Cadet-A New Beardless Wheat

By
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The North Dakota Agricultural Experiment Station announces the release of a new variety of wheat named Cadet, intended primarily for distribution at this time in the northern and northwestern counties of the State. Cadet (N.N. 1597) is a beardless selection, bred under the supervision of Mr. J. A. Clark of the Division of Cereal Crops and Diseases, U. S. Department of Agriculture. It resulted as a selection from a cross between Merit and Thatcher. Cadet is being released cooperatively by the North Dakota Agricultural Experiment Station and the U. S. Department of Agriculture.

Cadet compares favorably with all other varieties of hard red spring wheat in resistance to stem and leaf rust. It is less resistant to bunt (stinking smut) than Mida, Rival, Pilot, Regent and Renown, but is about the same as Thatcher and Newthatch. This beardless variety grows taller than such other beardless varieties as Thatcher, Regent or Renown but not as tall as Rival or Mida; does not shatter readily, has strong straw and requires a few days longer to ripen, comparing well with Pilot and Marquis in this respect. Because of its lateness Cadet is expected to find its greatest usefulness in the more northern and northwestern sections of the State, where ripening temperatures usually are not so high, and thus later varieties can more often realize their fullest yield. In other sections some of the earlier ripening varieties have yielded as well or better. Many growers prefer a beardless variety so Cadet may find a use also in other sections.

In test weight per bushel Cadet is not high but somewhat similar to Thatcher and Regent. In milling and baking tests Cadet has compared favorably with Thatcher and other wheats of good quality.

Farmers desiring to obtain seed for increasing and observation under their conditions can do so by applying to the Department of Agronomy, Agricultural Experiment Station, State College Station, Fargo, stating the amount desired and, when possible, the source from which they prefer to obtain the seed. The seed now on hand was increased in 1945 by farmers in the northern and northwestern counties cooperating with the North Dakota Experiment Station, and who agreed to share their increase with such other farmers desiring seed as the Experiment Station would direct. Thus the seed now available will come mainly from those farm sources.

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Because the supply is still somewhat small, the amount which can be allotted to any one applicant for this year's sowing will be limited to not exceeding 40 bushels. Distribution in 1946 will be under contract, the grower giving the Experiment Station an option on a portion of his increase, for the purpose of aiding other growers to obtain seed in 1947 should they so desire.

Inheritance in a Bread Mold

New words come into common use from the activities of scientists and some are of such importance they should become familiar to the general reader. Most of us have learned new words and gathered new ideas since the atomic bombs exploded. I wish to call attention to two words, chromosomes and genes, about which many readers of the Bimonthly have read. Recent studies have given added interest to these terms. All organisms are composed of minute bodies known as cells but those cells concerned in reproduction are of particular interest to the student of inheritance. Each cell, and particularly each reproductive cell, contains a nucleus which in turn carries a limited and definite number of slender chromosomes. And each chromosome carries a large number of very small bodies called genes. Each gene, small as it is, is more or less responsible for the characters of the mature plant or animal. If a gene is lacking or fails to work, the effect may be striking. A human being or a mouse or a rat possessing hair without color and with red or pink eyes, an albino, has this peculiarity resulting from the lack of a single gene.

One may ask how bodies, too small to be seen under the microscope, have been found to exist. Recent work furnishes further evidence that genes really exist. A number of men in California at Stanford University have taken a bread mold, *Neurospora,* grown it under culture and treated it with x rays. This mold has the happy faculty of needing but one vitamin, the one known as biotin, belonging to the B group. Provided with biotin, certain minerals and carbon and nitrogen, it makes its normal growth and in this process it has the remarkable capacity to form for itself proteins containing 20 or more amino acids, at least nine vitamins of the B group, and countless other substances necessary for its normal growth. We humans have to take some of vitamins already made and our proteins are made from amino acids many of which necessarily come from outside sources. But when the spores of this mold are treated with X-rays, a few of the offspring are found which lack their mothers' ability to manufacture one or more of the vitamins or amino acids needed and as a result of this the mold fails to grow unless artificially fed. In over 80,000 individual cultures which have been made, each starting from a single microscopic spore, many mutations (or changes transmissible to succeeding generations)

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