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1947

OAT SEED TREATMENT
TESTS

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Brookings, South Dakota

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1947 OAT SEED TREATMENT EXPERIMENTS

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Seed treatment of oats and other small grain seed has become of widespread interest and practice amongst South Dakota farmers.

In recent years and during the war a number of new experimental seed treatment materials have been produced and some have been placed on the market. The purpose of these experiments was to test the present recommended treatments with the newer materials to determine which of these were most beneficial when applied to oats for the control of certain seed and soil-borne diseases which attack oats.

During 1947, 11 of the more promising treatments were placed under test. The experiments were grown at 5 locations*, Brookings, Canton, Huron, Vermillion, and Watertown, and Vikota seed was used with all treatments. Unfortunately, the plots at Watertown were damaged by rain and wind while at Vermillion conditions at planting time caused an uneven stand and therefore the results were not reliable and could not be used.

The results presented in the table are the average yields from 3 locations, Brookings, Canton, and Huron. Four replications of each treatment were used at each location. Figures in the table represent the average yield at each of the locations or a total of 12 replications. Each replication consisted of 4 rows one rod long, and each treatment was replicated 4 times at each location. The two center rows from each plot were harvested for yield records.

*Thanks are due to the splendid cooperation of the following growers on whose farms these experiments were planted; Mr. Bert Osvog, Canton, Mr. Otto Kraphy Cavour, Mr. H. Chaussee, Vermillion, and Mr. A. Steinmetz of the Watertown Potato Company, and also the local County Agents.

EFFECT OF DIFFERENT SEED TREATMENTS ON THE CONTROL OF SEEDLING DISEASES ON YIELD OF VIKOTA OATS PLANTED AT THREE LOCATIONS, CANTON, HURON, AND BROOKINGS, 1947.

| Treatment | Ounces per bushel | Average yield Bu./A. | Average increase or decrease. Bu./A. |
|-----------------------|-------------------|----------------------|--------------------------------------|
| <u>NO TREATMENT</u> | 0 | <u>59.5</u> | 0 |
| NEW IMPROVED CERESAN | $\frac{1}{2}$ | 69.6 | + 10.1 |
| CERESAN, 2% | 1 | 67.1 | + 7.7 |
| ARASAN | 1 | 62.9 | + 3.5 |
| PARSONS SEED SAVER | $\frac{1}{2}$ | 62.8 | + 3.3 |
| CERESAN "M" | $\frac{1}{2}$ | 61.9 | + 2.5 |
| DOW 9B | 2 | 61.0 | + 1.5 |
| PHYGON | 1 | 60.9 | + 1.4 |
| BARBACK | 2 | 60.7 | + 1.3 |
| YELLOW CUPROCID | $1\frac{1}{2}$ | 59.7 | + 0.2 |
| SPERGON | 2 | 59.3 | - 0.1 |
| COPPER CARBONATE | 2 | 57.8 | - 1.7 |
| CLINTON (untreated) | 0 | 71.6 | 0 |
| CLINTON (N.I.Ceresan) | $\frac{1}{2}$ | 75.6 | + 4.0 |

In accordance with the data in the table, the most effective seed treatment for oats under these experimental conditions is New Improved Ceresan (5 percent strength). The only other treatment which ranked close to New Improved Ceresan was 2 percent Ceresan.

The data also show that of the numerous seed treatments on the market only a few are superior when applied to seed oats. However, of the materials listed in the table it is apparent that most of them are not satisfactory seed treatments for oats. Although they do not control the

oat disease organisms that live in South Dakota soils and which attack the seed and young seedling, certain of these treatments have proven to be very effective in controlling diseases of certain other crops. The only way to evaluate their beneficial effects as seed treatments to a particular crop variety is to place them in an experiment such as was done in 1947.

Clinton, one of the newer varieties, was treated with New Improved Ceresan at the rate of $\frac{1}{2}$ ounce per bushel. This variety is resistant to the new Helminthosporium root-rot disease of oats, but not to certain other root-rots. Seed treatment increased the yield 4 bushels per acre. In other words, it also pays to treat the resistant varieties. The reason why this is recommended is due to the fact that these disease-resistant varieties are only resistant to a few and not to all root-rot diseases.

Although the results comprise only one year's data, the fact that the experiment was repeated in 3 different areas of the state makes the results comparable to data compiled over a 3-year period.

Further information on seed treatment may be obtained through your County Agent or the Plant Pathology Department, State College, Brookings.

SEED TREATMENTS AND DOSAGES RECOMMENDED FOR OTHER CROP SEEDS

| Crop | Treatment | Dosage (ounces) |
|--------------|--------------------------|--------------------|
| Barley | New Improved Ceresan | $\frac{1}{2}$ |
| Corn | New Improved Semesan Jr. | $1\frac{1}{2}$ |
| | Arasan | 1 |
| | Spergon | 2 |
| Flax | New Improved Ceresan | $1\frac{1}{2}$ |
| Sorghum | Coppercarb | 2 |
| | Spergon | 3 |
| | Arasan | 3 |
| Spring wheat | New Improved Ceresan | $\frac{1}{2}$ |
| Winter wheat | New Improved Ceresan | $\frac{1}{2}$ |