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THE EFFECT OF THE FREEZING TEMPERATURES IN DECEMBER 1941 AND JANUARY 1942 IN STORY, BOONE, AND POLK COUNTIES ON THE VIABILITY OF SOYBEANS OF THE 1941 HARVEST

JOHN N. MARTIN

Owing to the urgency of increasing the soybean production in 1942, the condition of the soybeans held in storage for the 1942 seeding is a very important matter. The very unseasonable weather, both as to temperature and moisture, previous to and immediately after the harvesting of most of the soybeans, was a cause of no little concern about their viability.

Because of the excess in fall rains the beans were high in moisture, ranging in the main from 16 to 20 percent but reaching as high as 28 percent. With this high moisture content they were exposed to zero temperature on December 14. Following this date and previous to the holidays many of the beans were harvested. They had very little opportunity to lose much moisture before going into the bins where, during the latter part of December and in January they were exposed to an outside temperature reaching 20° F or more below zero.

Soybean samples were obtained from the bins of 12 different farmers who had harvested their beans with a high moisture content after the first freeze of December. The samples were obtained after the hard freeze in January and thus after the most severe cold of the winter. One sample was taken from the surface and the other from the interior of the pile.

The samples from 9 of the farmers germinated 80 to 92 percent when only good seedlings were counted as germinations. All 9 samples were yellow beans. One sample of yellow beans having a moisture content of 28 percent at harvest gave an average germination of 70 percent and two samples of black beans gave 50 to 60 percent germination.

Samples were taken also from plants still in the field after the January cold and viability tested. The germination of 12 samples representing as many different fields, ranged from 6 to 14 percent.

From the above data one can conclude that most of the yellow soybeans in the farmers' bins in central Iowa, at least, endured

the unseasonable fall and January extreme cold with no considerable impairment of viability, whereas those beans remaining in the field were damaged beyond any use for seed.

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