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The Nodal Infection of Corn by *Diplodia zeae*

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to open the line and thus permit the embryos of the seeds to obtain water.

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THE RELATION OF CUCURBIT MOSAIC TO WILD CATNIP

J. H. MUNCIE

Cross inoculations from mosaic cucurbits to non-cucurbitaceous hosts, according to published records, have been unsuccessful except in a few cases. Doolittle obtained infection by aphid inoculation from mosaic cucumbers to *Martynia louisiana*, while Jagger obtained infection on *Lobelia crinus* var. *Gracilis* and *Helianthus debilis*. Preliminary experiments by the writer show that cucurbit mosaic can be transmitted to *Nepeta cataria* by the insertion of crushed mosaic leaf tissue of mosaic gourd into the stems of Catnip. Typical mosaic symptoms appeared on the tips of the leaves of the catnip in about three weeks, and after six weeks practically every leaf showed the mosaic. Mosaic of catnip has not been observed in the field by the writer, but with the ease of obtaining infection and chances of insect inoculation, this perennial host may be a source of early infection to cucumbers in the field.

DEPARTMENT OF BOTANY,
IOWA STATE COLLEGE.

THE NODAL INFECTION OF CORN BY *DIPLODIA ZEA*

L. W. DURRELL

Dry rot of corn caused by *Diplodia zeae* was very prevalent in Iowa the past season (1921), particularly in the central portion of the state. The disease originates in the old stubble and stalks of the previous season from which the spores of the organism are blown to the corn plants. Under conditions of extreme moisture and high temperature the spores germinate, grow and attack the corn.

Infection may take place on the roots, stems or ears of the corn. Seedlings growing over old *Diplodia*-infected stubble may have their roots attacked by the dry rot fungus. Spores blown to the

silks may germinate and grow down the silks and infest the tip of the ear. The most common points of attack, however, are the nodes. Here infection takes place after pollen fall. Masses of pollen and blown spores of *Diplodia zeae* are caught within the moist leaf sheath where the pollen furnishes a starting medium for the fungus which later attacks the base of the leaf sheath and nodes. Similar infection takes place within the husk at the base of the ear.

There is no consistent evidence of a migration of the disease from the soil up to the ears or higher parts of the plant. Thirty-nine per cent of infected ears are borne on unaffected stalks while only 22 per cent of all infected stalks showed diplodia higher than the third from the ground. Further, but 31 per cent of the internodes have been found attacked by the fungus.

All observations and experiments emphasize the fact that *Diplodia zeae* infects locally at any point where blown spores may lodge, and that moisture and temperature are essential to growth there.

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EFFECT OF HARDNESS OF WATER ON THE FUNGICIDAL VALUE OF MERCURIC CHLORIDE SOLUTIONS

J. C. GILMAN

A comparison of the fungicidal value of mercuric chloride solutions made up in tap water with those made up in distilled water showed that the tap water solutions were much less effective in killing the sclerotia of *Rhizoctonia solani* on potato tubers. Of the 182 sclerotia treated with bichloride, 1-1000 in distilled water, only 6 or 1.1 per cent grew. In the case of a similar treatment of tap water solution of the 139 sclerotia examined, 34 or 7.1 per cent grew. Ninety per cent of untreated sclerotia grew in the control experiments.

These facts are important in the application of seed treatments where the grower uses hard water in making up disinfecting solutions.

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