Photographs of Fresh and Older Egglaying Scars of Plum Curculio on Apples

Jon Clements
Department of Plant and Soil Sciences, University of Massachusetts Amherst
Jaime Piñero and Ronald Prokopy
Department of Entomology, University of Massachusetts Amherst

The use of odor-baited trap trees to aggregate plum curculio (PC) adults should simplify monitoring for PC by confining sampling to just a few odor-baited trees in an entire orchard. Under this approach, sampling would involve examination of about 50 fruit on a trap tree for signs of fresh PC egglaying scars. As discussed in a previous article in this issue, application of a perimeter-row spray would occur when one fruit out of 50 sampled fruit shows fresh injury. The question then becomes: how to tell a fresh injury from an older injury. Here, we present photographs of fresh and older PC injury from a study conducted in 2003.

Materials & Methods

At petal fall, cloth bags were placed over several terminals of unsprayed McIntosh and Delicious trees at the University of Massachusetts Cold Spring Orchard Research & Education Center in Belchertown. Each Monday beginning when king fruit averaged 6 mm diameter, two mated PC females were introduced into each bag and allowed to remain until Tuesday, when they were removed. On Wednesday, Friday, and the following Monday, a digital camera (Nikon CoolPix 990) was used to photograph some of the egglaying scars. Each scar shown here was therefore 1, 3, or 6 days old when photographed.

Results

Figures 1-4 show, respectively, egglaying scars that were photographed over 6-day periods for the weeks of May 28, June 4, June 11 and June 18. For McIntosh, fruit size averaged 6, 8, 14, and 19 mm diameter, respectively, when injury was initiated, whereas for Delicious fruit size averaged 6, 7, 10, and 14 mm diameter, respectively.

Regardless of the week when injury was initiated, photographs show that 1-day-old scars appear as narrow crescents (from top to bottom) similar to an eighth moon. Reflecting fruit growth, 3-day-old scars appear as somewhat broader crescents, with 6-day-old scars appearing as crescents that are broader still (much like a half moon) or as scars that have begun to lose their crescent shape.

Scars initiated on 6 mm fruit (week of May 28) show little sign of a stem and have little resemblance to a mushroom (Figure 1). Scars initiated on 10-14 mm fruit (week of June 11) show a distinct stem and strongly resemble a mushroom (or the cloud of an atomic bomb) (Figure 3). By 6 days after egglaying, even the most pronounced mushroom shape of a 1-day-old scar (as in Figure 3) has begun to fade.

It should be noted that the change in appearance from fresh to older PC egg-laying scars as described above is most accurate for McIntosh. With Delicious, the change in appearance is not quite as distinct – some caution is advised when looking at different cultivars as the age of PC egg-laying scars may be more difficult to judge than it is on McIntosh. More observations of other cultivars (such as Gala) are needed.

Conclusions

Once a grower or consultant has firmly in mind the image of a fresh (e.g., 1-day) versus an older (e.g., 6-day) scar, that mental image can be carried to the field to aid in interpretation of the age of PC scars on odor-baited trap trees.

Acknowledgements

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Figure 1. Appearance of PC egglaying scars on McIntosh (6 mm) and Red Delicious (6 mm) apples (left to right) that were initiated on May 27 and photographed when 1, 3 and 6 days old (top to bottom).

