

Tulips free of stem nematodes thanks to hot water treatment

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Tulip bulbs are susceptible to stem nematodes. Growers live in fear of the small pathogens as just one affected bulb can be disastrous for an entire batch. Moreover, until, very recently the standard hot water treatment remedy for daffodils, crocuses and other bulb plants did not work for tulip bulbs. Wageningen UR scientist Martin van Dam discovered that an improved process using hot water can ultimately have



the desired effect.

"Hot water treatment has long been a successful and environmentally friendly method to kill nematodes in bulbs," Martin van Dam says. "Precision is important as the temperature must be just right during the pre-treatment and the hot water treatment (HWT). If the temperature is too high, the bulb is damaged. And if it is too low, the nematodes survive."

Pre-heating, pre-soaking, boiling

Science had not yet managed to find a successful formula for a hot <u>water</u> <u>treatment</u> to eliminate nematodes in tulip bulbs, too. Van Dam studied previous research, started experimenting and eventually succeeded. "I discovered that tulips first have to be preheated to 36 degrees for one week. Then they have to be pre-soaked for four hours and kept wet for twenty. Finally, the bulbs need to be 'boiled' at 48 degrees. Bulbs remain intact under these conditions but the nematodes die.

Tulip 'boiling' approved by NVWA

The Netherlands Food and Consumer Product Safety Authority (Nederlandse Voedsel- en Warenautoriteit, NVWA) has provisionally approved tulip boiling as a method for suppressing stem nematodes in tulips. There are, however, strict conditions, Van Dam says. "Growers may only plant boiled bulbs on their own plots or sell them as pot tulips under strict conditions."

Labour intensive

"Growers must also realise that the treatment is labour intensive," Van Dam continues. "The best time to do this is within three weeks after the



bulbs are harvested, which coincides exactly with the busiest period of the year. Moreover, the treatment must be implemented fully – there is no room for HWT a bit less', for instance, as that would increase the chance of the infection returning or that the NVWA would no longer permit boiling."

Effective alternative

Tested in practice for the first time last year, the new <u>hot water</u> method has given growers an effective alternative to destroying entire batches of tulip bulbs. Whether boiling is the best option is up to the growers themselves to decide. "If the tulips in question are of a common variety, it can be more efficient to destroy them. However, if the affected batch is of an expensive tulip variety that is rarely cultivated, the grower might prefer to boil the affected tulips and put them back in the ground."

Provided by Wageningen University

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