A METHOD OF DETECTING MIXTURES IN KANRED WHEAT SEED

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Widespread popularity and a large demand for seed of any particular variety of wheat often lead to mixtures, intentional and otherwise, which may injure the reputation of that variety. A common method of preventing the widespread sale of such mixtures has been the field inspection and certification of seed by crop-improvement associations and other agencies. The effectiveness of these methods often is impaired, however, by varietal similarities so great as to render it extremely difficult for even trained inspectors to detect mixtures in the field. Consequently, an accurate method by which mixtures in the threshed grain can be detected is very desirable.

Kanred wheat, a variety widely grown in the hard-red-winter-wheat belt, and very similar in morphological characters to other varieties of the same area, is a case in point. For a number of years, the Kansas Crop Improvement Association has inspected and certified fields of Kanred wheat. Under normal conditions this variety can be distinguished from other varieties of hard red winter wheat with a fair degree of accuracy by the greater length of the beaks on its outer glumes. When affected by drought or other abnormal growth conditions, however, this difference may not be marked, and it becomes very difficult if not impossible to distinguish Kanred from other related varieties by this method. To overcome this difficulty, effective use has been made of the differential reaction of Kanred and the other varieties of hard red winter wheat to certain specialized races or strains of stem rust, *Puccinia graminis tritici* Erikss. and Henn.

It has been known for some time that Kanred is immune from certain strains of stem rust to which other varieties of hard winter wheat grown in Kansas are susceptible (1, 2). A strain of stem rust from which Kanred was known to be immune was used in the separation studies herein described. This culture was increased in a

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3Reference by number is to "Literature Cited," p. 470.