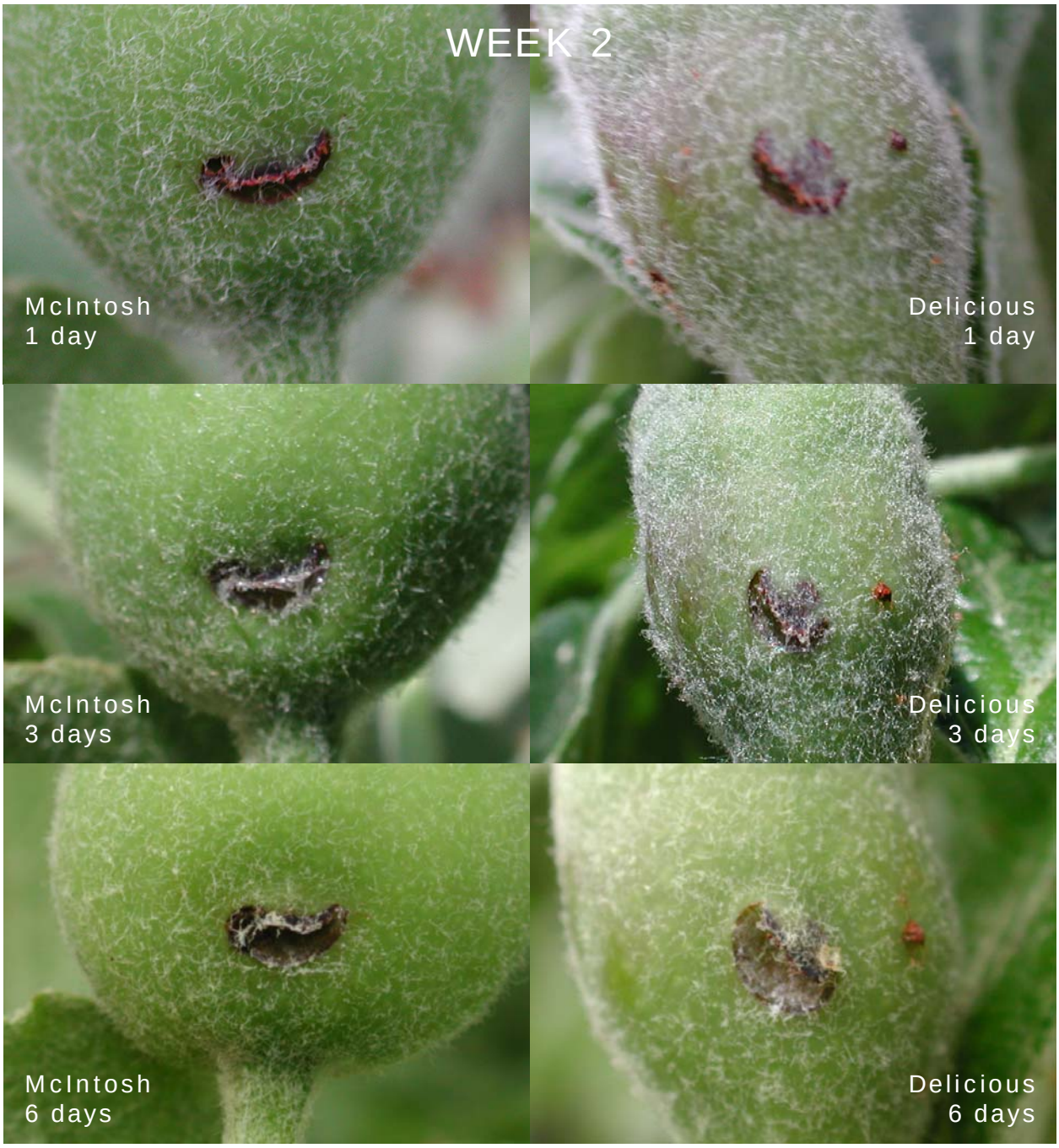

Figure 2. Appearance of PC egglaying scars on McIntosh (8 mm) and Red Delicious (7 mm) apples (left to right) that were initiated on June 3 and photographed when 1, 3 and 6 days old (top to bottom).

