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Trade Increases the wealth and glory of a country; but its real strength and stamina are to be looked for among the cultivators of the land.—*Lord Chatham.*

The Recognized Exponent of Dairying in Canada.

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The Fanning Mill: Construction, Purpose and Use*

It Has Its Place and Will Pay Its Way on Every Farm Where Seed Grain is Produced

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FANNING mills have undoubtedly been in use for a longer time than most of our modern farm machinery. They were used long before threshing machines as the final stage of threshing by the flail, to separate the grain from the chaff and broken straw. The natural breezes were utilized before for that purpose. Even in its primitive form it was a great improvement over the winds of heaven as it made the cleaning operation, independent of the weather, afforded a more uniform blast, and therefore did better work and more rapid work.

The earliest types of fanning mills were dependent on the fan to do their work, but sieves were soon found to be an advantage on separating large, heavy impurities and small impurities of the same weight, or heavier than grain.

Nowadays threshing machines not only do all the threshing, but they also clean the grain more or less perfectly at the same time, but in spite of that we have to-day probably more need for efficient fanning mills than ever before.

We use fanning mills now for several purposes:

To remove straw, chaff, stones, etc.

To remove shrunken, light, or immature seed.

To grade the good seed according to size and weight.

To remove weed seeds and other foreign seeds.

No one will question the necessity of removing large, coarse impurities; few but will agree that all shrunken, immature seeds should be removed before sowing. Such seed produces weak plants, plants that are unable to withstand unfavorable conditions.

Is it worth while grading seed grain? Will it pay to remove all but the heaviest perfect grains? To answer this, let us look first at the anatomy of a seed. Roughly speaking, we find two parts—a miniature plant and a supply of food. After germination the early growth of the young plant is dependent on the food supply in the seed. A small supply of food is earlier exhausted than a large supply. If soil conditions are unfavorable, the food supply may not be sufficient to maintain healthy growth until the plant can feed itself from the soil. The more unfavorable the soil and seasonal conditions, the greater the difference we would expect in favor of large, plump seed.

Let us now look at actual trials, which, after all, are more to the point.

Experiments With Oats

Ohio Experiment Station—average of 7 years:

Heavy seed	46 bus. per acre
Medium seed	45 bus. per acre
Light seed	43 bus. per acre

Kansas Experiment Station—average of 8 years:

Heavy seed	31 bus. per acre
Medium seed	30 bus. per acre
Light seed	28 bus. per acre

Minnesota Experiment Station:

Heavy seed	64 bus. per acre
Light seed	65 bus. per acre

Guelph—average 7 years:

Heavy	62 bus. per acre
Medium	54 bus. per acre
Light	46 bus. per acre

At Macdonald College we have not had much difference between large and medium seed, but both have given a decided difference over small weight seed.

Experiments With Wheat

The Indiana Station reports a difference of 2½ bus. greater yield from large than from small seed.

At Guelph, with spring wheat, five bushels more were harvested from large than from small, and with winter wheat nine bushels more.

Similar experiments at Nebraska, North Dakota, and Macdonald show that heavy seed is much better than light.

These figures bear out what we might expect from an examination of the seed itself. They demonstrate the value of well cleaned seed over poorly cleaned seed, they vindicate the use of the fanning mill.

But there is a second reason for cleaning grain, if anything more important than the one mentioned, that is the removal of weed seeds. It is well recognized that we clean grain for this purpose, but I would like to quote a few figures to show how poorly we live up to what we know. For the figures I am indebted to Bulletin No. 89, issued by the seed Branch of the Dominion Department of Agriculture.

In the spring of 1913 the Seed Inspectors collected upwards of 4,000 samples of grain that were actually being sown in different parts of Canada to ascertain just what kind of seed was being used. The first step toward improving seed is to know the quality of that in use.

Oats, 978 samples: Of these 431, or 44 per cent., were free from noxious weed seeds. 118, or 12 per cent., were free from weed seeds; 44, or 43 per cent., were free from seeds of cultivated plants or pure oats. The sample having most noxious weed seeds had no less than 4,838 per pound—it had been cleaned with a fanning mill and still contained enough to sow 2,000 weed seeds per sq. rod. This sample came from Leeds Co., Ontario.

The sample with most weed seeds, having no less than 7,136 per pound, or enough to sow 3,000 per square rod, came from Quebec. Average of all samples would sow the square rod 44 noxious weed seeds and 138 others.

Barley, 408 samples: 174 samples, or 43 per cent., free from noxious weed seeds; 56 samples, or 14 per cent., free from weed seeds; 13 samples, or 3 per cent., free from seeds of other cultivated plants. Worst sample contained 2,539 noxious weed seeds per pound, or sufficient to put 3,000 on each square rod. Average of all samples, 32 noxious and 270 other weed seeds per square rod.

Spring Wheat, 506 samples: Worse than either oats or barley. Worst sample contained 11,528

The Great Corn Palace at the Sioux City Corn Show in 1891

Ontario is developing a "corn belt" in her south-western counties and recently at Chatham was held the Ontario Corn Show, an institution yet in its infancy. To visitors at that show the illustration herewith will prove interesting. It shows the Corn Palace at the great Corn Show held in Sioux City, Iowa, away back in 1891. The great building in which the show was held was completely covered with corn. Farm and Dairy is indebted for the photograph to Mr. James Gow, of Hamilton, Ont.

*An address at the Provincial Winter Fair, Guelph, December, 1915.