

IMPROVED METHOD FOR PLANTING SMALL SEED

By Fred Lavin and
F. B. Gomm

Small seeds, such as the lovegrass and dropseed, which often are sown at the rate of but a fraction of a pound per acre, are just too fine for accurate planting by use of a conventional farm drill. To overcome that difficulty, it is usual to dilute the seed with some inert material which will add bulk, so the fine grass seed doesn't flow through the drill too freely.

Past tests have shown rice hulls and cracked barley to be two of the best diluents for stable seed mixtures. Other studies and our experience, however, indicate that small seed separates from rice hull mixtures even with minimum shaking. This separation results in erratic ratios of seeds to hulls and uneven, unsatisfactory seed distribution.

Preliminary Lab Tests

In the laboratory we compared the effectiveness of rice hulls and ground barley for holding Boer lovegrass seed in diluent mixtures. We also tested the effectiveness of various adhesives for sticking the seed to the rice hulls for increased stability.

Sticker solutions tested with rice hulls were methyl cellulose (MC) dissolved in water, condensed milk, liquid laundry starch, and gelatine dissolved in water. These materials were also tried diluted with water to various concentrations.

Sticker Needed

Rice hull-seed mixtures were judged to be unsatisfactory because the seed completely separated from the hulls after five minutes of agitation. The two most effective stickers were judged to be MC in the proportion of 1½ oz. MC powder to one gallon water and full strength condensed milk.

MC dissolved in cold water makes

The authors are Range Scientists, Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture. Located at Flagstaff, they are part of the staff of the Rocky Mountain Forest & Range Experiment Station. Much of their work involves cooperation with this College of Agriculture.



SAND DROPSEED and rice hulls being dry mixed before application of methyl cellulose sticker solution. Mixing is done with scoop shovel on canvas tarp. Pressure sprayer for applying sticker is at left.

a good, relatively inexpensive sticker. The solution can be kept for several weeks if stored in a cool place to prevent mold. MC does not delay or reduce germination. It has had previous application in agriculture as a suspensory and adhesive agent for applying fungicides, nematocides, and insecticides to seed.

Although condensed milk is an excellent sticker it is more expensive than MC. Also, seed mixtures containing condensed milk tend to turn rancid and mold rapidly if not planted soon after treatment. Starch and gelatine had no particular advantage over MC and were not as effective for sticking the seed to the hulls.

Satisfactory Grind Barley

Four textures of ground barley, very coarse, coarse, medium, and fine, were tested in the barley mixtures. These textures were obtained by grinding clean barley in an electric coffee grinder at the four marked settings. The medium grind barley was best and appeared to be satisfactory as a small seed diluent without a sticker. The recommended rate of 95-lb. barley-seed mixture per acre makes the use of barley diluent more expensive than rice hulls, and also more difficult to handle because of the greater weight. Grinding barley to the proper texture involves use of facilities that might not be available. Also, the fine particles in the barley diluent tend to clog the drill when damp.

Simple Field Method

A simple, practical method for field use was developed and tested. Sixteen pounds rice hulls and seven quarts of MC solution are the optimum amounts per acre.

The rice hulls are first spread out on a smooth surface in a layer about three inches deep. A predetermined amount of seed is then scattered over the rice hulls in small increments, and mixed in thoroughly after each addition. The MC sticker solution is applied with a hand pressure sprayer after all the seed has been combined with the dry rice hulls. Mixing is continued throughout sticker application and until all the ingredients appear uniformly combined and the rice hulls do not stick together. The mixture is then spread out in a thin layer to dry under direct sunlight and stirred several times during the drying period.

Procedure modifications such as using a rotating drum for mixing, and artificial heat for drying, could be used.

Mixtures can be prepared in advance for planting at a later date since neither the MC nor the rice hulls deteriorate.

Methyl Cellulose Best

In conclusion, MC at the concentration of 1½ oz. MC to one gallon water was the best of the stickers tested. Use of rice hulls together with MC sticker appeared advantageous over use of ground barley.

The modified rice hull dilution method using MC sticker retains all the advantages of the original rice hull method. In addition, it stabilizes mixtures with small seed so that satisfactory seed distribution can be obtained. MC sticker (made up of 1½ ounces of MC per gallon of water) also makes possible addition of fertilizers, insecticides, fungicides and other ingredients to the mixture, should this be desirable.

NOW, AFTER dropseed and rice hulls are mixed, the sticker spray is applied. Mixing will continue, to get the sticker thoroughly in contact with the grass seed-rice hull mixture.

