Diagnosing Herbicide Damage In Saskatoon Orchards

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Introduction

Drift from the application of herbicides to fields near to the orchard, excessive rates and non-uniform applications, and mistaken applications of herbicides can have substantial negative effects on saskatoon orchards.

The general symptoms of herbicide injury include feathering and cupping of leaves, distorted or abnormal growth, reduced growth, delayed development, yellowing of leaves, loss of flowers or leaves, and dieback of branches and stems.

The severity of herbicide damage is associated with the specific chemical that the plants have been exposed to, the concentration of the herbicide, the amount of drift, and the duration of exposure. The effects of herbicide damage may be temporary and the plants often recover, although this may take one or two years.

Herbicide damage can be difficult to diagnose. Symptoms similar to herbicide damage may result from weather-related disorders, insect pests, diseases, nutritional problems, or damage from other air pollutants.

Glyphosate (Round-Up) Damage

Symptoms

Small leaves, slightly cupped upwards, short internodes; primarily associated with suckers.

Causes

Drift from use of glyphosate in proximity to fruit plants can be absorbed through the slick or porous bark of young stems. Apples, pears and stone fruits are very sensitive to bark absorption. Usually, the plants appear to be able to outgrow this damage and return to a healthy condition in 2 to 4 years.

Glyphosate is normally neutralized by negatively-charged clay particles in the soil. Overly sandy soils with very little organic matter may not sufficiently neutralize glyphosate, with the result that roots may absorb the herbicide. Thick mulches may contain functioning roots and therefore do not necessarily provide protection from exposure.

Control

Avoid the application of glyphosate

in locations near to the orchard on windy days. The use of devices to control drift from sprayers is advisable. All equipment used to apply herbicides must be thoroughly cleaned and flushed after every operation. Water sources that may be contaminated by herbicides must not be used for mixing any pesticide.

2,4-D & Phenoxy Herbicide Damage

Symptoms

Leaves with pronounced, feathery extensions; ends of leaves flattened (Figures 1, 2, 3, and 4). Leaves may have a leathery appearance, with the veins appearing prominent.

Causes

Drift from use of 2,4-D and related phenoxy herbicides in proximity to fruit plants is absorbed through developing leaves and buds. Saskatoon plants appear to be able to outgrow this damage and return to a healthy condition in 2 to 4 years.

Control

Avoid the application of 2,4-D or related herbicides in locations near to the orchard. Herbicides must not be applied on windy days. The use of devices to control drift from sprayers is advisable. Control of such damage may be difficult because drift appears to be able to travel considerable distances. All equipment used to apply herbicides must be thoroughly cleaned and flushed after every operation. Water sources that may be contaminated by herbicides must not be used for mixing any pesticide.

Figure 1. Symptoms of 2,4-D and phenoxy herbicide damage on saskatoon leaves.

Figure 2. Symptoms of 2,4-D and phenoxy herbicide damage on saskatoon leaves.

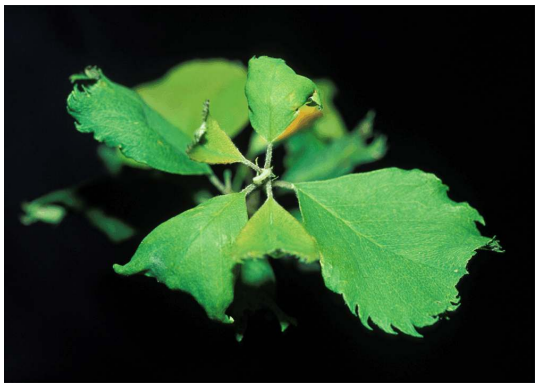

Figure 3. Symptoms of 2,4-D and phenoxy herbicide damage on saskatoon leaves.

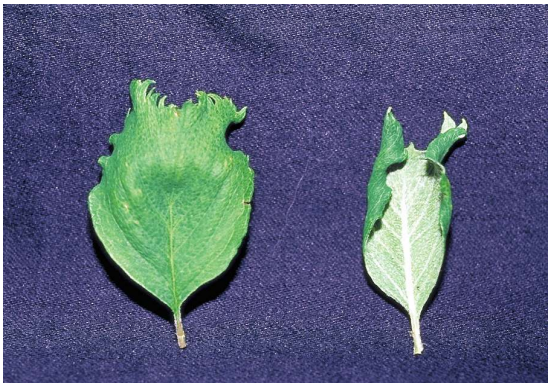

Figure 4. Symptoms of 2,4-D and phenoxy herbicide damage on saskatoon leaves.

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