

Myth busting Foodie Farmer: Do conventional farmers “douse” fields in chemicals?

Last week on my [Foodie Farmer Facebook](#) page I shared this post of me spraying in my vineyard.

I’ve never had a post reach this many people. With more than 10,000 people reached, it is obviously something people are interested in and hopefully want to learn more so figured it was worth a blog post for further discussion.

First, when we spray, we don’t “douse”. The definition of “douse” means to drench or to pour.... which is exactly what we are NOT doing. First, ALL pesticides (fungicides, insecticides, and herbicides) whether they are organic or synthetic have a “rate per acre” which is the concentration they should be mixed and applied to be effective against a target pest. Second, all pesticides (fungicides, insecticides, and herbicides), whether organic or synthetic have a “carrier”. A carrier is the means by which a pesticide is conveyed or transported. Most typically this carrier will be water.

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In this picture above, I am towing an air-blast or fan sprayer with a 500 gallon tank. My goal in getting good coverage through the entire canopy of my vineyard is to apply 50 gallons per acre. So I can cover 10 acres with a full tank. I don’t have 500 gallons of pesticide in this tank, I have mostly water, almost a gallon of a liquid chemical, and about 50 pounds of two dry/powder organic pesticides..

So let’s look at this more closely....

In this tank, I used two fungicides to protect my vineyard from powdery and downy mildew, amongst other things. I mixed OMRI (organic approved) Sulfur at two pounds per acre, OMRI listed Copper at three pounds per acre. I also sprayed the synthetic insecticide Intrepid at 12 ounces per acre.

I stink at math so feel free to check my calculations but here is what I mixed:

I will cover 10 acres with this tank so need the right concentration in order for the product to work:

2 lb sulfur (its what we call WDG or wettable dry granular) x 10 acres = 20 pounds

3 lb copper (also granular) x 10 acres = 30 pounds

12 ounces Intrepid (liquid) x 10 acres = 120 ounces (8 ounces shy of 1 gallon)

So the dry products will displace some water because of their density, and of course the 120 ounces displaces at least 120 ounces of water in my tank, so to estimate, I’m adding approximately 495 gallons of water to five gallons of product (I did not do the Archimedes calculation, this is my ballpark estimate from having 15 years as a pesticide applicator and then erred on the side of caution and rounded down).

So in dilution i have a full tank of 64,000 ounces of solution to apply across 10 acres.
One acre is 43,560 square feet, so I have 435,600 square feet to cover with my tank.

Total tank mixture: $64,000/435,600 = 0.146$ ounces of solution per square foot is applied.

Of that:

Total Intrepid: $120 \text{ ounces}/435,600 = .00028$ ounces per square foot applied.

Total sulfur: $20 \text{ pounds}/435,600 = 0.000046$ pounds per square foot applied.

Total copper: $30 \text{ pounds}/435,600 = 0.000069$ pounds per square foot applied.

With fungicides in fruits and vegetables, we are spraying to protect the foliage because diseases that impact the health of the leaves will result in fruits and veggies that don't ripen. The leaves function to convert sunlight into carbohydrates to give the plant energy. Without healthy leaves, the plant can't send



When I spray with the fan-sprayer in the vineyard, I'm using a

higher rate per acre than we would use in our corn or soybeans.

The sprayer above is used in our tomatoes, green beans, wheat, corn and soybeans. We are spraying at the 15 – 20 gallons per acre rate for herbicides or if the crop including our vegetables needs a fungicide, we are spraying at the 30 – 35 gallon per acre rate.

Its a 750 gallon tank so using 15 gallons per acre, this sprayer can cover 50 acres per tank. This equals 2,178,000 square feet.

$750 \text{ gallons} \times 128 \text{ ounces in a gallon} = 96,000$.

$96,000 \text{ ounces in that spray tank} / 2,178,000 \text{ square feet} = 0.04$ ounces per square foot.

This is pretty far from "dousing".....

pesticide

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Click image for larger version.

So let's look at these labels a little closer.

The signal word is indicative of acute toxicity to the person who is mixing the product.

The re-entry interval is the time between application and when someone can go into that field to work without have to wear protective equipment.

The LD50 is a specific measure of acute toxicity by some means of ingestion – oral, inhalation or dermal absorption.

Make no mistake, these all are pesticides. Whether a product is organic or synthetic is irrelevant. Both are toxic and how it is derived does not necessarily make one safer than another. Pesticides are by definition toxic to something, they have to be or they would not be pesticides. The “cide” part of the compound word “pesticide” is derived from the Latin word meaning “to kill”, so fungi”cide”, insecti”cide” and herbi”cide” are all by definition toxic to some class of pest. That does not mean that they are universally toxic to everything. Not all insecticides kill every bug, not all herbicides kill every weed. Some are targeted, some are broad spectrum. Don't make assumptions about what we are using without asking or you might be wrong.

And be careful what you are doing yourself. According to the U.S Fish & Wildlife Service:

“Homeowners use up to 10 times more chemical pesticides per acre on their lawns than

farmers use on crops, and they spend more per acre, on average, to maintain their lawns than farmers spend per agricultural acre.”

More often than not, homeowners are not wearing the mandatory protective equipment that is specified on every pesticide label, exposing themselves and others unnecessarily. Homeowners are more likely to “douse” because you may spray until the liquid drips off the plant. Exactly what we farmers don’t do....

Part II: Spraying not dousing

I posted this blog this morning. This afternoon, I was back in the vineyard with my weed sprayer. I
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control the weeds under the vines to reduce the competition for nutrients and moisture. My sprayer has 2 nozzles, one on each side of the row, so I am doing what we call “band” spraying, a 4 foot strip, 2 feet on each side of the row, not spraying the entire vineyard floor

I happen to have a paper towel in the cab of my tractor so I put it on the ground. You can see my single nozzle above the paper towel.

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Because this is spraying and not dousing, I do not need to soak the paper towel. I drove the same speed

past the paper towel as I would had I been  spraying weeds. If you look closely, you

will see that it is orange speckled.

Here is a closer up pic at what a spray pattern looks like. You can see it is not doused.

This is it. Those orange speckles are all the 6 inch by 12 inch paper towel received as I sprayed over it. The plants do not get “doused”. There is no dripping off of chemical solution. They do not need to be soaked in herbicide to achieve good weed control. There is no saturation. There is no dousing.

This post originally appeared on Jennie Schmidt’s Facebook and [blog page](#), and was reproduced with her permission.

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