LENGTH OF DORMANCY IN CEREAL CROPS AND ITS RELATIONSHIP TO AFTER-HARVEST SPROUTING

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In the central part of China, especially the Yangtze Valley region, where the prolonged, damp weather during June and July is especially conducive to the sprouting of grain either in stacks or during storage, yearly losses are great. The common farm practice in that part of China is to grow winter wheat or winter barley and rice the same year on the same land, the rice being transplanted after the wheat or barley is harvested. The harvested grain crops must be placed in stacks for 2 to 4 weeks before threshing. Since the economic conditions of farmers do not permit proper storage, the selection of a variety resistant to sprouting during June and July seems to offer a practical solution that may make possible the prevention of such losses. This study was outlined to obtain information on the variability among grain varieties in their resistance to after-harvest sprouting and the relationship of the latter to dormancy.

LITERATURE REVIEW

In his first paper on the study of the resistance of wheat varieties to sprouting in the stook and windrow, Harrington (2) reported the following results: In the 1927 experiments the order of resistance to sprouting, from high to low, was Marquis 70, Kitchener, Red Fife, Red Bobs, Reward, Renfrew, Pelissier (durum), Mindum (durum), Early Red Fife, Kubanka (durum), Quality, Ruby, and Garnet. In 1931 the order was Marquis, Reward, Ceres, and Garnet.

Recently, Harrington and Knowles (4) reported the average extent of sprouting of several varieties from seven tests as follows: Apex 1789, 3.9%; Thatcher, 6.5%; Renown, 8.4%; Marquis, 11.0%; Reward, 34.0%; Reliance, 47.8%; Ceres, 57.9%; and Garnet, 78.8%. Some hybrid lines gave lower percentages of sprouting than the better parent.

Harrington and Knowles (3) also made a comparative study on dormancy of a number of varieties of both wheat and barley. The durum varieties possessed no 30-day dormancy at maturity but had a high degree of 2-day dormancy 84 days after maturity. Several vulgare varieties showed a large degree of 30-day dormancy at maturity but only a part held their 2-day dormancy for 52 days. In the test with barley varieties Trebi had the longest dormancy.

Deming and Robertson (1) studied the dormancy of 7 varieties of wheat, 13 of barley, and 3 of oats. The wheat varieties ranged from Marquis, with considerable

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3Figures in parenthesis refer to “Literature Cited”, p. 490.