Maturity in Days	% Oil
B. campestris (Turnip rape)						
Torch	100	84	40.4	100	87	41.3
Candle	85	86	42.8	84	89	43.9
R-500*	90	96	44.1	90	93	46.5
B. napus (Argentine type)						
Midas	135	103	44.2	136	105	45.3
Tower	120	102	43.5	124	105	44.1
Regent	125	103	44.1	131	106	44.5

*High erucic acid variety.

COMMENTS:

TOWER, REGENT and CANDLE produce low glucosinolate meal and, thus, are more readily marketable than the high glucosinolate varieties MIDAS, TORCH and SPAN. Certified seed of REGENT will be in limited supply for 1978 planting. Contracts for the production of CANDLE, which has yellow-brown seed, are available through rapeseed processing firms.

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.

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	Seeding Rate (lb/ac)
Century	100	100	Large	Yellow	Tall	190	(170)
Trapper	100	98	Small	Yellow	Medium	125	(112)

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 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.

FABABEAN (Horse Beans)
Main Characteristics of Varieties

Variety	Yield as % of Ackerperle	Average Maturity in Days	Seed Size	Plant Height	Seeding Rate kg/ha	Seeding Rate (lb/ac)
Ackerperle	100	114	Small	Tall	150	(134)
Diana	95	108	Medium	M. Tall	175	(156)
Herz Freya	102	108	Medium	Tall	180	(160)

COMMENTS:

Fababeans are a promising source of protein for livestock feeding. They should be seeded early and are best adapted to that portion of the Black soil zone with the longest growing season. Fababeans also perform well under irrigation. 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 soon as the lower most pod turns dark on 25% of the plants. Fababean seed should be inoculated before planting. See SEED INOCULATION section.

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. 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/hectare (50-60 lb/ac).

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.

TAME BUCKWHEAT

Buckwheat is a short season cash or honey crop. When grown for grain it is usually by contract to ensure a market.

Three varieties, MANCAN, TEMPEST and TOKYO are recommended for growing in Saskatchewan. Each have a requirement of 80 frost-free days and are susceptible to high temperatures and dry weather. MANCAN flowers about 3 days later but has a 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.

CORN

Corn is recommended for silage purposes only since grain corn does not usually mature in Saskatchewan.

TAME MUSTARDS

Main Characteristics of Varieties

Variety	Type	Yield as % of Lethbridge 22A
Lethbridge 22A	Oriental	100
Stoke*	Oriental	108
Domo	Oriental	120
Blaze	Brown	108
Ekla	Brown	99
Commercial	Brown	90
Gisilba	Yellow	85
Sabre**	Yellow	74
Commercial	Yellow	80

* 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. Rapeseed and mustard should not be grown on the same farm.

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

SUNFLOWERS

Main Characteristics of Varieties*

Variety	Yield as % of Krasnodarets	Days to Flower	Days to Mature	Height (cm)	% Oil
Krasnodarets	100	80	125	147	41.7
Saturn	105	79	122	145	43.0
Corona	111	77	125	114	43.5

* Data from Co-operative Tests in Southern Saskatchewan and Alberta 1975-1977.

COMMENTS:

Sunflowers are adapted to the Dark Brown and Black soils in southeastern Saskatchewan. Because of the need for early maturity and ripening, only the early oilseed varieties KRASNODARETS, SATURN and CORONA are recommended. Several late-maturing hybrids, not licensed in Canada, are available which require 7-10 days longer growing season than the early varieties.

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 land 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 (900 lb/ac.). Herbicides can be used for the control of broadleaved weeds.

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

TRITICALE

ROSNER is the only licensed variety of Triticale but it is not high yielding. Some introduced non-licensed varieties have been grown under contract in 1977. Exaggerated claims for yield and protein content have been made and the introduced varieties are too tall and late maturing for Saskatchewan. Difficulty has been experienced in marketing Triticale. The University of Manitoba and Agriculture Canada have extensive research underway and much improved varieties are in advanced tests. At the present time the growing of Triticale is not recommended.

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. Pedigreed seed, 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.

Black leg of rape, a seed-borne fungus disease, has recently appeared in a more virulent form in localized areas. A precautionary treatment with an appropriate fungicide is advisable in order to reduce the risk of introducing the disease to new fields.

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 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, wheat (both common and durum) and barley, as well as most common species of grass. Oats are rarely attacked, and all broad-leaved 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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