Research Big Need on Poa Annua Chemical Control

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(GCSA Paper)

The phenomenal results obtained with 2,4-D on broad-leaved weeds have led us to wonder why we cannot duplicate the story with other chemicals for other uses.

Chemical weed control has been a dynamic field since a practical application of 2,4-D was discovered in 1945. The assortment of herbicides has grown steadily ever since. Unfortunately, turf research facilities have not been adequate to permit proper study of these newly developed herbicides for turf purposes. Since poa annua has been the thorn of turf workers for many years it is only natural that many of us have hoped that more attention could be given to developing a procedure for using one of these new chemicals to eliminate poa annua.

There are three methods of attacking poa annua with chemicals. First, the poa annua might be destroyed completely without serious loss of the permanent grasses. Second, poa annua might be controlled by prevention of seed production without killing the poa annua plant, and a third method, poa annua might be controlled by destruction of seed or seedlings in the soil.

All three of these approaches to poa annua control are within the realm of theoretical possibility. However, the second method, prevention of seed production, probably offers the greatest potentiality. What is the nature of the research problem involved? First, we recognize that there are many chemicals worthy of consideration which have shown promise in other fields, deserve thorough testing. Some of them are as follows:—ammonium thiocyanate, E. H. #1, E. H. #2, I.P.C., Chloro_I.P.C., maleic hydrazide, Dinitro formulations, n-1 napthyl phthalamic acid, phenyl mercury acetate, C.M.U., 2,4-D and 2,4,5-T offer promise. Many others are available in the experimental laboratories that can be given a trial.

In addition to the chemicals just mentioned which are of interest for experimental work in controlling poa annua, we have sodium arsenite and lead arsenite which have been used in practice to a limited extent. The latter is restricted to more highly valued areas such as greens where the high cost of treatment can be justified.

Some very promising results have been obtained by using sodium arsenite to prevent seed production without killing the poa annua plant. Many of you are familiar with the work of Paul Weiss and others who have used sodium arsenite for this purpose. I am sure they have no objection to any one experimenting with the technique. I trust that some of the experiment stations will have opportunity to conduct additional investigations on the use of sodium arsenite for controlling poa annua.

Answers Require Much Work

A very large amount of work must be completed before the many questions on chemical control of poa annua are answered. First, the list of chemicals worthy of testing is quite long. These require individual testing and in some cases combinations of chemicals should be tested.

Before a chemical can be discarded, it must be tested at different rates of application and different dates in the season. Also, before a chemical can be given a general recommendation for practical use it is important that many other factors be studied such as the effect of the soil pH, plant nutrients, soil moisture, and temperature upon the performance of the chemical. No one can safely make a recommendation for a chemical until its reaction to these factors has been determined.

I can best illustrate the importance of understanding the effect of various environmental factors by citing Leonard Strong's experience with sodium arsenite, in which a combination of frost or freezing temperature along with the effect of sodium arsenite gave greater leaf burn than he had commonly experienced during warmer and drier periods of the year. Fortunately the injury was not serious. Unfortunately it has taken nearly 20 years to learn the best rates for applying sodium arsenite and its peculiarities. If research had been available to support the development of sodium arsenite, we would be making far more use of it today and if research is not provided for study of the promising chemicals presently available, another long period of delay may occur before their value is known. At best a good research program requires a lot of work and some luck.

In addition to the technical problems

involved with the use of chemicals, there are several factors that hinder the development of the program. At the present time, only a very limited amount of work is being done on the tremendous problem of chemical control of poa annua. If the possibilities are thoroughly investigated greater facilities for research are required to establish a well-organized program. Purdue and Rhode Island have already begun a study of several chemicals and possibly other stations have done likewise, but the problem is too great to leave to a few. I trust that those concerned with these programs will comment on their chemical control programs.

A second problem concerned with chemical control of poa annua is the need for an ideal type of chemical. It is not only important that the technique for controlling poa annua with a chemical work effectively, but it must be economical, certain, and easy to conduct. Failure to meet any one of these points may limit use of the chemical in spite of its ability to give results.

A third factor that makes for difficulty in developing a chemical control program, is the lack of good test locations. This may sound silly to some of you since there is so much poa annua. But it is really difficult to find large areas for testing that have a mixture of poa annua and permanent grasses, and can be subjected to unknown chemical treatments that may be fatal to the grass and a man's job. Trial and error is usually the way to determine safety of a chemical.

Although my topic is control of poa annua problem, our research program at New Jersey attests to our faith in the value of other techniques. For example, we have two fundamental projects which we hope will give us some information on how we can better control poa annua or make it serve us. We are investigating the possibility of altering the poa annua content of a turf by rate and time of fertilizer application. Also we are observing the effect of turf cultivation on the amount of poa annua in turf.

We have gathered considerable data on these studies; however, it has not been possible for us to draw any final conclusions to date. We shall be only too happy to tell you of our findings as soon as the work is completed.

In the meantime, I trust that no one will rest his poa annua case with the hope of chemicals to be developed in the future. We must never forget that on many areas poa annua can still be discouraged considerably by use of other principles such as proper establishment of turf areas and correct watering. Without doubt, the poa annua problem has been accentuated by over-watering. There are many interesting experiences to be told on this subject.

Controlling poa annua with chemicals has greater unexplored possibilities than any other approach to the poa annua problem. Wonderful accomplishments may be in store for us in this field, and the sky may be the limit, or dismal disapointment may be in store. Certainly, we shall never know unless time and money are spent investigating the many new herbicides that have been developed recently.

RUTGERS HAS BIGGEST ENROLLMENT FOR 1952 TURF COURSE

A total of 117 students enrolled for the 1952 Rutgers One-Week Turf Course held Jan. 21-25. Ralph E. Engel, Assistant Ext. Specialist in Turf Management, in charge of the one week course reports interest and attendance on the part of park superintendents and nurserymen accounts for considerable amount of the increase. Unusual interest was shown in after dinner talk by a consulting engineer of the New Jersey Turnpike Authority who related incidents and showed pictures of the construction of the turnpike.