RESULTS OF ROADSIDE TESTS WITH SOIL CONDITIONERS IN 1952

John Monteith, Jr., Chairman
Project Committee on Turf Culture

THE discussion of chemical soil conditioners at the Highway Research Board Annual Meeting in January, 1952, aroused a widespread interest in the possible uses of these chemicals for solving some of the problems met in roadside development work. Consequently, a large number of tests were made during 1952.

A questionnaire was sent to all state highway departments to secure information on the results obtained from applications of soil conditioners in tests along highways during 1952. The questionnaires were returned by all but eight states. The present report is based on 21 questionnaires returned from the nineteen states where tests were conducted, from the Department of Highways of the District of Columbia, and from the National Capital Parks.

Twelve of the questionnaires each reported on ten or more tests. One state reported on forty-two tests. This report, therefore, is based on an extensive program of tests well distributed throughout the sections of the United States where there is sufficient rainfall to merit such tests.

The most common materials tested were different formulations of Krilium (Monsanto Chemical Company). Of these, the big majority of the tests were with the formulations No. 9 and No. 991. Three of the questionnaires reported on tests with Aerotil (American Cyanamid Company).

The testing program was seriously handicapped by adverse weather conditions, especially the excessive rainfall early in 1952 and the extreme drought in many states late in the season. As a result, many of the tests could not be evaluated fairly. However, additional expense for chemicals or other materials used on roadsides is usually justified only if they can aid the work even where adverse weather conditions are encountered. All the tests are therefore included in the summary.

Twelve of the questionnaires report on tests that were started in the spring, five report on summer applications, and ten states conducted tests in the fall. Two questionnaires report tests that were made in all three seasons; in two states the tests were made in both spring and summer. Results from tests started in spring and summer could be evaluated better than those made in the fall, since the drought in most of the east last fall prevented full germination of seed in the test areas.

Tests were conducted on several different types of soil and on slopes of different ratios. The chemicals were applied on the surface only in some tests, while in others they were worked into the soil by different methods.

Of the twenty-one questionnaires reporting tests, eleven reported some indications of benefits from the use of soil conditioners for checking soil erosion. Some of these reports are qualified by comments that indicate these beneficial results were limited and inconclusive and were not as good as results from use of mulches.

Only three questionnaires report improved germination on subsoil and two of them report this same benefit on topsoil. Two states report that these chemicals showed some value for tying down straw mulch.

Two of the questionnaires report a double benefit from the use of a soil conditioner; erosion control and improved germination. It should be noted, however, that this observation was made in one questionnaire on the basis of a single test and in the other case, only two tests were reported.

In order to indicate the full value of the benefits noted from the various tests, the questionnaire asked for an estimate of the additional cost per acre that would be justified to obtain all the benefits that were observed from the use of soil conditioners. Of the twenty-one questionnaires reporting tests, sixteen indicated that results obtained so far did not justify added costs.

Four questionnaires gave estimates of $50 or above per acre as the maximum added costs that the tests seemed to justify. The highest estimate was $100 per acre. This, however, was from the state referred to above where double benefit was observed but where the observations were limited to only two tests. Another of the four questionnaires which estimated that results of treatments justified added costs of at least $50 per acre was the other one referred to above, where double benefit was noted but where only a single test was made. Of the five questionnaires indicating that results justified some additional costs, three were from states where 10 or more tests were made. In these cases, $50 per acre was regarded as the highest cost that could be justified and even these had some qualifications which limited the estimate to results from only some of the tests.

The results reported in the questionnaires from so many different areas and varied conditions are certainly indicative, although they are by no means conclusive. The reports show that soil conditioners fell short of fulfilling the hopes that they aroused in the members of this Committee during their introduction here in January, 1952. The tests have demonstrated some of the shortcomings of soil conditioners for roadside work, but the results obtained this year cannot be interpreted as a final condemnation of these materials or other closely related materials for all roadside work. They do indicate that, under most roadside conditions, some of the tested formulations have little or no value. They also have shown that in none of the tests were results sufficiently beneficial to justify the additional cost that would be involved at presently proposed prices for these chemicals. The beneficial results, however, offer some hope that the materials or methods of applications may be improved to a point where the benefits derived may justify the cost.

The general conclusion drawn from the tests is that additional research on the use of these materials should be encouraged.

In connection with research in turf culture, a field trip was made with Dr. Monteith to see some overseeding experiments in Washington. A report on these experiments appears in the Appendix. It is hoped that further research will be done along these lines in other areas.