"DRY INOCULANTS" FOR ALFALFA

WM. A. ALBRECHT

The more extensive production of bacterial cultures for inoculating purposes has recently brought forth dry cultures with claims that legumes can be inoculated without the use of any moisture. This dry inoculation has been extolled for (a) its simplicity, since it is a fine powder which needs only to be mixed with, or sifted on, the dry seed; and (b) for its positivity, with the claims that the inoculation procedure may be carried out at any time irrespective of the seeding date. Since bacteria retain their inoculating ability for a long time in dry soil, one may readily infer that these dry materials might serve for inoculating purposes. The questions arise, however, whether such dry mixing distributes the culture into the soil effectively, and whether the small amount of dry, bacteria-laden material so distributed with the seed really serves to produce significant nodulation.

A test was recently conducted on two different dry inoculants for alfalfa, submitted by a commercial seed house, questioning whether such an inoculant would serve, and whether the seed might be inoculated and sold as such by the extensive seed distributor. One of the cultures tested was an air-dry, chamois-gray, pulverized material, suggesting dry soil. The other culture was a black-gray material of peaty nature carrying carbonate. These carried the instructions for mixing with the seed as received, leaving both seed and inoculant in the dry condition. Such dry inoculated seed is supposedly ready to be seeded or may be stored for a long time with good results.

Alfalfa seed was inoculated with these commercial dry inoculants for comparison with seed inoculated by agar cultures in the first sample and by both agar cultures and soil-crushed-nodule suspension in case of the second sample. The following scheme was used: 1, no inoculation; 2, dry culture mixed with dry seed as directed; 3, dry culture sifted on the moistened seed and mixed; 4, dry culture made up with water, using "dirty" supernatant liquid only; 5, dry culture sifted on the moistened seed, mixed, and followed by a dusting of finely powered limestone; 6, commercial agar culture applied to the seed; 7, commercial agar culture applied to seed and supplemented by a dusting of finely powdered limestone; 8, soil-crushed-nodule suspension applied to seed; and 9, soil-crushed-nodule sus-