SPRAYING of grain crops with various formulations of 2,4-dichlorophenoxyacetic acid (2,4-D) for the control of weeds has become a widespread practice. In such spray operations the aim is to use a quantity of 2,4-D which will kill most or all of the weed species but not seriously damage the grain crop. While the cereal grains are generally considered resistant to 2,4-D, the resistance is relative, and consequently under some conditions the cereal may be more or less affected. The rate of 2,4-D application and the formulation used are two factors which affect the kill of the weeds and the reaction of the cereal.

McNeal (6) found that the application of one-pound of 2,4-D acid equivalent per acre reduced the yield of Federation wheat as compared with hand-weeded checks, indicating some injury to wheat. Klingman (4) reported a significant decrease in yields of spring wheat and barley when using rates up to three pounds per acre. Tingey (9), using up to three pounds of the parentic acid per acre, found no reduction in yield of winter wheat as compared with untreated checks. When using three 2,4-D formulations at one pound per acre applied at four different stages of growth (tiller, boot, bloom, and soft dough), Helgeson, et al. (3) found that the amine and ester forms...