that emerged. Table I gives the sex ratio of adults which emerged from parasite grubs in different intensities of superparasitism on the larva of *Corcyra cephalonica* and also the average duration of the developmental period under the different conditions.

TABLE I

No. of parasite grubs per host	Adults bred		Mean No. of days taken for emergence from egg to adult
	Percentage Males	Percentage Females	
1	33·4	66·6	8·6
2	16·7	83·3	8·3
3	22·2	77·7	9·0
4	25·0	75·0	9·0
5	26·7	73·3	8·3
6	26·7	73·3	9·0
7	57·2	42·8	8·5
8	62·5	37·5	8·5
9	44·5	55·5	11·0
11	63·7	36·3	9·5
18	61·2	38·8	11·0
19	73·7	26·3	11·2
29	82·8	17·2	10·5

It can be seen from the above table that as the number of parasite grubs which share a single host increases, the number of males also increases, or in other words, when the food supply is sufficient more females are produced and this number decreases as the food supply becomes less and less. The intensity of superparasitism depends on the density of female parasites in the ovipositon cage. It may be also seen from the table that as the number of parasite grubs that shared a single host increased the developmental period was prolonged or the emergence of the adult parasites was delayed.

These findings are of considerable interest and also of practical importance in the propagation of insect parasites. Further work is in progress to find out the influence of different species of alternate hosts on the parasite, *B. gelechiœ*. Full details on these studies will be published elsewhere.

Division of Entomology, I.A.R.I., New Delhi, *June* 29, 1948.

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1. Salt, *Proc. Roy. Ent. Soc.*, London (A), 1940, **15**, 81–95.

PELLICULARIA FILAMENTOSA (PAT.) ROGERS, COMB. NOV. CAUSING A ROOT-ROT OF BERSEEM (*TRIFOLIUM ALEXANDRINUM* LINN.) IN THE UNITED PROVINCES

IN April 1948 the fungus *Pellicularia filamentosa* (Pat.) Rogers, formerly known as *Rhizoctonia solani* and *Corticium solani* was found causing a severe root-rot of berseem (*Trifolium alexandrinum*) in the United Provinces at the Government Agricultural Farm, Nawabganj (Bareilly). This is the first record of this fungus on berseem from the United Provinces.

In the first week of April 1948 the berseem crop suddenly began to die. The havoc was hastened by the easterly winds that blew during this period. Watering had only an adverse effect. The seed obtained from the fields where infection was severe remained shrivelled up due to the premature drying of the crop. In a number of plants the seeds did not form at all. In some fields the infection was only slight or took place when the seed was mature. The seed obtained from such fields was apparently healthy. The same disease was observed in berseem fields of cultivators situated at some distance from the farm. Usually plants 5″ to 12″ were affected by this disease. In the early stage of the disease the parts attacked are the roots and the crown, where a slight discolouration is produced which gradually deepens to black. By this time the leaves and branches of the plant begin to wither. In a later stage, the bark of the crown dries up. The tap root rots and the development of secondary roots is restricted. In advanced stages very small scattered dot-like structures are formed on and near the crown. These can be seen even by the naked eye. They are the sclerotia. It is through them that the disease is carried from year to year. They are known to remain viable in the soil from four to five years. Hence crop rotation is the only suitable means of controlling this soil borne disease.

I am very much grateful to Dr. U. B. Singh, M.SC., D.PHIL., ASSOC. I.A.R.I., Plant Pathologist to the Government, U. P., for his helpful suggestions and kind interest in going through the manuscript.

Section of the Entomologist, to Government, U.P., Kanpur, *July* 1, 1948.

D. N. GARG.

UNIFORM GLAZED PANS FOR RAISING SUGARCANE SEEDLINGS

AT the Coimbatore Station, countrymade earthenware pots have been used all these years for germinating sugarcane seeds and raising seedlings. Dr. J. N. Mukherjee, Director, Indian Agricultural Research Institute, during his inspection visit of the Station in January 1946 remarked on the patchy character of the variations in the germination and vigour of seedlings and their markedly non-uniform stand in the same pot in which fluff from the same cross was used. The pots have the shape of a truncated conical pyramid with the narrower side resting on the floor. They are not of very uniform size and their bottom surface is uneven. Besides, the bamboo platform on which they rest also sags somewhat and the surface is uneven. All these features combined, in his opinion, to affect the seed-

lings differently in different parts of the pot and it was decided to try for comparison glazed pots of standard cylindrical shape made in the pottery furnaces. In the countrymade pots sometimes water accumulates in certain places and the finer particles sometimes gather in the lower portions as a result of watering. Many seedlings die off or become pale and look sick. The countrymade pots are, however, much cheaper, but this is partly offset by the greater durability of the glazed pots. The glazed pots have shown so striking a difference in the health and vigour of the seedlings that it is considered desirable to bring the difference to the notice of others.

