

in 8-foot nursery strips or approximately 100-square foot plots. The author is desirous, therefore, that the results be considered as preliminary and merely a basis for more extensive field tests.

A DISEASE AFFECTING THE GERMINATION OF PERENNIAL RYEGRASS SEED

It has been noticed repeatedly by the official seed-testing service in New Zealand that occasionally the crop of perennial ryegrass (*Lolium perenne*) seed has exhibited phenomenally low powers of germination. This has been particularly striking when wet weather prevailed between the time of flowering and harvest. Italian ryegrass (*Lolium multiflorum*) is also affected at times, but to a lesser extent.

It was previously thought that perhaps this low germination was the result of defective fertilization due to excessive moisture. Recently, however, it has been shown that the low germination of otherwise apparently sound, well-harvested seed is caused by a disease-producing fungus. J. C. Neill and E. O. C. Hyde, in discussing the disease in the New Zealand Journal of Science and Technology, proposed the name Blind-seed disease. According to them, the disease has been found in every seed-

producing district in New Zealand and in samples of perennial ryegrass seed grown in England, Scotland, Wales, Ireland, Sweden, Tasmania, and Victoria.

The affected seed is outwardly indistinguishable from healthy seed, and, although heavily infected, a sample of seed may appear plump, bright, and of good bushel-weight. It is only when the seed is tested for germination that the presence of the disease can be detected in the mature seed. It can be detected shortly after cessation of flowering, by careful dissection of the florets, which reveals a colorless or pinkish slime surrounding the immature seed. This cannot be observed after drying takes place.

Field experience supports the idea that true perennial ryegrass is highly susceptible and Italian ryegrass is almost immune. The authors suggest that this may be associated with the fact that Italian ryegrass flowers later than the perennial ryegrass and after the main discharge of the spores of the fungus. Experiments are in progress to determine relative susceptibility and immunity of a range of hybrids and of strains of true Italian and perennial ryegrass.

The fungus is described, but has not as yet been named, except that it has been placed provisionally in

the genus *Helotium*. This genus is closely related to *Sclerotinia*, the genus to which the dollarspot organism has been assigned recently. It is carried over from one season to another in diseased seeds that fall to the ground. In due time reproductive bodies are formed on these seeds and spores are discharged into the air and borne by the wind to the open flowers of the ryegrass, where a new infection is started. Later in the season reproductive bodies are formed in the flowers first infected, and from these other flowers are infected. These later infections cause the most trouble, since the seed are further developed before infection and therefore appear heavy, plump, and sound, although they may only germinate 20 percent. The disease apparently does not have any deleterious influence on ryegrass which is not to be used for seed production.

It appears that in certain cases the fungus remains viable in seed stored for 20 months. More information is required on the time limit of the survival of the fungus within infected seeds and on conditions of storage and of possible seed treatment, as affecting the survival limit. No satisfactory control measures have yet been devised, but the authors believe that the most hopeful

line of attack is the breeding or selection of resistant strains.

PREVENTABLE SABOTAGE

A saboteur caught in the act of pouring sand into airplane motors and thus reducing their efficiency by as much as 10 percent would be given maximum penalties under the law and his arrest and conviction would be dramatically told in headlines all over the country.

Yet, a recent case of damage to airplane motors from preventable dust reduced the motors' efficiency by 90 percent, required overhauls costing \$320,000 and will be repeated again and again on the nation's dirt-surfaced flying fields for want of intelligent and relatively inexpensive remedial steps.

The remedy lies in . . . the establishment of an advisory service and research program on the culture of turf grasses. There is enormous waste, failure to benefit from what has been learned in grass culture and little or no success in making the grass grow. Miniature "dust bowls" are being created everywhere, and new dangers are added to the hazards of flight training because of dust and mud that could be grass covered. — Editorial, *The Evening Star*, February 24, 1942.