

RESISTANCE OF *PERONOSPORA DESTRUCTOR* (ONION DOWNY MILDEW) TO METALAXYL FUNGICIDES

P.J. WRIGHT

Crop & Food Research, Cronin Road, RD1, Pukekohe, New Zealand

Corresponding author: wrightp@crop.cri.nz

The New Zealand onion industry is concerned that strains of the onion downy mildew fungus, *Peronospora destructor*, may be resistant to phenylamide fungicides. This experiment was a preliminary investigation to determine whether such fungicide resistance problems exist in onions at Pukekohe. Onions cv. Sweet Red (four true leaf stage) grown in polystyrene trays were sprayed with metalaxyl-M, metalaxyl, dimethomorph and water. The following day, fine mists of sporangiospore suspension (1×10^5 /ml) were applied to the onion foliage. The inoculated plants were covered with polythene to create moist chambers and incubated at 13°C overnight. The polythene was removed and the plants were placed in a greenhouse. After 13 days, the onion plants were again covered with polythene and incubated at 13°C overnight. The following morning active *P. destructor* sporulation occurred on 79% of control plants. Both metalaxyl and metalaxyl-M treatments had 12% plants with sporulating lesions, and the dimethomorph treatment had just 1%, indicating that some strains of *P. destructor* may have some level of resistance to metalaxyl and metalaxyl-M. Further tests will be carried out to investigate the effectiveness of metalaxyl and metalaxyl-M when applied after, as well as before, inoculation of onion foliage with *P. destructor*.

EVALUATION OF FUNGICIDES FOR CONTROL OF DOWNY MILDEW, ANTHRACNOSE AND BACTERIAL ROTS OF LETTUCE

P.J. WRIGHT

Crop & Food Research, Cronin Road, RD1, Pukekohe, New Zealand

Corresponding author: wrightp@crop.cri.nz

Downy mildew (*Bremia lactucae*), anthracnose (*Microdochium panattonianum*) and bacterial rots (*Pseudomonas* spp.) are three important diseases of lettuce in New Zealand. At present, few chemicals are registered in New Zealand for control of these diseases. The aim of this experiment was to evaluate the efficacy of 11 chemicals for control of downy mildew, anthracnose and bacterial rots of lettuce. The experiment was laid out in randomised blocks with four treatment replications. An Oxford precision sprayer, calibrated to 500 litres/ha, was used to apply the chemicals. Disease assessments were carried out weekly. Only low levels of anthracnose and bacterial rots were found, but there was plentiful downy mildew. On 23 September 2003, 20 plants in the center two rows of each plot were harvested and assessed for downy mildew. Fosetyl-aluminium, azoxystrobin, difenoconazole and prochloraz had significantly ($P < 0.05$) lower levels of downy mildew than the other treatments. Control and mancozeb treatments had significantly ($P < 0.05$) more downy mildew. Lettuce head weights were significantly ($P < 0.05$) lower in control plants. Head weights were not significantly ($P < 0.05$) different in all other chemical treatments. Based on the results of this experiment, fosetyl-aluminium and azoxystrobin show promise for control of lettuce downy mildew.