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Government of the Province of Saskatchewan

DEPARTMENT OF AGRICULTURE

# VARIETIES OF SMALL GRAINS FOR SASKATCHEWAN

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## WHEAT.

The characteristics essential in Saskatchewan wheats are high quality and high yield. In addition to these, early maturity, non-shattering propensity, strong straw, and disease resistance, are characteristics to be desired.

*Red Fife* is high in yield, high in quality, long in the straw and rather late in maturing. It is suited to the lighter and earlier types of soil, to the drier parts of the province, to all regions where fall frosts are not feared, and where long straw is desired.

*Marquis* is high in yield, high in quality, rather short in the straw, and early in maturing. This variety is likely to give more satisfactory returns than *Red Fife* on heavy soils, on fallowed land, in moist regions where fall frosts are feared and in those areas where a short straw is preferred.

Excepting in earliness and length of straw, *Marquis* and *Red Fife* do not differ materially. Both are beardless wheats, having a white chaff. The seed of *Marquis* is generally shorter, plumper, darker in colour and heavier per measured bushel than that of *Red Fife*.

On clay loam soil at Saskatoon, *Red Fife* has averaged about one-half bushel more per acre than *Marquis*, but its poorer quality in areas of early fall frosts has more than off-set this advantage. At Indian Head on a heavier type of soil the average yield and the quality as well has been very much higher for *Marquis* than for *Red Fife*.

*The Blue Stem Wheats* commonly grown in the Dakotas and Minnesota are of good quality and produce fair yields. They are, however, later in maturing than *Red Fife* and shatter more freely. On account of its later maturity it should not be used.

*The Hybrid Wheats—Preston, Stanley, Huron, and Percy*—are inferior in milling value to both *Marquis* and *Red Fife*. They are all early, not differing materially from *Marquis* and *Red Fife*, and most of them are productive. They have been discarded by all the experimental farms on account of their inferior quality.

*White Fife* is not essentially different from Red Fife in intrinsic value, not in appearance of the growing crop, but there is a popular prejudice against the colour of the bran. This variety has, however, no desirable feature that Red Fife does not possess.

*Prelude* is a wheat of high quality and low yield. It is ten days or more earlier than Marquis, and considerably shorter in the straw. It is much more subject to loss from shattering than either Red Fife or Marquis. At Saskatoon the average yield is about two-thirds as much as Red Fife. This variety may be found satisfactory in regions north of the present wheat growing area, but on account of its low yield it is not worthy of a place in districts where Marquis matures.

*Pioneer* is a wheat that is earlier than Marquis and longer in the straw than *Prelude*. It yields less than the former but more than the latter, is high in milling value, of good appearance, has high weight per measured bushel. It has a bearded head and a red glutinous seed. It is a good wheat for all regions where earliness and fair length of straw is desired.

The "*Durum*" or "*Macaroni*" Wheats are very little grown in Saskatchewan. In portions of the Western States they are largely used for the production of macaroni, spaghetti, etc.<sup>1</sup> They have been grown very little in the past for bread making, although in the United States they are now being used for that purpose, to an increasing extent. The "*Durum*" wheats are rich in a low quality gluten. As compared with "*Red Fife*" the *Durum* sorts now grown here are later in maturing, longer and stiffer in the straw, more resistant to drought, and very much less liable to lose grain by shattering. They offer some promise for south-western Saskatchewan once a market for them is provided. *Kubanka* is the most productive sort. At Saskatoon the average yield is thirty-three bushels as compared with thirty-six for Red Fife. *Kubanka* ripened on the average three days later than Red Fife. This variety carries a long, stiff beard, the chaff is bronze in colour, and the heads are very compact. The seeds are long, very hard, and yellow amber in colour.

The "*Club*" Wheats grown so extensively on the Pacific Coast and which are more or less non-shattering there, are too poor in quality to warrant their use here. They have no advantage in yielding power over the higher quality wheats recommended.

The "*Polish*" Wheats used in some southern European countries, are inferior in quality and yield to both the flour and the *Durum* types.

The *Poulard* Wheats are superior in no important quality to either our commonly grown flour or macaroni sorts. The Compound Headed variety of this type variously called "*Egyptian King*," "*Miracle*," "*Seven Headed*," and "*Alaska*," has been brought forcibly to our attention twice during the last ten years by the exaggerated statements of men offering it for sale. This wheat, which has a compound or branching head, is very striking in appearance, and has been reported to produce double or treble as much as any of our leading sorts. The fallacy of such statements concerning its productive power has been demonstrated many times. It has been grown for two years at the

University and in neither year did it approach either the yield or the quality of Red Fife. No grain grower should allow himself to be imposed upon by salesmen offering this or any other sort that has not been tested out at some experiment station.

