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Background

A trunk-protection field trial carried out in 2018 indicated that protecting the lower portion of trunks of central-leader cherry trees with different materials from April to October 2018 significantly reduced the incidence of cankers. Here we present an update on a recent field trial set-up on 11 April 2019 looking at trunk protection and we suggest further actions to be taken this year to try to reduce damage in spring 2020.

Cherry trunk protection trial 2019:

- A central-leader trial, with trees of ‘Lapins’ in their first field growing season, was set up at the PFR research block in Clyde on 11 April 2019, with the aim of comparing different methods of trunk protection for their ability to reduce canker lesions on young cherry trees. Treatments were selected for their ability to reflect/absorb solar radiation and/or to provide thermal insulation. Seven trunk protection treatments plus an untreated control were tested. The treatments were; an untreated control (UC), double green plastic spray guard (DSG, two consecutive guards along the trunk length from the ground attached to each other with metal staplers), white plastic spiral (WPS), white interior acrylic paint (WP), rabbit deterrent paint (RP) and three different tree-trunk wrapping materials; tree-wrap 1 (TW1, cardboard/brown crepe bandage); tree-wrap 2 (TW2, white plastic wrap), tree-wrap 3 (TW3, white wrap frost-cloth-like material). All wrapping materials were removed on 9 October 2019.
- Plant mortality and presence/absence of cankers were assessed on 9 October and 11 December 2019 and 10 March 2020. Here we present key findings from the first two assessments.

Key findings

- Cankers were first detected on trees on 9 October 2019.
- At the first assessment (October 2019), the control treatment had 32.1% incidence of cankers, while the WP and TW3 treatments had no cankers at all. This reduction was highly significant. For the other treatments, the canker incidence ranged from 7.1% for DSG to 21.4% for the TW4.
- By December 2019, the incidence of cankers increased to 68% in the untreated control. **By contrast, the canker incidence in the DSG and TW3 treatments was 14%, representing a reduction of 79%, compared to the untreated control. All the other treatments reduced the incidence of cankers by up to 69% on cherry trunks except for RP with 57% incidence of cankers.** A final assessment carried out on 10 March 2020 is still to be analysed.

Key message and considerations:

- **Trunk protection reduced canker lesions on the trunks of standard 2-year-old ‘Lapins’ cherry trees by up to 79%. The best two methods were double green plastic spray guard (DSG) and tree wrap 3 (TW3, white wrap frost-cloth-like material). Protecting the trunk using any other method (except rabbit deterrent paint) was better than no protection at all.**
- However, some considerations are necessary regarding the use of tree wrapping methods. If cankers develop and become colonised by *Pseudomonas* spp., the wrapping of trunks with any material (T1, T2, T3 and WPS in this case) may have a negative effect by creating ideal conditions for pathogen development, so caution is advised. Similarly, wraps need to be removed at the end of winter. If left on, they could have detrimental effects on tree growth or increase canker development. Easy-to-apply, fast and cost-effective treatments such as **white paint** and the **double green spray guard** had good efficacy and are recommended. This work is ongoing and we will be looking at the further improvement of materials and application methods to make the most effective treatments as cost-effective and practical as possible.
- The methods trialled **are aimed at insulating the cambial tissues and preventing the occurrence of cankers, they DO NOT have a curative effect.**

Based on the trial results to date and the above considerations, it is suggested that cherry growers carry out the following in 2020:

- Paint trunks of **NEW cherry trees** with white acrylic interior or exterior paint. **Make sure to use white latex or acrylic paint that has no toxic organic solvents that may damage the tree.** White paint will not have detrimental effects on trees that may already have developed bacterial canker (although it will not cure them, it will not make things worse). We did not test mixing white paint with any other antibacterial product and applying to bacterial cankers so we have no information of efficacy of this practice at this stage.
- Paint the trunk from ground level to top on both sides of the trunk on central leader or cordons on high-density systems (e.g. UFOs). Although in this trial we painted up to 1.3 m of central leader trees, sometimes damage was observed above the paint and therefore extending the surface painted may help prevent cankers along the leader or cordon.
- Use double spray guard (two consecutive guards along the trunk length) to cover the trunk from ground to first lateral branches or cordons. This can be in addition with the white paint.
- Applying the treatments before the end of April and beginning of May is preferred as we do not have data on placing the treatments later in the season.

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