Government of the Province of Saskatchewan

DEPARTMENT OF AGRICULTURE

SEED AND SEEDING

The subject of good seed should appeal to every farmer and to understand what good seed really is, it is necessary to become acquainted with what nature requires. A grain of wheat may be divided into two distinct parts; the germ or embryo, which is the more essential though smaller part; and the endosperm, which for clearness we will call the "storehouse" of plant food, because in it nature has stored up food to nourish the little plant during germination and until it has power to take plant food from the soil. Then comes the question: At what stage does a plant commence to take food from the soil? Scientists tell us that the plant is dependent on the food stored up in the seed until it develops a green leaf, which may be called the stomach of the plant. This will take five to ten days or longer, during which time heavy demands on the endosperm or "storehouse of the seed are made, since as yet it is the only source of food for the young plant. The following conclusions are then very obvious:

First—That we should have plump seed in order that we may be sure that it will contain sufficient food to enable the tiny plant to send up a stem that will reach the surface of the ground and develop a good strong leaf. Second—In case the first leaf be destroyed by frost, drought or disease, it is wise to sow a plump seed so that it may be able to give the delicate plant additional help to start again. Third—The plant having to depend on the seed for its first root, requires, if the root is to develop normally and quickly, a good supply of plant food, or, in other words, a large, plump, uninjured seed. A good root development enables the plant to take more moisture from the soil, and also more food, thus giving a much stronger growth and more power to resist disease, drought, frost, etc. Such a plant will also mature earlier.

Secure Large, Plump Seed.

These reasons suggest to us the necessity of having a large, plump seed and demand an answer to the question, what is the best method of securing such a seed. In the first place we should select seed that is thoroughly matured from a field that was free from lodged, frosted or diseased grain, because a good seed must have as a parent a plant of perfect type and one that was well matured in order to insure maximum vitality. Then the seed should be thoroughly graded so that only the plumpest of the seed will be used. Before discussing methods to get plump seed we might consider what a seed requires for growth and how best to help provide these requirements. We all know that for germina-

tion, heat, air and moisture are necessary. We should be careful, therefore, not to bury the seed too deeply lest we remove it too far from the heat and air. We should also avoid going to the other extreme, sowing too shallow, thus depriving it of moisture. This emphasises the necessity of cultivating the soil so as to get a good seed bed, one that brings the moisture near the surface, where the heat and air is. Enough surface cultivation should be given to permit and encourage the air and heat from the top and the moisture below to reach the seed, thus providing a condition that will hasten germination and prevent at the same time the escape of moisture by evaporation.

Thorough cleaning and grading with the fanning mill will not alone guarantee a good healthy growth, but will result in a crop that will ripen more evenly and give a better sample for market. To produce the best sample for the market we must consider a few other things in order to secure the highest quality. Generally speaking, the seed that is used throughout the province is not pure in variety, consequently some of the plants ripen earlier than others with the result that the colour of the sample is not uniform. Again, some of the plants take longer to mature, and if the field is cut when the average plant is fit to harvest the miniature plants yield shrunken grains. It is apparent, therefore, that we require a seed pure in variety. This is exceptionally hard to secure and very often we may have to use the seed we have until we are able to procure or purchase seed that is pure in this respect.

The production of seed pure in variety is interesting, as well as profitable and the average farmer who does not wish to purchase a high priced seed can, if he chooses, improve his own grain by careful selection. The plan outlined by the Canadian Seed Growers' Association is an easy one to follow. Selecting the best heads of one type or variety out of the crop on one's own farm makes the procuring of good seed less costly than any other method. Enough seed should be selected in this way to sow a quarter of an acre or more. From the matured crop on that quarter of an acre enough to sow another quarter of an acre should be selected and the balance can be sown as the general crop on the farm. The product of the third selection in this way will be eligible for registration if it has been examined and favourably reported on by one of the Canadian Seed Growers' Association inspectors.

Quality Important.

In oats quality especially should be considered. During the last few years we have been looking for oats that yield well and weigh well per bushel. As a consequence we have many varieties which have poor feeding and milling qualities, simply because we have introduced varieties that look good to the eye but are very thick and heavy in the hull. When we feed our horses three quarts of oats we are simply giving them two quarts of food, the other quart being made up of hull that is practically ironclad and indigestible. An oat should have a thin hull and a comparatively large kernel.

Frozen Oats.

