

Cotoneaster dammeri: Fire Blight (*Erwinia amylovora*) Resistant Cultivars in Germany

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SITUATION IN GERMANY

The bacteria disease fire blight first appeared in 1971 in Schleswig - Holstein on *Crataegus monogyna* and *Pyrus* fruit trees. It spread south, reached Hamburg in 1974, Westfalia in 1975, and finally the southern parts of Germany in 1981 (Baumm, 1989). Initial attempts at control included strict eradication of *C. monogyna* from windbreaks, especially in nurseries and around infested locations. Commercial production of common hawthorn was banned. These restrictions could not stop *Erwinia amylovora*. Nowadays people have learned to live with the disease, which is mainly found in Germany on *Chaenomeles*, *Cotoneaster*, *Crataegus*, *Cydonia*, *Pyrus*, and *Photinia*.

CHEMICAL CONTROL

Antibiotics cannot be used for plant protection in Germany. Copper is used as a protective agent but has some disadvantages:

- Needs to be sprayed frequently
- Accumulates in the soil
- May inhibit plant growth
- Phytotoxicity problems

Since 1982 we have been working with the prognosis model based on the work of Billing (1974) to optimize/minimize the use of copper during the growing season in relation to weather (Brulez and Zeller, 1981). Different plant extracts (*Berberis*, *Mahonia*, *Rhus*) have also shown an effect on fire blight under field conditions when used as prophylactic treatments. However, they are not yet used in the nurseries (Mosch and Zeller, 1989).

RESISTANT CULTIVARS

Work on resistant *Cotoneaster* cultivars started in the late 1970s by Persiel and Zeller at the Institute for Horticultural Plant Breeding in Ahrensburg (close to Hamburg) with *C. dammeri* var. *radicans*. This species is not very susceptible to fire blight under German conditions. Occasional problems occur during nursery production but rarely afterwards. Following artificial testing, 16 clones of *C. dammeri* var. *radicans* were further tested for ornamental value in the plant selection section of the Versuchs- und Beratungsring für Baumschulen in Pinneberg. After another four years of testing, two fire blight resistant clones were selected and named:

1) 'Holsteins Resi'. Very similar to *C. dammeri* var. *radicans* with leaves 3 to 4 cm long and about 2 cm wide, and growth up to 25 cm high. The cultivar is a very good

groundcover because of its ability to make a nice, close carpet.

2) 'Thiensen'. Very similar to *C. dammeri* 'Major' with leaves 4 to 5 cm long and about 2.5 cm wide. This cultivar also makes a nice and low carpet.

Both cultivars are under plant breeders rights in Germany. Only a group of 16 growers are allowed to propagate them. Interplant in Leersum (Netherlands) holds the breeders rights for the Netherlands, Belgium, and Luxembourg and A. Briant for France. Negotiations are under way with growers in Great Britain and the U.S.A.

FUTURE

At the moment we are testing more than 100 selections resistant to fire blight similar to *C. × watereri* 'Cornubia' and *C. salicifolius* var. *floccosus*. The breeding programme with these plants is very difficult, because they are very susceptible to fire blight. The first results are promising, so resistant selection may be available in a few years time.

LITERATURE CITED

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