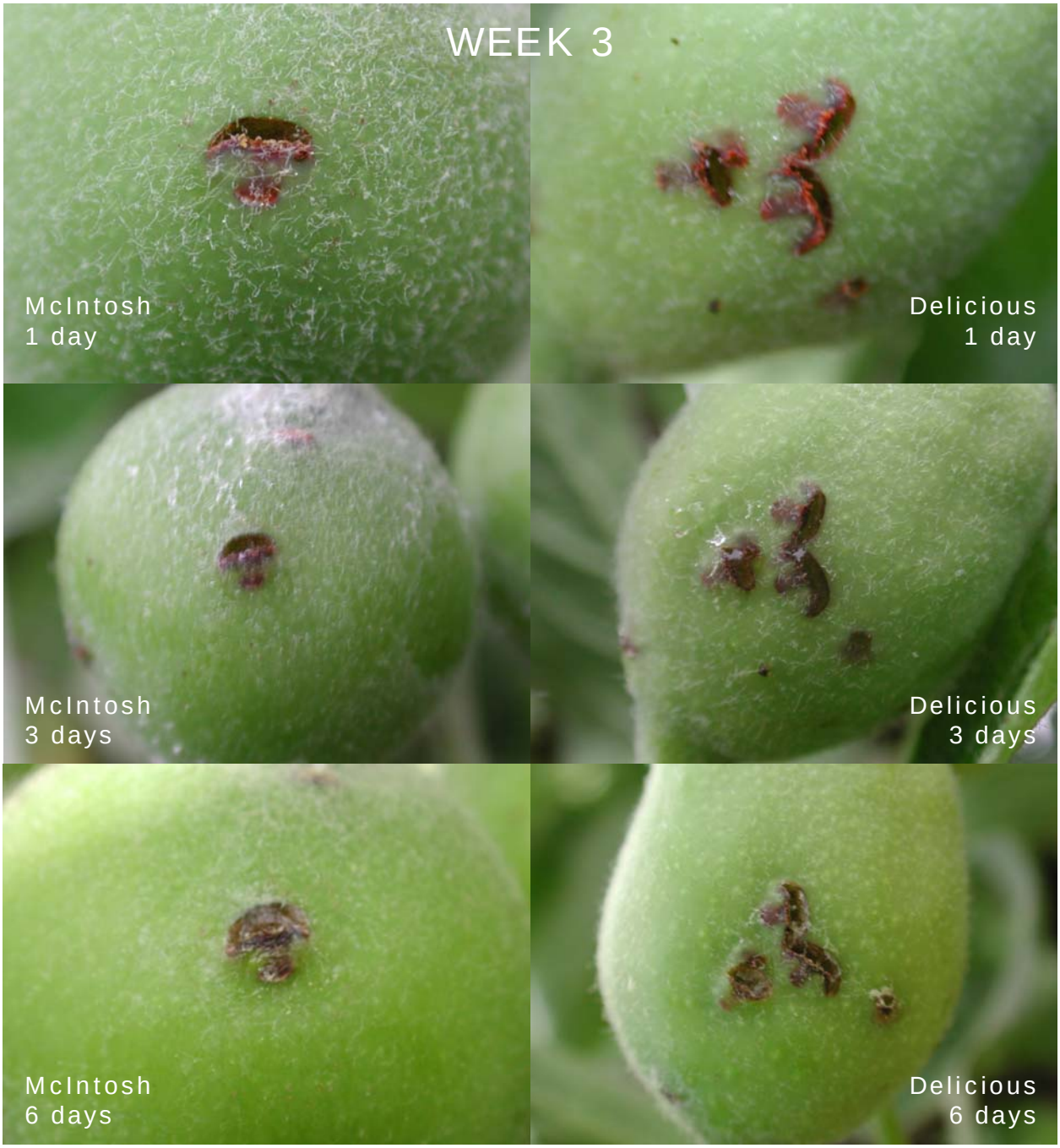

Figure 3. Appearance of PC egglaying scars on McIntosh (14 mm) and Red Delicious (10 mm) apples (left to right) that were initiated on June 10 and photographed when 1, 3 and 6 days old (top to bottom).

