

# Fruit & Vegetable News

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## Weird Problem in Cantaloupe Fruit

By Jerry Brust, IPM Vegetable Specialist UME, and Karen Rane, Director UMD Plant Clinic

There have been some strange happenings in vegetable/fruit fields this season. The latest one is with cantaloupe fruit. The fruit looks good when examining it from the outside, but cutting it open reveals an interior that has a dark, wet appearance in the fruit's wall between the outer rind and the seed cavity (fig. 1). I first thought this was possibly a disease such as charcoal rot or black rot, but Karen Rane could find no disease-causing organisms in the damaged areas of the fruit or anywhere else in the fruit. She then came up with something called glaze or glassy fruit.

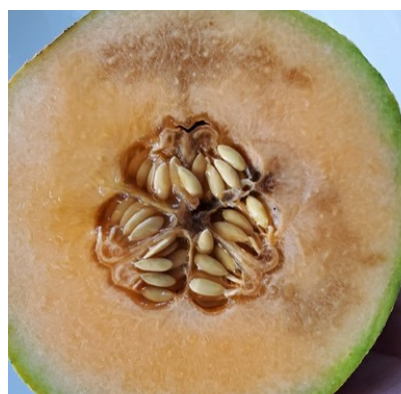


Fig. 1.) Dark greasy or wet-looking areas of cantaloupe flesh. Photo: D.Paulk.

Glaze fruit is an abiotic problem that is characterized by the glassy appearance of part of the cantaloupe flesh. This spot then quickly takes on a wet appearance and over time begins to break down becoming soft and watery. This damaged area then gives off an alcoholic fermentation odor. Often times the outside of the fruit will remain clean, with no symptoms (fig. 2), but inside the fruit the watery rot is spreading. However sometimes a dark, greasy looking spot can become visible on the surface of the fruit at a very advanced stage of decline (fig. 3).



Fig. 3.) Fruit with outside surface with dark areas. Photo: K.Rane, UMD.

Would like to say that there is a good understanding as to what causes this decline in the fruit, but there is little definitive information out there about it. Among the factors likely to promote the appearance of this condition are: an excessive fruit load, cool weather that quickly turns hot, very dry soil conditions which promote poor root development, a deficiency in calcium and potassium and cultivar sensitivity. Bottom line, the causes are stressful weather conditions that affect some varieties more than others. Fortunately, this malady disappeared from this field after this harvest.



Fig. 2.) Fruit with damaged flesh, but outside looks good. Photo: D.Paulk

## Strawberries and Fall Nitrogen

By Haley Sater, UME Agriculture Agent Wicomico County

As summer weather begins to wane giving rise to cooler daytime temperatures it's time to either get strawberries planted for spring or maintain carry over strawberries which means it's time to think about fall nitrogen application. The success of a spring strawberry crop hinges on the preparatory measures taken in the preceding fall. Nitrogen plays a central role in plant growth and development. Fall nitrogen fertilization equips strawberry plants with the resources they need for vigorous growth, flowering, and fruiting in the subsequent growing season.

### Carry Over Plants

If you have not already done so, make sure to have leaf tissue samples analyzed to base your nitrogen and other nutrients applications off of. Generally, 40-60 lb per acre N are recommended as a fall nitrogen dose. During the fall, strawberry plants exhibit heightened nutrient absorption and storage mechanisms. As temperatures drop and daylight decreases, plants shift their focus from vegetative growth to nutrient uptake and storage. Applying nitrogen during this period facilitates its absorption and conversion into storage forms, such as proteins and amino acids, which are crucial reservoirs for subsequent spring growth. Split applications of N are recommended because strawberries have shallow root systems and are typically grown on lighter, sandier soils, which are prone to leaching. Fertigation is the best way to fertilize because it allows for smaller doses of nitrogen to be applied compared to broadcasting N. It's recommended to administer nitrogen six weeks before the first expected frost.

