The "X" Factor

Jeff Alicandro
agr.assistance

Just ask any apple grower who also grows vegetables or strawberries: Spraying tree fruit crops truly *is* quite different than spraying other crops. Partly because of the exaggerated 3-dimensional nature of generally taller tree fruit plantings- but also because of all the different rootstocks involved and the resulting wide diversity of planting systems with highly variable row spacings, tree shapes, tree widths and tree heights. Spraying an acre of soybeans is *pretty much* like spraying any other acre of soybeans--- but that's not at all true with many treefruit crops and especially not so with diverse apple production systems.

That's why unique spraying systems have been developed for treefruit crops- primarily airblast spray rigs which utilize both water and wind to achieve thorough spray coverage. And that's also why unique dialects have evolved around the business of spraying perennial treefruit crops like apple trees. You know- those often murky and confusing concepts like tree-row volume(TRV), concentrate spraying, use of rates per 100 gallons dilute and "X" spraying (3X vs. 6X. etc.)- in addition to the more ubiquitous "per acre" standard verbiage used across most other cropping systems. And don't think that all fruitgrowers in all regions of North America talk the same talk when spraying apple trees--- *heck they don't always talk the same talk down at the local coffee shop!*

So what does "X" spraying really mean- like applying "3X" sprays vs. "6X" sprays ?

- Most experienced fruitgrowers were schooled on and thoroughly understand the concept of concentrate spraying in orchard crops- spraying with higher water volumes like 3X vs. using lower volume applications like 6X or 8X. However, few growers or crop consultants would agree on when and why it's wise to spray at 3X vs. 6X vs.10X water volumes. *Hey it's complicated--- plus what the heck did you think we do all winter long?*
- On the other hand, ag industry personnel often are bewildered by the jargon used in spraying treefruit crops- since they are used to working with field crops where "an acre is an acre". And after reading thru pesticide labels, many label authors were also thoroughly confused about what these orchard spraying concepts meant. *And surprise!!- make sure you're sitting down for this one: EPA is even more confused yet...*
- No matter what "X" is applied, the exact same product rates are applied per acre on a particular orchard. A "3X" spray uses only 33% of the water volume (gpa) of a 1X(dilute) spray- but three times(=3X) the amount of material is put into a 3X tank compared to a 1X tank- resulting in the same chemical rate being sprayed per acre in a particular orchard- even though the actual water volume(gpa) applied may vary from spray to spray.
- 1X = full dilute spraying - as determined either by actual tree-row volume measurements or estimated using accepted industry standards. The old standard for dilute spraying was based on 400 gpa- but as tree plantings became a bit more dwarfing it evolved to 300 gpa for full dilute. Today many processing apple blocks and sour cherry blocks are sprayed on a 300 gpa dilute basis- while many dwarf fresh fruit apple blocks are sprayed on a 150-225 gpa dilute basis. *However almost no commercial growers spray dilute anymore.*
- 3X = spraying at one-third of the full dilute(1X) water volume- so for bigger processing apple blocks 3X spraying typically translates to applying 100 gpa(= 33% of the 300 gpa dilute basis); for dwarf fresh fruit apple blocks 3X spraying often translates to applying 50-75 gpa(= 33% of the 150-225 gpa dilute basis)
- 6X = spraying at one-sixth of the full dilute(1X) water volume- so for bigger processing apple blocks 6X spraying typically translates to 50 gpa(= about 16-17% of the 300 gpa dilute basis); for dwarf fresh fruit apple blocks 6X spraying often translates to applying 25-37 gpa(= about

16-17% of the 150-225 gpa dilute basis)

- Since most commercial fruitgrowers farm across a wide range of tree planting systems and ages, applying a single "3X" spray might mean applying 50 gpa in one orchard, 75 gpa in another and 100 gpa in another yet.

What does it all really mean both today and down the road?

- Many fruitgrowers continue to talk about spraying at "3X" or "6X" water volumes- while others are more accustomed to discussing the actual gpa applied. Either way ultimately you also have to be able to cipher and record the actual pesticide product rates *which are applied per acre*- regardless of your gpa or "X" applied.
- Spray records *always* need to list pesticide rates *per acre*- that's what both auditors and fruit buyers require.
- Since modern dwarf apple plantings typically have a much lower variation in dilute TRVs- it will increasingly make sense to deal in rates per acre for ALL apple orchards as well. *But we're not quite there yet...*

And now you know *why* I turned prematurely gray... (and yeah both YOU and my family chipped in some too).

Editors Note: Jeff Alicandro is the owner of agr. assistance, a grower consulting company in western New York. http://www.agrassistance.com/ This article was reprinted with permission from agr.news e-newsletter.