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LEAF SPOT OF CELERY

By S. C. CHAMBERS, M.Sc., Plant Pathologist

LEAF SPOT is the most serious disease of celery in Western Australia, and causes heavy losses in many crops during the cold wet months of June, July and August. The disease is incited by the fungus Septoria apii Chester, and was first recorded in this State at Osborne Park in 1923. Since then it has become a limiting factor in the production of marketable celery during the winter months.

SYMPTOMS

Usually the disease first becomes evident on the older, lower leaves of a plant and gradually spreads upwards and inwards to the younger foliage.

On the leaves, it causes somewhat circular spots, which seldom exceed $\frac{1}{8}$ in. in diameter. These are yellow to brown at first, but later become stippled in appearance and finally almost black, as large numbers of minute black fungal bodies (pycnidia) are formed in them. When the spots are very numerous, coalescence frequently occurs, and results in the partial, or complete collapse of leaflets and leaves.

Spots on the stems differ slightly in appearance, in that they are more elongated than those on the leaves.

INTRODUCTION AND SPREAD

The disease is seed borne and is frequently introduced into the field planting by means of slightly affected seedlings, which escape detection when transplanted from the seed bed. In addition the disease is carried over on infected debris, and overseas reports suggest it may survive for approximately 8 to 11 months in this manner.

During periods of cool, wet weather, numerous fungal seeds, called spores, are...
produced in the pycnidia of leaf spots on affected transplants, and also on crop debris. These are carried about by the wind and infect the foliage of nearby celery plants. With the continuation of cool, wet conditions, more spores are produced in the pycnidia of the new spots and so the disease becomes widespread throughout the crop.

**PREVENTION AND CONTROL**

1. Hot water treatment of seed: Seed should be enclosed loosely in a muslin bag and immersed in water at 118° F. for 30 minutes. After treatment, the seed should be spread out in a thin layer on an absorbent surface and dried as quickly as possible.

2. Cover Spraying: The crop should be sprayed regularly with Bordeaux 4:4:40. The first application should be made one week after transplanting, and subsequent sprays should be applied at intervals not exceeding 14 days. To overcome the discoloration of foliage caused by Bordeaux, this fungicide should be replaced by Ziram (1½ lb/100 gal.) for the last two applications before harvest.

3. Rotation: The same land should not be used more frequently than once in two years, either for seed beds or for field plantings of celery.

**GROSS ENGINE POWER—WHAT IS IT?**

The Tractor Testing Committee at its February meeting expressed some concern at confusion arising from the use of the term “Max. engine horsepower—gross.” On this basis a tractor of 50 or so drawbar horsepower has been described as a 100 h.p. tractor.

Mr. G. H. Vasey, Officer in Charge, Tractor Testing, explained that gross engine power, or any similar term, can only refer to a stripped engine on a factory test bed; no fan, no generator, air cleaner, exhaust muffler, water pump and so on. All these power consuming, but nevertheless essential, auxiliaries would reduce the so called gross engine power by 15 per cent. or so.

The gross engine power, Mr. Vasey continued, is of academic interest, mainly to the engine designer or to the production line checker; the term has no significance for the prospective user, and would better be dropped from advertising. But the user is entitled to know the real power available at the engine crankshaft, so as to have some basis for estimating the power losses in the transmissions to the various outlets, pto, belt pulley, and drawbar.

If the tractor is equipped with a hydraulic torque converter these losses can be quite high, of the order of 15 per cent., for the converter alone, with successive losses in the mechanical transmission, track or wheel slip, and other traction resistances, a drawbar power on the test track of only about 50 per cent. of the gross engine power could be expected.

Australian tractor tests are now conducted so as to reveal the true shaft horsepower of the fully equipped engine as well as the power available at the outlets.