### Annual Systems

For annual production systems that will not be carried over nitrogen application prior to planting is even more critical. Two thirds of all the N for the planting should be applied in the fall. New plastic mulched beds should be planted ideally in early to mid-September. Fertigate using 60-70 pounds N one week prior to planting.

### Nitrogen Source

Nitrate-N fertilizers are recommended because strawberry plants utilize Nitrate-N over Ammonium-N which must be converted into Nitrate-N by soil microbes and therefore, takes longer to become accessible to strawberry plants. Additionally, most Ammonium-N sources acidify soil more quickly than Nitrate-N sources.

### Conclusions Importance of Fall Nitrogen

Nitrogen availability in the fall primes strawberry plants for successful flower bud initiation. Well-nourished plants are more likely to produce higher numbers of well-formed flower buds, demonstrate improved stress tolerance, and withstand cold stress and potential frost damage. Although additional nitrogen is recommended in spring at or before bloom for strawberries, missing, late or inadequate application of fall N will seriously limit strawberry yield for the following spring.

## Unusually High Spotted-Wing Drosophila Pressure

By Kathy Demchak, Senior Extension Associate, Department of Plant Science, Penn State University, and Kelly Hamby, Associate Professor/Extension Specialist UMD

The invasive spotted-wing drosophila (SWD) is the key insect pest of soft-skinned fruit across the United States. With the recent wet weather, we have been experiencing higher than normal spotted wing drosophila (SWD) pressure. Depending on the intensity and amount, rain also substantially reduces insecticide residual activity against SWD; 0.8 inches will drop percent control for most insecticide products even at 3 days after treatment.<sup>1</sup> Therefore, reapplication after rain is the best bet. If producers cannot shorten their intervals or reapply, they might consider products like Mustang Maxx (zeta-cypermethrin) or Exirel (cyantraniliprole) which seem to be more rainfast than Delegate (spinetoram) or malathion.<sup>1,2,3</sup>

Applied entomologists across the United States were asked to provide their relative ranking of insecticide performance against SWD under field conditions, across multiple crops (cranberries, cherries, and

blueberries) and different regions (CA, OR, WA, MI, ME, NY, NJ, NC, GA, FL) with a scoring system of 0 = ineffective, 1 = weak, 2 = fair, 3 = good, and 4 = excellent. The most recent rankings were summarized in 2021.<sup>4</sup> These rankings along with the active ingredient, IRAC code, crop that they can be used on, and pre harvest and reentry intervals are provided in **Table 1**. The final decisions on which insecticide to use should be based on whether it is registered for your crop, the pre-harvest interval, the cost, and also its suitability for helping to manage insecticide resistance. As always, rotate modes of action, ensure good spray coverage, and follow all label instructions.

**Table 1.** Insecticide efficacy rankings for spotted wing drosophila (SWD). Note that SWD does not appear on the labels of all products listed; when that is the case, whether the material can be used for SWD depends on regulations in each state. Not all products are registered for use in all states so you should consult the label and your state’s registrations for products that may be used in your location. (R) following the pesticide name indicates that the material is a restricted-use pesticide.

