The differential effect of certain arylcarbamic esters upon plants was demonstrated a few years ago by Templeman and Sexton (8). These workers found that of the compounds tested, O-isopropyl N-phenyl carbamate was the most active in inhibiting the germination of oats. The possible use of this compound as a herbicide for the control of weedy grasses was suggested by Allard et al. (1). Carlson (2) found that the growth of quackgrass rhizomes was inhibited by spraying them with O-isopropyl N-phenyl carbamate, but further work by Wolcott and Carlson (10) showed that under field conditions the rhizome growing points were little affected. Mitchell and Marth (6) reported that the sensitivity of grasses and some crop plants varied with the methods and rates of application. Ennis (4) observed that this carbamate caused little inhibition of certain cereals when applied only to the tops but markedly inhibited seedling plants when applied to the soil. In spite of the pronounced effects induced in some plants by O-isopropyl carbamate, the compound has found only limited use in the herbicide field.

A factor which might influence the effectiveness of a herbicide upon certain plants is its persistence or stability in the soil. The persistence of O-isopropyl carbamate when applied to the soil surface as a dust has been investigated by DeRose (3). In field experiments he found that the compound persisted in soil for periods of time varying from 48 to 90 days. Newman, DeRose, and DeRigo (7) found that the rate and formulation of O-isopropyl N-phenyl carbamate had no appreciable effect upon its persistence in soil under greenhouse conditions. The compound had disappeared within 3 weeks of application. Weaver (9) found that the toxicity of O-isopropyl N-phenyl carbamate at a concentration of 22 ppm to plants in a silt loam soil was greatly decreased after 12 days storage.

In a comparative study of some carbamates, it was noted that invariably the crabgrass seed...