SEED TREATMENT EXPERIMENTS WITH HEMP
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THE war emergency hemp program called for a greatly expanded acreage of hemp for fiber, centered largely in Wisconsin, Illinois, Iowa, Minnesota, Indiana, and Kentucky. Acreage goals for 1943 were based upon the seed crop produced in Kentucky in 1942. During the late fall of 1942, severe storms caused much damage to the seed crop, a large percentage of which was standing in the shock, harvested but not threshed. This situation resulted in a much smaller supply of seed for 1943 planting than had been anticipated, and some of this seed was low in germinating ability due to damage by water and microorganisms. Acreage quotas consequently were scaled down, and seed treatment with fungicidal dusts was suggested as a means of insuring better stands in the field. Seeding rates of 50 to 60 pounds per acre had been recommended, and the possibility of reducing these rates was considered, so as to make the available seed supply go just as far as possible toward planting the desired acreage. There was no information available as to the effectiveness of seed treatment in increasing either the stand or yield of hemp, consequently a series of greenhouse and field experiments were initiated in 1943.

GREENHOUSE EXPERIMENTS

For the greenhouse experiments, Webster silt loam field soil was used, a soil type common to a large portion of the Iowa commercial hemp area. Seed was supplied by Dr. B. B. Robinson, Bureau of Plant Industry, Soils and Agricultural Engineering, U. S. Dept. of Agriculture, and represented commercial seed of high, medium, and low germinating ability, all grown in Kentucky in 1942. Another seed lot, obtained in 1942 from the 1941 Kentucky seed crop, also was used in some of the experiments.

Two preliminary experiments with one lot of seed, which showed a laboratory germination of 90 to 95%, were conducted to determine the effect of temperature and moisture as influencing the stand of plants in the greenhouse. In the first experiment at approximately 75°F seed treatment increased stand 37% in wet soil and 21% in dry soil. In the second experiment, as shown in Table 1, the greatest percentage increase in stand was obtained when the soil moisture was high and the temperature was held at 48°F for 12 days previous to allowing the seedlings to develop at the normal greenhouse temperature of 75°F. Significant increases in stand were obtained from seed treatment with a mixture of Spergon and New Improved Ceresan under all conditions supplied in this experiment. The mean percentage increase was 50.8 in wet soil and 37.7 in dry soil.

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