Dynamics of Aldicarb Soil Residues Associated with *Pratylenchus penetrans* Control in Dry Bean Production

A. P. ELLIOTT, Department of Plant Pathology and Physiology, Virginia Polytechnic Institute and State University, Blacksburg 24061; and G. W. BIRD, Department of Entomology, R. A. LEAVITT, Pesticide Research Center, and L. M. ROSE, Department of Entomology, Michigan State University, East Lansing 48824

### ABSTRACT


Aldicarb at 0.86, 1.72, 2.31, 2.88, and 4.62 kg a.i./ha was used to control *Pratylenchus penetrans* on navy bean (*Phaseolus vulgaris* L.) in Michigan. All treatments significantly reduced population densities of *P. penetrans*. Soil residues of aldicarb were directly related to the rate of application, and the residues decreased throughout the growing season. Eighty days after application, aldicarb soil residues were detectable only at application rates of 2.88 and 4.62 kg a.i./ha.

### RESULTS AND DISCUSSION

Soil and root population densities of *P. penetrans* were significantly reduced on Julian date 239 (*P* = 0.05) by all levels of aldicarb except 0.86 kg a.i./ha and by all rates on Julian date 282. Soil residues were detected only in soil treated with the two highest rates, 2.88 and 4.62 kg a.i./ha. Aldicarb residues in the soil were not detected until after the 11 June 1980 sampling date. Soil concentrations were highest on 30 June 1980, then decreased throughout the growing season. In general, soil residues of aldicarb increased with increasing initial rates of aldicarb applied at planting. Eighty days after application of aldicarb, residues were detected only in soil treated with the two highest rates, 2.88 and 4.62 kg a.i./ha.

At aldicarb rates registered for nematode control in dry bean production, 1.68 and 2.42 kg a.i./ha, soil residues of aldicarb sulfone were relatively low. The effect of initial aldicarb concentrations...
Fig. 1. Influence of five rates of aldicarb 15G (0.00, 0.86, 1.72, 2.31, 2.88, and 4.62 kg a.i./ha) on Pratylenchus penetrans population dynamics.

Fig. 2. Dynamics of aldicarb residues associated with different initial concentrations of aldicarb 15G.

Fig. 3. Relation between initial aldicarb concentrations and soil residues 30 days after treatment application.

LITERATURE CITED