*Emmer and Speltz*, two feed wheats, in which the hull is retained after threshing, are grown to a very small extent in this province. They are used only as stock foods. Emmer, often called Spelt, or Speltz, is an early short strawed, bearded wheat, which is more or less resistant to drought. In the northern and eastern part of the province it does not yield as much as oats or barley, but it may have a place in the south-west, where its ability to withstand dry conditions may result in the production of greater yields than from oats or barley.

The true *Spelt* is later in maturing and much coarser than Emmer. It is a type of wheat having no feature, whatever, that should induce Saskatchewan farmers to use it even for feed.

*Winter Wheat* is being grown to a small extent in north-eastern Saskatchewan, but it has not proven sufficiently hardy for general use in the open prairie parts in the province. Each year successful stands have been brought to our attention, but many failures for each success have been noted. In the year 1914 all our varieties at Saskatoon came through the winter in perfect condition, but this was the only satisfactory stand obtained in four years.

It is an interesting fact that winter wheat is being grown in northern Manitoba, and in southern Alberta, but has not been found profitable in the open prairie belt between the two districts mentioned.

To those who desire to experiment with winter wheat, it might be mentioned that Turkey Red is the leading sort now being grown in Alberta. Karkov and Buffum's No. 17 are excellent sorts out of this variety. The last mentioned is beardless; both of the others are bearded varieties. Seeding at the rate of one bushel per acre in the latter part of August on fallowed land is likely to give best results with winter wheat.

#### OATS.

The most useful classification of oats for this province is that based on the time required to mature them. There are early, medium early, and late oats.

*The Late Maturing Oats* are nearly all white, but a few are black. Most have branching panicles, but some are "side" or "mane" oats. The white late oat having branching panicles is the most useful type for general use in this province. It is more productive than any of the others, and higher in quality than most of them. Among the many varieties of this type, *Banner*, *Victory*, and *Abundance* have proven the most satisfactory at Saskatoon, the first two having produced an average yield on fallowed land, of over one hundred and five bushels per acre.

*Banner* is a fine but strong strawed variety, and very productive. The grain, as compared with that of other late maturing sorts, is long and thin and carries a low percentage of hull. It is a very productive sort.

*Victory* yields about the same as *Banner*, but more than *Abundance*. The strain of *Victory*, used at Saskatoon, has a tendency to produce false wild oats and for that reason we have hesitated to distribute the seed. The grain of *Victory* is shorter and plumper than *Banner* and weighs more per measured bushel.

*Abundance* produces a short plump oat of high weight per measured bushel. This variety is rather coarse in the straw and the seed carries a slightly greater percentage of hull than either that of *Banner* or *Victory*. It is a popular variety, and an excellent appearing oat, but the average yield with us is twelve bushels per acre less than *Banner*, and thirteen bushels less than *Victory*.

The *White "Side" or "Mane" Oat*, contrary to common opinion, is neither so productive nor so strong in the straw as the branching oat and invariably it contains a larger percentage of hull. "*Storm King*" and "*Tartar King*" are representatives of this class.

The *Late Black Oats* that have been grown here, whether of the "side" or the "branching" type are very coarse in the straw and have a high percentage of hull. In addition to the popular prejudice against them, their coarseness and lack of quality furnishes good reason for discouraging their use.

#### MEDIUM EARLY OATS.

Most of the medium early oats are white or yellow in colour and nearly all have branching panicles. Only a few varieties have come under our observation.

*Gold Rain* is a medium early yellow oat, having a rather small grain, which carries very little hull. This variety should become popular in those parts of the province where early fall frosts are feared. On account of its colour it is not so popular with the millers as some of the white sorts. *Gold Rain* matures on an average about five days before *Banner* and the average yield is but very little less.

*Ligowa* is a white oat that is medium early, but less productive than *Gold Rain*.

*Garton's No. 22* is a medium early white oat, having a medium short but rather coarse straw. This oat is rather heavy in the hull and produces a large number of undesirable double oats. Reports from outside points indicate that it is stronger in the straw than most of the taller growing sorts. It has not proven a satisfactory producer here.