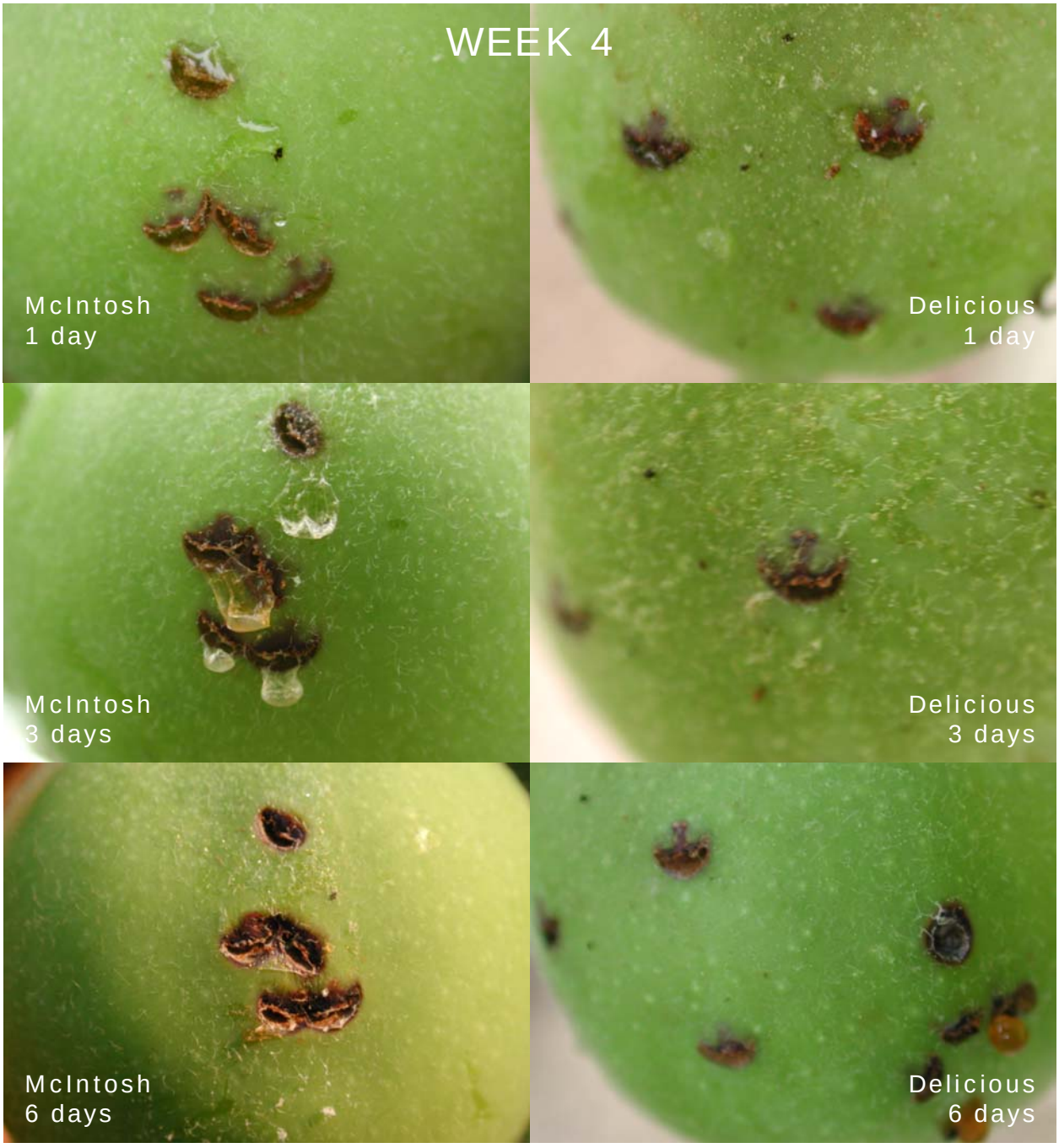

Figure 4. Appearance of PC egglaying scars on McIntosh (19 mm) and Red Delicious (14 mm) apples (left to right) that were initiated on June 17 and photographed when 1, 3 and 6 days old (top to bottom).