Sub-Committee on Seed Sanitation

W. F. Crosier

The investigations of this group have been restricted to a study of the pathogenicity of two fungi to germinating peas and the value of certain chemicals in reducing infection by these micro-organisms. The fungi involved, Rhizoctonia solani Kuhn and Sclerotinia sclerotiorum (Lib.) Massee are infrequent associates of seed peas and were observed to severly injure sprouts in untreated tests. A quantity of infected seeds were air-dried and in part treated with cuprous oxide or Ceresan (two per cent ethyl mercuric chloride). Seeds of the varieties Chief, Thomas Laxton and Winner were also treated with these dusts. The five members of the sub-committee conducted the germination tests under very similar conditions and in general reported similar findings.

The study demonstrated that Rhizoctonia solani when present in, or on, five per cent of peas may infect the adjacent seeds and sprouts and interfere with the appraisal of the seedstock.

Many of the untreated seeds were injured before, or simultaneously with, initiation of germination so that they appeared not to be viable and would have been recorded as dead.

The severity of infection was greater in eight-day than in six-day tests probably due to the increased spread of the mycelium. Either cuprous oxide or Ceresan applied only to the inocula increased the percentage of healthy sprouts. Dusting the seeds but not the mummified peas reduced the percentage of infection but usually less than did chemical treatment of the inocula alone. When either chemical was applied to both seeds and mummies, as would occur in commercial treating, the apparent germination closely approximated that of the non-inoculated controls.

Sclerotinia sclerotiorum is an infrequent associate of pea seed. The mycelium arising from only one infected pea may destroy one-half of the seedlings in a 100-seed test. In experiments with Thomas Laxton and Winner varieties of peas non-protected seeds were seriously injured. Application of cuprous oxide to the seeds alone did not inhibit spread of the mycelium. Ceresan, however, partially protected the sprouts even though applied only to the seeds. When both seeds and mummies were treated with Ceresan very accurate germination readings were secured. Cuprous oxide was noticeably less efficient.

The data supplied by the individual laboratories agreed very closely. Varying the supply of water with the tests at Geneva caused a greater variation among replicates of any one treatment than was reported for the identical replicates distributed to the various members.

The results from any one or all laboratories taken collectively indicate, that Rhizoctonia solani and Sclerotinia sclerotiorum destroy many seeds and sprouts in untreated germination tests and thus reduce the accuracy of the readings, that applications of cuprous oxide and Ceresan decrease infections; and expedite reading of the tests and that the fungi cause greater injury in eight than in six-day tests.

Sub-committee on Revision of Rules

E. H. Toole

Our revised rules have only recently been put into force, therefore one would not expect much activity of this committee. However, the committee has

been continued by the Association with the idea that it might serve as a clearing house for suggestions as to desirable changes. The committee are disappointed that only one communication has been received. It is realized that this does not mean that no amplification of the rules is needed or that all members of the association are satisfied with the present wording of the rules.

Probably the greatest need at present is for clarification of definitions and especially for more detailed definitions. The proposal of detailed definitions should and will lead to much discussion. In most instances there is equal reason for any of several possible definitions, but in the interest of definiteness it is desirable to make a definite selection of these definitions. On the other hand, we must remember that definitions will not obviate the need of judgment in their application where definite lines of separation between classes do not exist.

Mr. Edgar Brown has made some definite suggestions concerning chalcis fly and nematode injury of clover seed and ergot of Paspalum, He suggests: "With ergot of Paspalum there are all stages of deformity and it does not seem practicable to separate the ergotized seeds from those which are not. It therefore seems necessary to consider all seeds without reference to this condition as pure seed. The same procedure would seem to be indicated with respect to seeds infested by nematodes."

Mr. Brown's suggestion with respect to chalcis-fly-infested clover seeds may be summarized as follows: In many cases the cotyledons are entirely gone, leaving only the seed coats which would be removed by adequate cleaning and which are liable to be destroyed in handling. Other infested seeds may be eaten so little that their specific gravity is changed only slightly. These latter seeds evidently would be placed with pure seed under our rules. Where can a line be drawn? Is a standard blowing practicable? Are the empty seed coats really a factor in analyses?

This committee recognized the need of clarification of these points but feels that more information is needed about the actual conditions encountered in handling these seeds.

Mr. Kercheval E. Smith in his report of the Seed Testing Committee of the American Seed Trade Association at the 1939 convention stresses the need of definitions of "live seed" and live pure seed". This committee feels that these are terms for legal definition rather than definition in our rules. However, it might be desirable for this Association to suggest definitions of these and other terms. Mr. Smith also comments on interpretational difficulties with the present definition of weed seed. This is an important problem, and all phases of it should be thoroughly discussed by those analysts having actual experience with it.

A year ago this committee suggested a tentative tolerance for noxious weed seeds for trial and criticism. We have received no comments about this tolerance, but we hope that it will be discussed at the coming meeting. There is need for such a tolerance. If the proposed form is not workable in practice, what are the difficulties?

The committee recommends that the proposed tolerance for noxious weed seed be adopted as a part of the rules, with the understanding that such tolerance be not used where a minimum or maximum limit is established by law or regulation.

The definite recommendations incorporated in our rules for the germination of specific seeds should be, and in general are, based on long experience, and the procedure for such seeds is fairly well established. Many seeds, less frequently encountered, have not been studied enough for a basis for definite recommendations.

It is suggested that for such seeds a list of provisional recommendations be prepared based on available information. When the rules committee feels that sufficient research has been conducted on a wide range of samples to justify a definite recommendation, such recommendation should be added to the rules. In the meantime this provisional list would suggest research problems to interested analysts.

Sub-committee on the Hand Book

E. Brown

No formal report has been included with this general report since this meeting is centered largely on discussions of the papers submitted by the hand book sub-committee which constitute that committee's report.

A communication was received from Miss Kanipe outlining the problem regarding Chalcis fly and similar types of injury referred to in the report of the Sub-committee on Revision of Rules, with the suggestion that a study of the problem be initiated by the Research Committee. It was received too late for the past season's activities but this Committee recommends that the technique for the analysis of samples injured by Chalcis fly be studied during the coming year by the Sub-committee on Analysis of Small Seeds.

In conclusion, I would like to express my sincere appreciation of the very active work of the various sub-committees whose reports have been read. The various chairmen and their co-workers are to be congratulated on the thoroughness and careful thought they have put into their work and it is evident that a great deal of worthwhile information has been secured. Each one of the projects being studied is, in my opinion, of importance. None of them are yet complete and I recommend that they be continued and possibly extended.

It is regretted that general referee tests for the Association as a whole have not been initiated this year. I had intended assuming this responsibility but circumstances were such that this became impossible. Nevertheless, I believe that they are a valuable feature of our work and that they ought to be continued.

May I close on a note of appreciation of the work of my predecessor, Dr. Porter, in the chair of this committee. The excellent organization which was in effect when I became chairman has greatly facilitated my work. It has been continued on the same lines and with much the same personnel and extended somewhat to include one or two further projects.

Finally, may I express my thanks for having had this opportunity of serving the Association again. - C. W. Leggatt, Chairman.

REPORT OF MEETING OF THE SEED COUNCIL OF NORTH AMERICA

Chicago, Ill., November 30, 1938

A. L. Stone

State Department Agriculture, Madison, Wis.

Mr. Stone, who has been Secretary-Treasurer of the Council and the representative of the Association of Official Seed Analysts, presented a report of the above