#### EARLY OATS.

In this type are found, red, white, yellow and black sorts. The red and yellow sorts are common in the Corn Belt where on account of their earliness they mature before the hot days of summer, and are therefore preferred. All of these early oats including "*60 Day*," "*Orloff*," "*Kherson*," and "*Alaska*," mature from ten days to two weeks earlier than *Banner*, but seldom yield more than two-thirds as much. Most of them are of very good quality but all are short in the straw.

Early oats may be used for late seeding or for far north regions, but there is no other reason for growing them where the later sorts will mature.

"*Daubeney*" is one of the most productive of the early varieties. It is white in colour, slightly taller than the average early oat and very low in percentage of hull.

#### BARLEY.

*The Six Rowed Bearded Hulled Barley.*—This type of barley is heavy in yield, medium early in maturing and fairly strong in the straw for barley. It is richer in protein than the two rowed sorts. In Europe and the United States it is not liked for malting purposes, but in Western Canada the maltsters favour it. The six rowed varieties are better suited to northern and eastern Saskatchewan than any of the others. The leading ones of this type are *Manchurian*, *O. A. C. No. 21*, *Mensury* and *Odessa*.

*The Two Rowed Bearded Hulled Barleys.*—This type of barley is rather longer and weaker in the straw and from four to seven days later than the six rowed types. Most two rowed varieties are less productive in northern and eastern Saskatchewan than the six rowed. From experiments conducted in southern Alberta, Montana, and western North Dakota, it would seem that in south-western Saskatchewan two rowed barleys are likely to equal the six rowed type in yield. "*Hannchen*," a pedigreed variety introduced from Sweden, is the most productive of the "Nodding" two rowed type. *Canadian Thorpe* and *Duck Bill* are good varieties of the erect two rowed type.

*Miscellaneous Barley Types.*—The *Beardless Barleys* are less productive but earlier than those mentioned above. They are seldom grown for grain, although in the older parts of the province where they are frequently used as a cleaning crop for wild oats they are occasionally threshed. They are popular in many parts of the province as early maturing annual hay crops. *Success*, a six rowed barley of the beardless hulled type, is much used for the above purpose. *White Hulless*, a variety of the beardless, hulless type is not dissimilar in growth characteristics to *Success*, and is also used largely for forage. *White Hulless*, as the name implies, loses its hull in threshing. Both *Success* and *White Hulless* are popular annual hay crops.

*The Bearded Hulless or Bearded Naked Barleys* are short in the straw and low in yield in the northern parts of the province, but they are very early. They have produced very favourable returns in Montana and western North Dakota, which leads us to expect them to do fairly well in western Saskatchewan. *Black Hulless* and *Purple Hulless*, six rowed bearded naked barleys, and *Hogg*, a two rowed bearded naked white sort are among the most commonly used hulless bearded varieties.

#### SPRING RYE.

*Spring Rye* as a cereal crop is very little grown in the province. It is an early maturing crop and one well suited to the lighter and poorer types of soil. It does well on heavier, more fertile soil, but is

not as productive of grain as wheat, oats or barley. It is sometimes grown as a hay crop. It furnishes good pasturage but the quality of hay for general use is inferior to that of either oats or barley. No superior strains of spring rye have been developed as yet.

#### WINTER RYE.

*Winter Rye* promises much more in this province than spring rye. Northern grown winter varieties have proven perfectly hardy at Saskatoon, and in many other portions of the province. Eastern and southern grown sorts were almost completely killed out in the winter of 1910-11, but a more or less acclimatised variety, "*Saskatchewan Rye*," withstood the same winter perfectly. This rye has produced from twenty to forty bushels per acre on fallowed land in Saskatoon each year since 1911.

Winter Rye as a forage crop, furnishes earlier pasturage than any other crop. On June 17, 1914, winter rye at the College of Agriculture was headed out and measured 40 inches in height. It was ripe that year on the 18th of July. In areas subject to soil drifting or where wild oats are prevalent, this crop should be found useful either for early pasturage (for cattle, sheep or hogs), for hay, or even for the threshed grain. *North Dakota No. 959*, and *Saskatchewan Rye* are the leading varieties.

#### FLAX.

The *Brown Seeded, Purple Blossomed* type of flax has been found better suited than any other to the soil and climatic conditions of the province. The *Golden Seeded* type is later, shorter in the straw, and poorer in yield, but said to be richer in oil than the brown seeded type. No *White Flowering* sorts have yet produced as satisfactory yields as the *Purple Blossomed* ones.

