

The Value of Good Seed

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The importance of the grain crop of the West is everywhere recognized. While the total production of grain is enormous and this is being increased from year to year by a larger acreage being put under cultivation, yet the possibilities of materially increasing production by other means are quite as great and of far more importance.

Suitable Varieties

The choice of crops to grow is one of the important considerations and requires careful thought for one starting farming operations. The local conditions and the crops already found suitable in the district are good guiding lines. The selection of the most promising varieties of the crops already found to suit local requirements is the next step, and lastly we should always try to improve on our choice.

Radical and sweeping changes are out of the question. If we are not satisfied that the varieties chosen are the best, we should experiment intelligently with the object of finding something better from amongst varieties that promise well for that district, for it is by comparison we learn the characteristics and worth of the varieties.

Provided the farmer has decided on the most suitable crop and variety of same, the last and most important essential is to secure good seed of this chosen variety. To do this it is necessary to have a clear conception of what constitutes good seed.

Briefly the essential points are:

- (1) Strong vitality.
- (2) Plumpness.
- (3) Maturity.
- (4) Uniformity of size, shape and color.
- (5) Trueness to variety.
- (6) Freedom from smut, weed seeds, frost or other injuries.

Vitality

Strong vitality in a seed is of as much importance as in an animal. A farmer selecting the foundation stock for a herd of cattle naturally selects the most vigorous. Why should he not do the same thing with his spring seed, which is the foundation stock for his season's crop? Besides possessing a strong vital energy, a seed should be stored with sufficient nourishment to carry it over the most critical stage of its life, that is, the time when it is establishing its own roots, for it is at this time that unfavorable weather can affect it for good or evil, and seeds that are stored with the greatest amount of nourishment are in a better position to withstand this trying period of their life. Undersized or poorly developed seeds use up what little reserve they have before they have formed their full complement of roots, and should they encounter conditions of soil and weather unfavorable to them they are either stunted or killed outright. When this is remembered, the necessity of using large, plump, well developed and fully matured seed is apparent to anyone. Take the instance of a man sowing seed of a variable nature, some plump and some poorly developed, and

what happens if bad weather comes along when the grain is just showing over the ground? The plants from plump seeds withstand it; those from small seeds are enfeebled and incapable of producing a large head. The consequence is, the yield is reduced from 25 per cent. to 50 per cent. The economy of insurance is obtained at a very small cash outlay, as it takes little time or money to clean the light grains out of the seed.

The relationship between vitality and size is something that may need some explanation. Plump seed may not necessarily be vital seed, and very often is not. The vitality resides in the embryo or germ. A strong germ, in company with a large reserve of plant food, produces a strong vigorous seedling that will withstand heat, drought or cold.

Germinating Power

The vitality and germinating energy is something which cannot be known from inspection. The only safe way to determine this important factor of a seed is by means of a germination test. The Dominion Government maintains efficient seed testing laboratories at Ottawa and Calgary, and anyone may have twenty-five samples tested free of charge each year.

In making germination test in the seed laboratory one hundred seeds are counted out indiscriminately from the sample submitted. If the seed has not been cleaned before the sample was taken the one hundred seeds used in the test will contain a proportion of light immature kernels, many of which will not germinate and the result of the test will be correspondingly low. During the test the seeds are kept moist, and at a suitable temperature (for cereals roughly 60 deg. to 80 deg. Fahr.). Those roots and stem, are counted and removed, from time to time.

The first count of germinated seeds in the case of wheat and barley is made after four days. For oats the preliminary count is usually given after six days. The result of this preliminary count is of much importance in determining the vitality of a sample. Some

times a sample of oats will show only 50 or 60 germinated seeds after six days while the final result may be over 90 per cent. Such a seed is deficient in vitality and is not as good as one that may show a slightly lower final test, but which possesses sufficient energy of germination to give a high percentage during the first few days.

No farmer should be satisfied unless his seed will germinate at least 90 per cent. at the preliminary count. It is only by using seed of this kind that he can secure a strong, vigorous and uniform stand. Seed which keeps coming up for two or three weeks after it has been sown is not satisfactory. The plants produced never attain the same stage of growth, and so ripen unevenly. If such a field is left until all the seed has ripened some is too ripe, and shells easily. If it is cut earlier, some of the grain is not fully developed, and the yield is not what it should be on that account.

Strong seed comes up quickly and evenly. Often a farmer would give a good deal if his crop were a few days further advanced when danger of frost comes. Why not get busy and give the crop a few days' start by sowing strong seed? Weak plantlets, even if they are not killed outright by unfavorable weather, are affected much more seriously than are strong healthy ones. Thus the strong seed not only gets a few days' start in coming up, but the young plants come thru any unfavorable weather and are much more robust, growing more vigorously when fine weather does come than do seedlings of low vitality.

The period between sowing and reaping may thus be shortened by several days, and the danger from frost injury lessened by so much. When poor seed is used and a poor stand results, there are always weeds ready to take the place of the missing grain and to crowd out the weaker seedlings. These, then, by entailing extra work in handling the grain still further cut into the already decreased profits which are to be expected from a poor stand.

The purity of seed is a very important factor. Some of the land growing grain

in Western Canada is so badly polluted with weed seeds that it will probably never be free from weeds again, and the crops produced on it are injured to a considerable extent on that account.

Not only do weeds take the moisture and nourishment that should go to the crop, but they contribute to the cost of production:

(1) Because it takes more twine for a field containing weeds.

(2) The labor of stooking, drawing and threshing is greater.

(3) The weed seeds help to fill up the bushels and are paid for in the threshing bill at the same rate as if they were good grain.

(4) The cost of hauling this useless material to the ear, and freighting it to the terminal elevators where it is cleaned out, is often very high.

The Weed Pest

The writer has seen cars of flax at Fort William which carried a dockage of fifteen per cent. This amounts to over two hundred bushels on an eighty thousand pound car. If the cost of threshing, hauling to the ear, and the freight on two hundred bushels of flax had been levied as a tax on the producer he would have realized a little more clearly the enormous burden under which he labors on account of his weed infested fields. From information gathered from year to year it is known that wild oats, wild mustard, false flax, stinkweed and other pernicious weeds are rapidly spreading over the whole West. In the case of these weeds the old adage that "an ounce of prevention is worth a pound of cure" is terribly true, and farmers who are fortunate enough to have farms free from some of these pests should count no trouble too great to prevent their introduction. Any seed that is suspected of containing noxious weeds should not be sown until the grower has ascertained for certain that such weeds are not present.

Whether seed is going to deteriorate or improve in quality from year to year, is governed by the care taken in growing the crop from which the seed is selected. No selection, and imperfect methods of cultivation in a very few

years causes a marked difference in the productiveness of seed which gives rise to the belief of seed "running out," an unnecessary state of affairs, due only to poor methods of farming. The result of this so-called "running out" of seed is that the individual is forced to get new seed, often not the variety he wants, grown perhaps in a different part of the country, and not adapted to his climate, or contains one or two weed seeds that he had not before on his farm. It seems reasonable, therefore, that anyone having a suitable variety should preserve it, and should endeavor, from year to year, to improve the quality, and it is by selection that this can be done. Head selection, this is, selecting seed from individual plants will not be convenient for every farmer. Many have not the time or inclination, but a few hours spent in this way each year will give large returns.

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Where good seed is grown - Experimental plots at Central Experimental Farm, Ottawa