

approaches 200 percent, approximately 10 times that of the local mineral soils, making them more resistant to drought. These factors may well explain the more rapid rate of decrease of simazine activity observed in the organic soil in these experiments. Also, the high rainfall and temperatures which are normal for this area may help explain the early dissipation of simazine residues in contrast to that observed in cooler or drier climates. At Sanford, the mean annual rainfall over the period of this experiment was 52.9 inches, and the mean annual temperature was 72.2 degrees.

Simazine treatment appears to have no adverse effects on the high level of microbiological activity in Florida soils. This has been demonstrated by Eno (6) using soil from the 0, 1, and 16 pound sand soil plots described here. He studied samples taken while the chemical activity was still high, five months after the simazine was applied. Working with the soil flora, he observed that there was no reduction in the numbers of fungi and bacteria, or in the production of carbon dioxide and nitrate nitrogen, as a result of the treatments. Burnside, Schmidt, and Behrens (2) have reported similar results.

Treatments 7 through 12 in each of these experiments were designed to study the effects of repeat annual and semiannual applications which might be made for the production of commercial crops. A gradual increase in phytotoxicity from the treatments would indicate that simazine residues were accumulating in the soil. The total amount of chemical for each treatment applied during the course of the experiments is given in Table 1, and the calculated weed control and crop injury indices are listed in Tables 4 and 5. Residual activity, measurable in the plots of Treatments 7, 8, and 9 each fall, was observed only during the first year on the organic soil. These plots showed no evidence of residual simazine activity thereafter. By the spring of 1960, the highest level treatment on the sand had received a total of 24 pounds per acre of simazine. The comparable peat soil plots had been treated with a total of 42 pounds. When the regular fall sprays were omitted and oats were planted on all of the plots during the fall of 1960, it was impossible to detect toxicity from any of the treatments. Figure 7 shows the levels of simazine activity during each of the crop seasons for the 4 pound rate. Except for the response observed on the organic soil during the fall of 1957, in all cases simazine activity from the spring applications was reduced to innocuous levels within six months.