Ranking	Rating*	Product Name	Active Ingredient (s)	IRAC code (chem .class)	Pre-harvest interval (d = days; h = hurs; --- = not labeled for use on this crop). See indiidual product labels for details				Re-entry interval (h = hours; d = days)
					Strawberry	Brambles	Blueberries	Ribes	
1 <i>(limited data)</i>	E <i>(limited data)</i>	Cormoran	novaluron + acetamiprid	15 + 4A	1d	---	8d highbush); 1d (lowbush)	8d	12h
2	E	Lannate (R)	methomyl	1A	---	---	3d	---	48h for blueberries
3	E	Mustang Maxx (R)	zeta-cypermethrin	3A	---	1d	1d	1d	12h
4	E	Danitol (R)	fenpropathrin	3A	2d or 3d (see label)	3d	3d (highbush) 2d or 3d (lowbush)	21d currants 3d gooseberry	24h
5	E	Imidan	phosmet	1B	---	---	3d	---	24h highbush; 3d lowbush
6	E-G	Diazinon (R)	diazinon	1B	5d	---	7d	---	5d blueberry; 3d strawberry
7	E-G	Asana (R)	esfenvalerate	3A	---	7d	14d	---	12h
8	E-G	Verdepryn	cyclaniliprole	28	1d	1d	1d	1d	4h
9	E-G	Brigade (R)	bifenthrin	3A	0d	3d	1d	1d	12h
10	E-G	Exirel	cyantraniliprole	28	1d	1d	3d	3d	12h
11	E-G	Malathion	malathion	1B	3d	1d	1d	1d currants; 3d gooseberry	12h
12	E-G	Delegate	spinetoram	5	---	1d	1d or 3d	1d or 3d	4h
12**	E-G	Radiant**	spinetoram	5	1d	---	---	---	4h
13	E-G	Hero (R)	zeta-cypermethrin + bifenthrin	3A + 3A	---	3d	1d	---	12h
14	G	Entrust	spinosad	5	1d	1d	1 or 3d	1 or 3d	4h
15	G	Baythroid XL (R)***	beta-cyfluthrin	3	---	---	---	---	12h
16	F	Apta	tolfenpyrad	21A	1d	1d	3d	3d	12h
17	F	Assail	acetamiprid	4A	1d	1d	1d	1d	12h
18 <i>(limited data)</i>	F <i>(limited data)</i>	Spear-T	GS-omega/kappa-Hctx-Hv1a	32	0d	0d	0d	0d	4h

Ranking	Rating*	Product Name	Active Ingredient(s)	IRAC code (chem class)	Pre-harvest interval (d = days; h = hours; --- = not labeled for use on this crop). See individual product labels for details				Re-entry interval (h=hours d = days)
					Strawberry	Brambles	Blueberries	Ribes	
19	F	Sevin	carbaryl	1A	7d	7d	7d	7d	12h
20	F	Grandevo	<i>Chromobac-terium subtsugae</i> strain PRAA4-1 <sup>T</sup> and spent fermentation media	not applic.	0d	0d	0d	0d	4h
21	F	Movento	spirotetramat	23	---	---	7d	7d	24h
22 (limited data)	F (limite d data)	Pyganic	pyrethrins	3A	0d	0d	0d	0d	12h
23	F-W	Veratran D***	Sabadilla alkaloids	not applic.	---	---	---	---	12h
24	F-W	Altacor	chlorantranili-prole	28	---	3d	1d	1d	4h
25	F-W	Venerate CG	Heat-killed <i>Burkholderia</i> spp. strain A396 cells and spent fermentation media	UnB	0d	0d	0d	0d	4h
26	F-W	Azera	azadirachtin + pyrethrins	Un + 3A	0d	0d	0d	0d	12h
27	W	Jet-Ag	hydrogen peroxide + peroxyacetic acid	not applic.	none listed on label				Until sprays dry in field; 4h in greenhouses
28	W	Azaguard	azadirachtin	Un	0d	0d	0d	0d	4h
29	W-N	Rimon	novaluron	15	1d	---	8d highbush; 1d or 8d lowbush	8d	12h
30	W-N	Sivanto	flupyradi-furone	4D	see label	0d	see label	see label	4h or 12h (see label)
31	W-N	Admire Pro	imidacloprid	4A	7d (foliar); 14d (soil)	3d (foliar); 7d (soil)	3d (foliar); 7d (soil)	3d (foliar); 7d (soil)	12h

\*E = excellent, G = good, F = fair, W = weak, N = Little to no efficacy

\*\*Radiant was not rated in the original document, but was assigned the same ranking as Delegate based on active ingredient.

\*\*\*Baythroid is not labeled for berry crops but may be used on cherries and grapes. Veratran D is not allowed for use on any berry crops, but is labeled for use on certain crops grown in warm climates.

**References**

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