NOTES

GERMINATION OF CARPET GRASS SEED

In August, 1935, the late H. N. Vinall of the Division of Forage Crops and Diseases, Bureau of Plant Industry, requested that the Division of Seed Investigations, Bureau of Plant Industry, determine the germination requirements of seed of carpet grass (Axonopus affinis Chase). He also desired to know whether freshly harvested seed went through a dormant period, and the rate of loss of life of the seed under laboratory storage. Two samples of seed were furnished by Mr. Vinall for this study. One was from the 1934 crop (FC No. 13750, DSI No. 271304) and the other from the 1935 crop (FC No. 13749, DSI No. 271303). The heavy florets containing caryopses were separated with a laboratory blower, and the seed thus cleaned was used for germination studies. The 1934 crop sample contained approximately 73% heavy florets, and the 1935 crop sample approximately 40%.

Various temperature alternations were used. In presenting the results, the first temperature of a pair, e.g., 20° to 35° C, was maintained for approximately 17 hours daily and the second one for approximately 7 hours daily. In the condition "Room-35° C", the tests were placed in a north window of a room at approximately 20° from 4 p.m. until 9 a.m. and were kept in a chamber maintained at 35° for the remainder of the 24 hours.

For germination, the seeds were placed on paper towel discs in Petri dishes. The paper was moistened with tap water or with 0.2% potassium nitrate solution, as indicated. The results are averages of duplicate tests of 100 seeds each; half per cents were raised to the next higher per cent.

Germination tests made in September and October, 1935, under various conditions indicated 20° to 35°, and Room-35°, to be the most favorable conditions. However, when potassium nitrate was used to moisten the substratum, the final germination was equally good at 20° to 30° (with light at 30°), but the rate of germination was much slower. When water was used to moisten the substratum, the final germination at 20° to 30° was about 10% lower. The alternations 25° to 35° and 35° to 20° gave somewhat lower results. There was very little germination at 35° to 15°. Seed of the 1935 crop placed on a moist substratum at 35° for 7 days was made dormant so that, when transferred to 15° to 25°, the germination was much less than when tests were placed immediately at 15° to 25°. Chilling the moist seed for 7 days at 3°, 10°, or 15° before germination at 20° to 35° and 20° to 30° did not improve germination.

Tests were made of each sample at 20° to 35° and Room-35° with water and with potassium nitrate each month (with two exceptions) from September 1935 through December 1936. An additional test was made in October 1938. The averages of all tests for each of the above four conditions are shown in Table 1. There would seem to be no reason for suspecting superiority of any of the four methods. Experience with other samples indicates that occasional samples require exposure to light and the use of potassium nitrate for prompt and complete germination of the viable seed.