NOTE

MAGNESIUM AND CALCIUM CHLORATE AS SUBSTITUTES FOR SODIUM CHLORATE FOR KILLING FIELD BINDWEED

The Kansas Agricultural Experiment Station has been using sodium chlorate to kill field bindweed with considerable success, as reported in the Journal of Agricultural Research for October 15, 1927, and in Kan. Agr. Exp. Sta. Cir. No. 136, published in 1928. The first experiments with this chemical were begun in 1925.

It has been observed in experiments in progress at this station that magnesium chlorate and calcium chlorate may be used as substitutes for sodium chlorate in the control of field bindweed. Experiments conducted during the past year suggest that these chemicals are as effective as sodium chlorate and that they have certain advantages.

In the first place, they do not form a combustible mixture with organic material since magnesium chlorate normally carries six and calcium chlorate two molecules of water of crystallization, while sodium chlorate forms an anhydrous salt. Hence, with the former there is no fire hazard as with sodium chlorate. Another important advantage is that they are very hygroscopic and remain moist on the leaves a much longer time when applied in solution than does sodium chlorate. In a dry atmosphere the latter forms crystals in a short time and in that condition is less destructive to plant tissue.

While experimental evidence is meager, these facts suggest that magnesium and calcium chlorate will be effective within a wider range of weather conditions than sodium chlorate, and that they may be particularly adapted to semi-arid conditions where sodium chlorate, because of its tendency to crystallize from solution, is not entirely satisfactory.

Magnesium and calcium chlorate have been chemical curiosities and until recently have not been on the market even in sufficient quantities for experimental purposes. They are now available in commercial quantities. Magnesium chlorate is being manufactured on a commercial scale by the Dow Chemical Company, Midland, Michigan, and calcium chlorate may be obtained in dry or liquid form from the Chipman Chemical Engineering Company, Bound Brook, New Jersey, and is sold under the trade name of Atlas Non-poisonous Weed Killer.—W. L. Latshaw and J. W. Zahnley, Kansas Agricultural Experiment Station, Manhattan, Kansas.