Plant breeders and agronomists have long felt the need of a high-yielding barley without the objectionable saw-toothed beard. In 1915, at Wisconsin, several crosses were made between the Wisconsin Pedigree Oderbrucker and the hooded, the partly bearded, and the two-row barleys, in the hope that the objectionable beard could be eliminated or rendered less obnoxious by selection from the hybrid. In 1916, a new introduction of a black smooth barley was included in the crosses with the Pedigree Oderbrucker. The only selections of any economic importance have come from hybrids with the black smooth as a parent.

The purpose of this paper is to set forth briefly the methods used in producing the economically valuable strains of this barley, and to present data and observations that might be of interest to plant breeders and agronomists.

**METHODS**

The yield data from the Experiment Station at Madison are reported on 1/20-acre plats. These plats are planted approximately 1 by 8 rods, with a 3-foot alley between and a 16-foot alley at the ends to facilitate cutting with the grain binder. The alleys are sown to winter wheat in the spring to reduce the border effect. The plats are not replicated, but checks of a standard variety are planted alternately with them, giving each plat to be tested a check on each side of it. In the computation of yield all the checks are averaged. The two check plats and the variety to be tested are considered as a unit of area. The yield of the two checks is averaged and the percentage of this to the average yield of all the checks determined. As this percentage is computed from 2/3's of the unit area, it follows that the test plat bears this same relation to the whole field. In other words, the ratio between the plat to be tested to the whole field is the same as the checks on either side of it to the average of all the checks. This percentage, therefore, is used in determining the corrected yield of the plat to be tested.

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