

POTATOES IN PRACTICE, 2005

Demonstration of good and poor control of sporulation by *P. infestans* on blighted outgrade piles

The BPC's Fight against Blight campaign has focussed attention on limiting the number and size of primary sources of *P. infestans* inoculum. In 2005, the BPC funded a trial to examine the impact of different herbicide treatments of blighted potato growth on outgrade piles on the potential production of blight spores.

At SAC Auchincruive, Maris Piper seed was planted at a very close spacing in soil in potato boxes to simulate outgrade piles. Once the haulm growth was c. 15 cm tall the foliage was inoculated with *P. infestans*. Once symptoms were obvious, 7 days after inoculation, the haulm was treated with the total herbicides PDQ (5.5 l/ha), glyphosate (5.0 l/ha) and dichlobenil granules (30 g/m²) to determine which treatment most quickly and effectively limited the production of *P. infestans* sporangia.

Within 1 day of PDQ treatment c. 80% of the foliage had been desiccated. The percentage of haulm desiccated then increased slowly during the first week after PDQ application. Because not all leaves were killed, stems remained green initially and there was some re-growth of foliage. There were no differences between the four PDQ treatments. No desiccation was observed on the plants treated with glyphosate until 7 days after application. At this time the percentage of leaf necrosis was very small. Glyphosate-treated plants became increasingly yellow.

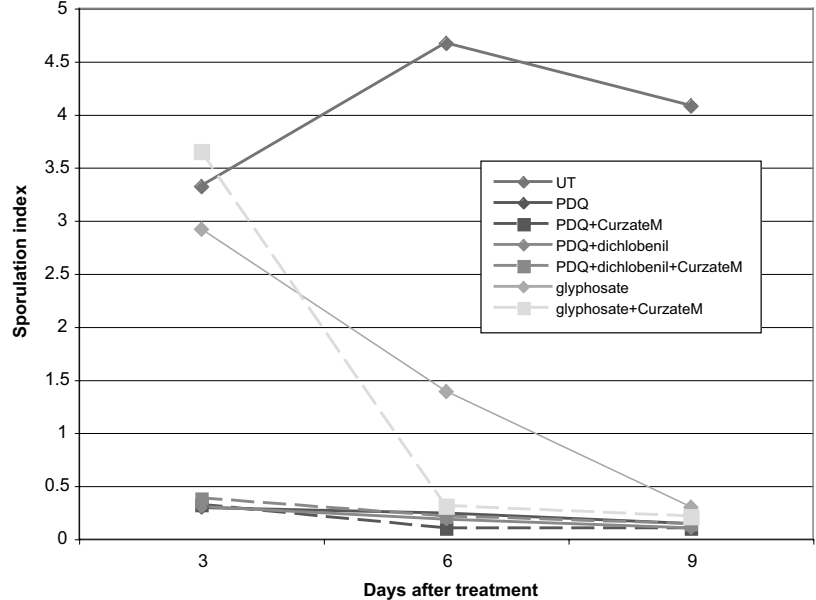
The potential of treated plants to produce sporangia only increased on the untreated boxes during the period of assessment, which was 3, 6 and 9 days after treatment (see Figure).

Three days after treatment the potential sporangia production for glyphosate-treated plants was similar to that for untreated plants. After 6 days the potential production of sporangia was significantly reduced by glyphosate. By this time the Curzate M was exhibiting antispore activity and the combination of fungicide and glyphosate resulted in significantly fewer sporangia than the herbicide alone. Interestingly this effect had not been observed 3 days after treatment. In this trial there was a delay before the antispore activity kicked in. The potential to produce sporangia was reduced using glyphosate and it took 9 days

to reach the level that PDQ had reached after 3 days.

Throughout the period of the experiment there were no significant differences between the four PDQ treatments. There was no advantage in using a fungicide with PDQ.

Fig. 1 Potential to produce sporangia after treatment



Dichlobenil had no effect on sporulation. By 9 days after treatment the potential was small, and similar, for all treatments, except the untreated.

In conclusion, the best method of limiting the production of blight spores on outgrade piles is to prevent them sprouting and producing haulm. Where sprouting does occur then the next best option is to use a fast acting desiccant, e.g. PDQ. Glyphosate is too slow acting to prevent sporangia production soon enough.

Once the source of blight has been controlled then the best option to prevent any further haulm growth needs to be considered. Options other than PDQ alone, e.g. black plastic sheeting or dichlobenil granules, are most likely to be effective but whatever treatment is used the outgrade pile needs to be checked on regularly. This was clearly demonstrated by the complementary demonstration at Potatoes in Practice carried out by CSC, also funded by the BPC. Further details of both demonstrations will be available from the BPC at a future date.

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