

rating was used for complete crop kill or no tolerance, while "10" indicated normal development or full tolerance of the chemical by the crop. Crop growth, as indicated by comparing the development of the plants in the treated plots with those in the checks, and also obvious simazine phytotoxicity symptoms were considered in determining the tolerance ratings.

3. Crop yields. Fresh or green weights were taken from 12 feet of row for several of the crops. Frequently these were whole plant weights instead of marketable yields since the crops were not always carried to maturity.

## RESULTS AND DISCUSSION

Since the plots of Treatments 10, 11, and 12 received additional simazine applications each season, the data for these spray treatments reflect the crop responses to freshly applied chemical as well as to incorporated residues in the soil from earlier applications. This is also true with Treatments 7, 8, and 9 during the spring trials. All crops except corn were adversely affected by these new pre-emergent simazine applications.

Although corn was not a simazine-sensitive indicator crop, it was planted at the start of the experiments and occasionally thereafter to test the effects of the high simazine rates which were generally lethal to the other crops. Rates of 8 or more pounds per acre mixed into the soil just before planting produced some corn injury on both soil types the first season. In addition to early stunting, the stalks were weakened and brace root development was restricted by the higher simazine levels on the peat soil. This resulted in severe lodging during a mid-season storm on plots which had received 16 and 32 pounds per acre. By maturity, however, the corn had recovered so that there was little evidence of either stalk weakness or stunting. Phytotoxicity to corn was apparent again six months later on both soils, but one year after the original applications, corn grown in all plots appeared normal.

Because of its high sensitivity to simazine, cabbage was selected as a representative vegetable crop and used repeatedly as an indicator during these studies. During the second crop season, six months after the initial treatments were made, some phytotoxic activity was evident in both soils. Tolerance ratings, summarized in Table 2, show that in the spring of 1958 cabbage was stunted on all mineral soil plots which had received 4 or