The variety of the *Purple Blossomed, Brown Seeded* type that is best known and most productive is *Minnesota No. 25* or *Premost*, a pedigreed sort produced by the Minnesota Experiment Station. Another good variety but less productive is *North Dakota No. 155*. Other strains produced by the North Dakota Experiment Station and said to be resistant to flax wilt are *North Dakota No. 52*, *North Dakota No. 73*, and *North Dakota No. 144*. It is not claimed that the last three mentioned are heavy producers on undiseased soil. They have, however, demonstrated their usefulness on the flax sick soil of North Dakota.

The two chief difficulties in growing flax for seed in Saskatchewan are the spread of weeds and the danger of infection from flax wilt. On account of the difficulty of removing small weed seeds from threshed flax the seed is often very impure. Flax sickness can only be cured or controlled by (1) using sound plump seed from uninfected fields if possible; (2) treating the seed with formalin; and (3) planting flax on the same field not oftener than once in five or six years.

#### FIELD PEAS.

The *Field Pea* is but little grown in Saskatchewan because of (1) danger of frost in the fall; (2) low yields in the drier areas; and (3) the difficulty in harvesting; and (4) relatively high cost of seed.

The field pea is, however, our most suitable annual legume, and yields of from eighteen to forty bushels per acre have been reported from various parts of the province. The varieties that are considered best for general use are "*Solo*," "*Arthur*," and "*Golden Vine*."

"*Solo*" is a heavy yielding rather late sort, "*Arthur*" a heavy yielding and earlier variety. "*Golden Vine*" is a popular small seeded medium early variety.

While the price is high the use of the smaller seeded sorts has one advantage over the larger seeded ones since with the former less seed is required per acre. With the development of more intensified farming and the introduction of live stock, particularly hogs, the pea crop should be more commonly used. In several places where labour is costly, "logging off" the pea crop is being practised.

## LIST OF BULLETINS AND PAMPHLETS

The following publications can be obtained free on request from the Department of Agriculture, Regina, Sask.:

### LIVE STOCK—

Annual Report Live Stock Branch.  
Live Stock Industry in Saskatchewan.  
Horse Breeding in Saskatchewan.  
Care and Feeding of Work Horses.  
Care and Feeding of Beef Cattle.  
Care and Feeding of Sheep.  
Care and Feeding of Swine.  
Hog Cholera.  
Blackleg.  
Foot and Mouth Disease.  
Stallion Enrolment and Registration.  
The Horse Breeders' Act.  
The Brands Act.  
Housing and Feeding Poultry.

### DAIRYING AND POULTRY—

Annual Report Dairy Branch.  
Care and Feeding of Dairy Cattle.  
Grading of Cream.  
The Care of Milk and Cream on the Farm.  
Fleshing of Chickens for Market.  
The Dairymen's Act.

### BUILDINGS—

Planning the Farmstead and Buildings.  
Plans and Specifications for Dairy Barn.  
Housing and Fencing for Sheep.  
Plans of Colony Pig Pens.  
Plans and Specifications for a Portable Poultry House.

### MISCELLANEOUS—

Annual Report Bureau of Labour.  
Annual Report Game Branch.  
Annual Report Statistics Branch.  
Annual Report Co-operative Organisation Branch.  
Agricultural Co-operative Associations Act.  
Farm Forestry.

### SOIL CULTIVATION—

Growing Profitable Crops on the Drier Lands of Saskatchewan.  
The Tillage of Prairie Land.  
Summer Fallowing.  
Dry Farming in Saskatchewan.  
Pioneer Problems.  
Better Farming.

### FARM CROPS—

Fodder Corn.  
Hints to Flax Growers.  
Seed Grain, Seed Treatment and Seeding.  
Annual Report of the Weed and Seed Branch.  
Alfalfa.  
Alfalfa Seed Production.  
Winter Rye.

### MARKETING—

Co-operative Live Stock Marketing.  
Grain Markets Commission Report.  
Saskatchewan Co-operative Elevator Company Act.  
Report of the Elevator Commission.

### HOUSEHOLD SCIENCE—

The Farm Kitchen and Home-made Cooker.  
Household Conveniences.  
Hints on Home Nursing.  
Recipes for Desserts, etc.  
Preservation of Food.

### MISCELLANEOUS—

Handbook on Saskatchewan.  
Opportunities in Saskatchewan.  
Public Service Monthly.