

## Herbicide Hazards in Hazelnuts

A recent spate of injuries to young hazelnut trees is a reminder that managing weedy vegetation and suckers in hazelnuts requires caution, especially when using herbicides.

### Practices to avoid when controlling suckers or weeds near hazelnuts trees

- Do not allow glyphosate (Roundup, Makaze, etc.) to contact green or immature bark<sup>1</sup> or foliage.
- Avoid contact of glufosinate (Rely, Reckon) and paraquat (Gramoxone, Firestorm) with green or immature bark.
- Do not add adjuvants such as ammonium sulfate or UAN to glufosinate when applying to suckers.

### Factors to consider

- Glufosinate (Rely, Reckon) and paraquat are very useful contact herbicides for sucker control. However, contact of these herbicides with green or immature tree bark may kill the bark or damage it and create points of entry for herbicides that will be applied later.
- Hazelnut varieties may differ in their ability to tolerate herbicides. The variety 'Jefferson' appears to be more easily injured based on observations in fields where pollinator trees receiving the same treatment sustained less injury.
- More damage has been observed on micro-propagated trees than on tie-off and conventionally layered trees, which may relate to the rate at which the bark of the micro-propagated trees matures.
- Plastic tree guards protect trees by preventing herbicide contact with bark; latex paint provides very little protection from herbicides.
- Plastic tree guards may slow development of brown bark. Herbicide injury and sunburn have been observed on the bark of trees during the season following the removal of tree guards, even when trunks were painted immediately after the guards were removed.
- Removing tree guards during times of environmental stress (low soil moisture, low humidity, high wind, high solar incidence) may increase risk of damage to the bark (e.g. 'southwest injury') that may later provide ports of entry for other herbicides. Removing tree guards in the spring may be a better choice than in the fall.



<sup>1</sup> Immature bark may look greenish or brown on the surface. If green tissue is visible when the bark is scraped gently with a knife, treat that tree as if it has green bark.

- Be aware that not all formulations of glyphosate are equal when it comes to their ability to move through bark and damage trees. Some formulations are loaded with surfactants that can help move herbicides across membranes. Other formulations have low levels of surfactant.
- Spiking glyphosate with surfactants may significantly increase its ability to move into green or immature bark and increase uptake through incidental contact with suckers, just as it does when adjuvants and fertilizers are added to improve weed control.
- Injury from glyphosate may slow development of dormancy in some crops and under some circumstance, particularly if injury is severe. This may have serious repercussions for freeze injury to the bark and sapwood if winter temperatures get low enough and the tree has not achieved adequate cold hardiness.
- Glyphosate damage to fruit and nut trees is epidemic nationally, due to the careless use of this herbicide.

#### **Researchable questions**

- Does propagation technique and hazelnut variety influence the ability of the tree bark to tolerate contact with herbicides?
- Does the use of tree guards delay the development of brown bark or create conditions that make the bark of hazelnut trees more susceptible to environmental and chemical insults?

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