at Ashland. There were also considerably more seeds of small size among the peas grown at Spooner.

It is recognized that factors other than drought may have influenced seed development, but all observations indicated that the drought condition at Spooner was responsible for the abnormal seed grown there. Although the reduction of seed size by adverse growing conditions has been observed previously among field peas, the striking effect of drought on Scotch pea seed markings reported here is the first known to the writer as having occurred in Wisconsin. The small markings or absence of markings noted here may well be explained on a physiological basis. Scotch pea seeds maturing normally have proper conditions for the seed coat and cotyledons to dry and shrink at a nearly equal rate so the seed coat finally lies close to the cotyledons forming the dark green "markings". On the other hand, pea seeds maturing under drought conditions do not dry normally, the cotyledons shrink away from the seed coat, and a complete or nearly complete air space develops between the seed coat and cotyledons. This results in the absence of dark green markings or reduction in size of those present. — D. J. HAGEDORN, Departments of Agronomy and Plant Pathology, University of Wisconsin, Madison, Wis.

A MULTIPLE-ROW NURSERY SEEDER

In the June, 1949 issue of the Agronomy Journal, Grafius described a four-row nursery seeder used for planting small grains at the South Dakota Experiment Station. Using the plans obtained from Grafius, a similar machine was built for use at the Michigan Experiment Station. However, the two machines differ enough in construction that a note on the differences is in order.