The Dilution Method for Plot or Field Seeding of Grasses and Legumes Alone or in Mixtures

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Many new grasses have been introduced or have been domesticated from the native vegetation for use in conservation seedings on agricultural or range lands. Many new mixtures have been developed for this use. Extensive testing in plots has been required. Some seeds are difficult to drill because they are small or because they are light and fluffy. Mixtures containing two or more grasses and one or more legumes frequently tend to separate in the drill box. Uniform distribution of pure seedings and of mixtures is desired especially in test plots. The seeding of mixtures in alternate rows with divided drill boxes is becoming more common, especially in trial plantings. In this case, control of the seeding for each species in the mixture is difficult by ordinary methods. Plot work would be facilitated if the seedings could be made without repeatedly calibrating the drill. A dilution method was developed whereby difficulties are obviated, uniform results are obtained, and application can be made to a large number of species when basic seed data are at hand.

The dilution method was based on the principles that a relatively large amount of inert material would be distributed with which the seeds were mixed and that force-feed drills deliver on a volumetric basis. Drill charges for each of the different seedings would then have the same total volume of material to deliver regardless of the species or mixture that was being seeded. Only one drill setting would be necessary even for a large number of different plantings. The drill charges were made by substituting seed for inert material on an equivalent volume basis.

The idea of using a diluent is not new. Sand, sawdust, and other materials have been used. Cracked and screened barley was used as the inert material for the dilutent in these trials. Several cracked cereals were tried. The cracked barley gave a product containing more angular particles and particles of different sizes. Both of these features are desirable in a dilutent that is to be used for seeds of different size and mixtures containing seed of different density. The barley was milled at 2,500 r.p.m. in a 26-inch swinging-hammer mill fitted with a 3/16-inch screen. The milled material was screened with a seed cleaner having three screens arranged as follows: 12/64, 9/64, and 6/30 wire, top to bottom, respectively. A fan speed of 175 r.p.m. gave a medium wind blast. No barley grew in any of the field plantings.

Several trials were made to determine the most desirable volume of material to deliver from the drill. A fluted-feed type of drill was used, although double-run drills should give the same results because they operate on the same principle. All seedings were made in 12-inch rows

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