

the plots, the populations were too small and variable to permit rating.

Chemical rates were varied from season to season in an effort to learn which ones were most desirable from the standpoint of both weed control and crop tolerance. Since other crops in addition to soybeans were planted in some of these trials, these rates were not always adjusted in favor of this one crop. Some chemical treatments were judged to be unsatisfactory early and were excluded from the later tests. Treatment eliminations were based on the following factors:

1. Inadequate weed control;
2. Insufficient tolerance of crop to chemical;
3. Too little latitude between the threshold chemical level of good weed control and the highest rate tolerated by the crop without injury;
4. Wide variability in performance in different tests, revealing extreme sensitivity to environmental factors;
5. Poor chemical formulation, mechanically unsuited to commercial use;
6. Required herbicide rates too high for convenient or economical application;
7. Danger to succeeding crops from persistent residues; and
8. Lack of interest by herbicide manufacturers in product development and government registration. In several cases, satisfactory herbicide treatments have been found for certain crops, but where there are not adequate patent controls or where the potential sales volume for the herbicide is small, companies can not justify further development cost.

A brief discussion of each of the herbicides included in these screening trials, with an analysis of the responses observed, is given in the Appendix with the data for each chemical. Commonly known characteristics of chemicals beyond those displayed in these tests are occasionally given, since they are often important in determining the future disposition of a new weed killer. The herbicides are treated using the same common names or designations and alphabetical order as listed in Table 2.

Of the 25 chemicals screened in these trials, 21 were eliminated from further consideration, mainly because of poor weed control or poor crop tolerance. In some cases, adequate weed