The best way to distinguish frozen oats is quite simple. Take a single grain and split it in two. If it is frozen you will notice a dark streak running through the meat. This is evidence that the oats are unfit

for meal or seed, and that they will not germinate satisfactorily, the germ having been killed. A seed may have all the qualities mentioned above and yet may not grow simply because the germ is injured or killed. If we wish to make sure that our seed is of any value we must find out what percentage will grow. This can be done by taking a box with about two inches of soil in it and sowing in it one hundred grains. Keep the soil moist and warm. The number of plants that grow will give you the percentage of germination, deciding for you whether the seed is fit for use or not.

Smut in Wheat.

That this disease is still prevalent means that there are yet some men who do not understand thoroughly the best treatment of the seed for its prevention. The first essential is to have plump, uninjured and clean seed—seed that has no smut balls in it to break in the drill and thus contaminate the treated grain. We next should know that the bluestone is pure or that the formalin is guaranteed to be a 40 per cent. solution of formaldehyde. Then we should be careful to weigh which of these we prefer to use and measure the water accurately. The solutions most generally and successfully used are one pound (sixteen ounces) of formalin to thirty-two gallons of water, and one pound of bluestone to six gallons of water. There are some advantages in using the formalin. First—it is a liquid that does not require time to dissolve. Second—the operator does not need to be so particular as to whether the water is hard or soft, and lastly—it leaves the grain in a better condition to germinate quickly.

In treating seed for smut one thing to remember is that thoroughness counts. See that every grain comes in contact with the solution whether you immerse or sprinkle.

Formalin is the only treatment for smut in oats that gives complete satisfaction.

Suitable Varieties.

The superior milling qualities of Red Fife continue to keep this wheat to the forefront, especially in those* districts where the open and lighter lands are favourable to its successful maturity.

The popularity of Marquis is now established beyond doubt, in fact there is no wheat so far suited to the province generally that can excel Marquis, and few can equal it. It has won for the third time in succession the highest award in international competition. It produces very large crops, has unusually good straw, and is more resistant to rust than most of the common varieties. While Red Fife and Marquis are retaining their strong individual characteristics, Preston, Huron and Stanley are not maintaining the popularity they once enjoyed and their continued use is not to be recommended.

Five Years Comparisons of Field Lots at the Experimental Farm, Indian Head, Sask.

The average yield per acre and the time taken to mature of two varieties of wheat grown in field lots under similar conditions for the past five years are as follows:

* *Note.*—As a general conception the term "Southern Saskatchewan" may be considered to embrace the open country with lighter land, while "Northern Saskatchewan" includes heavier soils and the treed areas of the province.

Variety	Average days to mature	Average yield per acre
Marquis.....	125.2	40 bus. 11 lbs.
Red Fife.....	137	37 bus. 43 lbs.

The leading varieties of oats grown in Saskatchewan are the Banner and Abundance. They are both white oats having a relatively low percentage of hull and a high percentage of meal.

Barley.

There are two kinds of barley grown in Canada, two row and six row. It is generally advisable to grow six row as varieties of this kind ripen earlier and are more saleable, because six row is both the feeding and malting barley of North America. Suitable varieties of six row barley are Manchurian and O.A.C. No. 21. Varieties of two row barley are Hannchan and Canadian Thorpe.

Dates of Seeding.

Wheat, requiring a longer growing period than our other cereal crops, should always be the first crop sown. The time of seeding will be governed to a large extent by the nature of the season, but the best results are obtained when the soil is both moist and warm when the seed is sown. If the spring opens up early it will usually pay to spend some time on surface cultivation before planting the crop, but in late seasons the wheat should be sown as soon as possible. As a general rule wheat should be sown in Saskatchewan between April 6 and May 10 or 15, oats between May 1 and June 1 and barley between May 15 and June 5. Flax should not be sown after June 15.

Amount to Sow.

The amount of seed sown per acre should be governed by the nature of the season, the condition of the soil and the particular characteristics of the variety selected. In general when seeding early or on land containing little moisture, sow light. Late sown grain or grain planted in moist soils should be sown more thickly to prevent stooling and hasten maturity. It has been found that from one and a quarter to two bushels of wheat per acre give the best results; with oats from two to three bushels per acre may be sown, while with barley from one and a half to two and a quarter bushels will be required. The larger and plumper the kernels the larger will be the amount of seed required.

Depth of Seeding.

No set rule can be given regarding the depth of seeding. Grain should always be sown deep enough to insure its contact with moist soil and to prevent any danger of its becoming exposed through drifting of the soil. Under ordinary conditions seeding between two and a half and three inches deep will be found satisfactory.

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