Two different crosses were tried. The pans, as has been the usual practice in this Station, were filled with equal quantities of horsedung and sand in equal proportions and two grams of fluff was sown in each pan and care was taken to see that each pan received the same quantity of water. The pans were kept on level surface and germination counts recorded at intervals of five days till the 25th day. After the 60th day when the seedlings had established themselves, certain of the seedlings were noticed to have died possibly due to competition. The mortality rate was recorded on the 80th day.

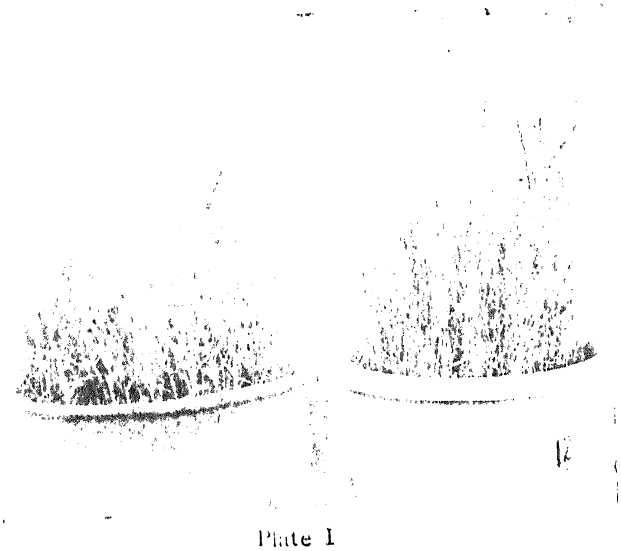

Plate I

Earthenware pan Glazed pan

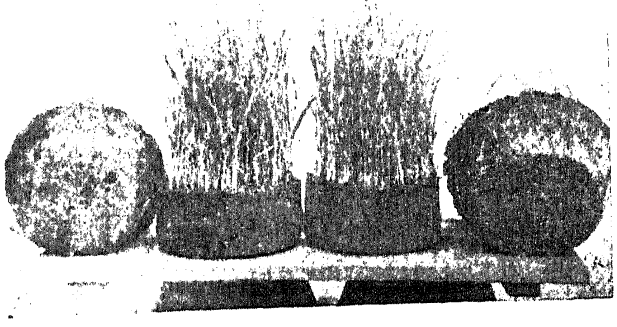

Plate II

Earthenware pan Glazed pans Earthenware pan

The germination percentage was found to be slightly higher in the glazed pans but is not significant. As regards mortality of the seedlings, the difference appears to be significant (5% level) in the batch of seedlings of the cross Co. 453 × Co. 557 and also if both the crosses are taken together. The main difference, as will be seen from the accompanying photograph (Plate I) was in the health, vigour and uniform growth and distribution of the seedlings. The seedlings in glazed pots are vigorous and uniform in growth and distribution and the seedlings at the periphery did not differ in growth from the rest of the pot while the seedlings in the usual pot were not uniform in stand and many of them showed yellowish leaves and the seedlings at the periphery were definitely poor in growth.

A peculiarity that will be noticed in the countrymade pots is that the roots come out of the soil on to the inner surface of the pot but not so in the glazed pots ; evidently owing to the better aeration through the walls of the countrymade pots. The difference in the behaviour may partly be ascribed to greater loss of water through evaporation through the sides of the locally made pots and irregularity in shape. Also, the seedlings near the periphery of the locally made pots have a much lower thickness of the nutrient material available to them.

Sugarcane Breed. Station, N. L. Dutt.
Coimbatore, J. Thuljaram Rao.
August 17, 1948. T. A. Davis.

A CHROMOSOME DEFICIENT PADDY TYPE

A strain of the cultivated paddy Muthusamba, which was segregating for barren sterile plants on a simple mendelian ratio, was reported previously[1] in this journal. The segregating form has been grown every year and probable reason for its genetic behaviour studied.

Cytological study of the root tips has given a clue to its causation. The stunted sterile segregants were found to have 22 chromosomes only, as opposed to 24, normal for paddy. This deficiency of two chromosomes is inferred to cause the changed growth as well as complete sterility. It can be seen that the absence of panicle formation can be caused only by a deep-seated cause like this, while lack of grain setting may be due to genetical or pathological causes. The chromosome counts were made carefully with different collections of root tips, done in plants grown in two seasons. Counts were made only in the clearest metaphase plates, and have been checked by independent observers. However, the pollen grains of heterozygous plants do not show dimorphism corresponding to the full and reduced chromosome complements. Confirmation of this explanation is being sought in the meotic stages in the meterozygote.

The inference is that originally, by nondisjunction in meiosis, a gamete with 11 chromosomes (a loss of one from the normal genom of 12.) was formed, and this on fertilisation gave rise to a normal looking plant with 23 chromosomes. This plant gave rise to 24 chromosomed; heterozygous 23 chromosomed; and