

## FRUIT FINISH and PHYTOTOXICITY

Certain pesticides, formulations or pesticide combinations can produce or increase fruit russetting under certain conditions. Risk of russetting is increased by overdosage, and by application when the temperature is over 80°F or during poor drying conditions.

Low temperatures (frost) and genetic or physiological factors also contribute to poor fruit finish. Golden Delicious, Red Delicious and even McIntosh are sensitive to certain pesticides.

Also check Table 19 – *Spray Mixture Incompatibility* before tankmixing.

**Table 18 – Precautions on Plant and Fruit Injury from Pesticides**

<b>PESTICIDE</b>	
<b>Agri-Mek</b>	In combination with horticultural spray oil, Agri-Mek may cause russetting on light-skinned cultivars such as Golden Delicious. Damage may also occur when other products are applied after Agri-Mek + oil.
<b>captan</b>	<b>Do not use within 10 days before or after an oil application.</b> Do not combine with EC formulations of certain pesticides (e.g., organic phosphates) or with strongly alkaline materials. It should not be applied to alkaline residues. Also, the use of spreaders which cause excessive wetting is not advised. Has caused spotting, yellowing and dropping of leaves when used before 3 weeks after petal fall on Delicious, Spartan, and Baldwin. Do not use in combination with, closely following, or in alternation with sulfur products on these or other sulfur sensitive cultivars as severe injury and defoliation may occur.
<b>coppers (Basicop, Blue Shield, Champ, COCS, Kocide etc.)</b>	Caution is advised for use after silver tip. Sprays containing copper may cause damage to young foliage or cause fruit russetting, particularly under slow drying conditions or if there are freezing temperatures within 48–72 hours before or after the application. Risk of fruit russetting increases by green tip. Do not allow Kocide solution pH to fall below 6.5. Tank mixing Kocide 2000 with Aliette can cause severe phytotoxicity unless spray solution is properly buffered.
<b>diazinon</b>	Has caused russetting on Golden Delicious, R.I. Greening and Baldwin. Do not combine with copper. May cause poor finish or russetting if used under poor drying conditions or before second cover on sensitive cultivars.
<b>Ferbam</b>	May cause lenticel enlargement on some cultivars. May cause severe russetting on Golden Delicious and other cultivars that russet easily, especially if applied from pink through first cover periods. Late-season use can leave visible residue on fruit and foliage.
<b>insecticidal soap (Safer's, M-Pede)</b>	May cause fruit russetting under poor drying conditions.
<b>Kelthane (dicofol)</b>	Has caused necrotic fruit spotting when combined with dodine, Kocide or highly alkaline materials. Combination of Kelthane 50WP and summer oil has caused fruit spotting and enlarged lenticels when applied during poor drying conditions.

**Table 18 (Continued) – Precautions on Plant and Fruit Injury from Pesticides**

<b>PESTICIDE</b>	
<b>Lannate (methomyl)</b>	Do not use on Early McIntosh or Wealthy.
<b>oil (horticultural)</b>	<p>Oil injury generally appears as swollen and cracked lenticels and/or bark blistering. It is caused mainly by double deposit (allowing one side to dry before the other side is sprayed), by concentrate sprays or by application when low temperatures (below 38°F, and particularly below freezing) occur within 24 hours, before or after oil application especially on Delicious.</p> <p>Oil may cause phytotoxicity if used within 10 days before or after captan or Morestan. The safe interval is much longer for sulfur. Oil has questionable or limited compatibility with many other pesticides, including Guthion, Sevin and Vydate. Check labels and Table 20 before tankmixing.</p> <p>Yellowing leaves are the first sign of summer oil phytotoxicity and indicate that the rate of oil should be reduced for any subsequent applications. <b>There is a high potential for phytotoxicity and fruit finish damage with summer oil use.</b> Cultivar, adequate moisture, and spray drying conditions should be considered before using summer oil to minimize detrimental effects on fruit finish.</p>
<b>Sevin (carbaryl)</b>	Foliar injury may result when used at petal fall and first cover on McIntosh and Cortland. Causes thinning if used within 30 days after full bloom. Questionable compatibility with oil.
<b>sulfur</b>	Has russeted fruit when sprayed postbloom at above 80°F. May cause leaf spotting on Delicious and some other cultivars when combined with captan. Check label for restrictions on use around an oil application; certain labels prohibit the use of sulfur within 30 days of an oil application.
<b>Surround</b>	Washing is required unless film weathers off before harvest. Most residues wash off with brushing and forced water sprays. An approved fruit cleaning detergent may be used in the packing line and/or wash tank. A preharvest washing trial is recommended to determine if a detergent is necessary
<b>Syllit</b>	At dosage of more than 1/2 lb./100 gals. dilute, dodine may cause injury if applied at freezing or near-freezing temperature, particularly when accompanied by slow drying conditions. May russet Golden Delicious. May cause injury when used at 1/2 lb./100 gals. in tankmix with Kelthane WP. In combination with sulfur, can cause leaf spotting on Delicious. Has caused necrotic spotting of McIntosh and Cortland fruit. Syllit 65W plus oil combinations are not compatible with wettable powder formulations of carbaryl, ferbam or sulfur.
<b>Topsin M</b>	Do not tankmix with copper-containing materials or with highly alkaline pesticides, such as Bordeaux mixture or lime sulfur. Within 40 days of petal fall, Topsin-M may exacerbate 'scarf skin' on Delicious.

**Check pesticide label carefully for compatibility cautions before combining with spray adjuvants (wetting agents, spreaders, stickers, etc.)**