THE EFFECT OF HARVESTING METHOD ON GERMINATION OF THE SEED OF RUSSIAN WILD RYE, *ELYMUS JUNCEUS*, FISCH.¹

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CURRENT interest in the utilization of Russian wild rye, *Elymus junceus* Fisch., for pasture and erosion control in the central and northern Great Plains has created a demand for a supply of high-quality seed. Among the factors which have retarded the production of an adequate supply are the difficulties encountered in harvesting and curing the seed without excessive loss by shattering or loss of viability.

As Russian wild rye matures, the glumes change in color from green to light brown while the caryopses are still in the stiff dough stage. At this stage the seed shatters readily and must be harvested immediately if the risk of excessive shattering is to be avoided. The relatively high moisture content and softness of the seed, irregular maturity, and the short time which the seed may stand without shattering cause special difficulties in the harvest of this kind of seed, either by binding and field curing or by combine harvesting. The results of these two methods as affecting the viability of the seed are here compared.

In June, 1943, approximately one half of a 7-acre field of Russian wild rye in the Soil Conservation Service nursery at North Platte, Nebr., was harvested with a binder when approximately 50% of the heads had lost their green color. Two days later, the seed was shattering too much for binding so the remainder of the field was harvested with a combine. The combine-harvested seed was spread on a wooden floor and stirred twice a day until air-dry. The bound seed was shocked and cured in the field and then threshed with the same combine.

Another field, at Lincoln, Nebr., was left standing for 3 days after most of the heads had lost their green color. Very little shattering occurred during the 3-day period from maturity to harvest due to the almost complete absence of wind movement. The seed was harvested with a combine and dried on a wooden floor with the aid of an electric fan. In both trials, the combine cylinder was set to run at a very high speed (approximately 1,800 r.p.m.) in order to thresh most of the immature as well as the mature heads. Many of the seeds in the combined lots appeared slightly bruised or mashed. The three lots of seed were processed by milling with a hammermill and fanning,³ and aliquot samples tested for purity and germination.

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