NOTES

continued to grow slowly after the land was submerged. When the land was drained for harvest on September 18, these mung bean plants were comparatively short, ranging in height from 16 to 24 inches. The main stalks were delicate and averaged only about 1/16 inch in diameter. The leaves also were small, varying in width at the widest point from 1/3 to 3/4 inches.

Numerous fine roots, most of which were adventitious, were present on the stems having arisen from the nodes submerged in the water. These fine roots, very few of which penetrated the soil but remained partially embedded on its surface, were observed to be well supplied with nodules.

It is of interest to know: (1) That mung bean plants grew slowly for over three months on land continuously submerged with water to a depth of about 6 inches; and (2) that numerous nodules developed on the fine adventitious roots arising from the submerged stem nodes. This indicates that the nodule organism (Bacillus radicicola) of the mung bean probably is less sensitive to an excess of water than are the mung bean plants themselves, for many of the latter died and those that remained alive made but poor growth in the water. The fact that numerous nodules developed on the mung bean roots in the water indicates that nitrates were not present in the water in sufficient quantities to inhibit nodule formation. The nitrogen of the atmosphere was not available to the submerged bacteria and it is, therefore, likely that the relationship of the nodule organism to the mung bean plants under water was not symbiotic, being probably entirely parasitic under such conditions.—JENKIN W. JONES, Associate Agronomist, office of Cereal Investigations, Bureau of Plant Industry, U. S. Department of Agriculture, and Superintendent of Biggs Rice Field Station, Biggs, Calif.

THE MILLING AND BAKING QUALITIES OF WHEAT 25 YEARS OLD

A small sample of wheat known to be 25 years old was received by the Kansas State Agricultural College on August 7, 1925, from G. W. Schmidt of Junction City, Kansas. Mr. Schmidt had placed the wheat in a tin pail with a tight fitting cover and hung it in a granary. He recalled that the pail had been hung there when his boys were small and now they are men over 30 years old. Fortunately, there had been no damage from weevil. A germination test was made in the seed laboratory, but not a single kernel gave evidence of life. The wheat was dark red and the kernels plump. While there was no evidence of weevil, there was a considerable amount of bran powder. This had probably been produced by the contraction and expansion of the kernels due to changes in moisture content and temperature.