Fruit Pest News

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An online newsletter whose goal is to provide all interested persons with timely information on diseases and insects of commercial fruit and vegetable crops in Tennessee.

Text appearing in blue or red can be clicked to link to other web sites. Be aware that much of the linked information is produced in other states and may not be applicable to Tennessee.

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1. Current Conditions

The spring is moving along nice and slowly, with no major frosts lately. The rainy weather brings hope that this year will be different from last year. Congratulations to Southeast Tennessee, which was just moved from the exceptional category to the extreme category by the U.S. Drought Monitor. That's progress! Apples are at tight cluster to pink tip. The cedar-apple rust galls on cedars at Nashville are just beginning to produce the fleshy, orange tendrils, indicating the need for a rust spray on apples. (SB)

2. How to Apply the New Fumigant, Midas

As the supply of methyl bromide (MB) dwindles, Midas fills the need for an effective, broad-spectrum fumigant that can be used by itself. Midas compares well in efficacy with MB without the adverse ozone effects.

The question has been asked: Can you apply Midas fumigant through a drip irrigation system? The answer is "yes" if you use the Midas EC Gold or Midas EC Bronze formulations. These formulations can only be applied through a drip irrigation/raised bed system, and are labeled for peppers, tomatoes, strawberries. The drip tape must be buried 2-4 inches deep and a tarp seal must be used.

Other formulations of Midas must be used for stone fruits, tree nuts, or grapes. These formulations are Midas 25:75, Midas 33:67, Midas 50:50, and Midas 98:2 - each formulation is denoted by the ratio of iodomethane to chloropicrin. There are three application methods: 1 - raised bed (peppers, tomatoes,
strawberries), 2 - broadcast flat (peppers, tomatoes, strawberries, stone fruits, tree nuts, grapes), and 3 - deep injection auger probe (stone fruits, tree nuts, and grapes). For raised beds and broadcast applications, the fumigant is injected at least 6 inches deep by chisels spaced no more than 12 inches apart. **Refer to the labels for details on application of Midas products.** You must be certified to purchase and apply Midas and must take a course provided by Arysta LifeScience, at [https://www.cepestmngt.com/mLogonCheck.aspx](https://www.cepestmngt.com/mLogonCheck.aspx).

Currently, Midas costs more per acre than MB, but the cost of Midas can be reduced to the level of MB by using highly-retentive tarps such as virtually impermeable film (VIF). This film slows the escape of the gas and allows you to reduce the Midas rate by 40-50%, but costs about $200 more per acre than standard low-density polyethylene. Thus, the overall cost of using a reduced rate of Midas with VIF will exceed that of MB.

We are interested in conducting some field trials to compare Midas with MB and other fumigants under Tennessee conditions. If you are interested, please contact Steve Bost (contact info at the end) or your county extension office. (SB)

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### 3. More on the New Fungicides, Revus and Presidio

As was mentioned in last week's issue of *Fruit Pest News*, Revus and Presidio fungicides recently received their initial registrations. Further information is provided below.

**Revus 2.08SC** (mandipropamid) is an oomycete fungicide from Syngenta. It is labeled for the leafy brassicas other than turnips - cabbage, broccoli, brussels sprouts, cauliflower, collards, kale, and mustard - for downy mildew control; onions, for downy mildew control; cucurbit crops, for downy mildew and Phytophthora blight suppression; lettuce, head and leaf - for downy mildew control; spinach, for downy mildew (blue mold) control, peppers, for foliar and fruit phase of Phytophthora blight; and grapes, for downy mildew control.

Mandipropamid is locally systemic, i.e., it is absorbed into the tissue to which it is applied but does not move far from the point of application. It is translaminar, i.e., it will move from the upper side of the leaf to the bottom, and vice versa. Revus has excellent rainfastness, adhering to the waxy layer of the leaf and being rainfast as soon as sprays have dried and retaining superior residual control. Its primary effect on the fungus is inhibition of spore germination, with secondary effects on mycelial growth and sporulation.

Revus is applied as a foliar spray by ground or air. To take advantage of its superior bonding ability to the wax layer, adjuvants must be used when applying Revus to crops with waxy leaves, such as bulb crops and brassicas (silicone based surfactants). Non-ionic surfactants or crop oil concentrates must be used for brassicas or cucurbits, and are recommended for the other labeled crops.
Revus has been placed in FRAC (resistance management) group 40, the carboxylic acid amides. It shares this group with dimethomorph (Acrobat, Forum) and should not be rotated or tank mixed with them. The resistance risk is only low to medium, but Revus should be involved in a resistance management program. Only 4 applications per crop are allowed by the label, and the applications should be rotated with non-related fungicides.

**Revus Top** is a combination of mandipropamid and difenoconazole, a sterol inhibitor, that is labeled for control of late blight and early blight on potato and tomato. It has not been added to our recommendations at this time because of a lack of available efficacy data.

**Presidio 4SC** (fluopicolide), from Valent, currently targets foliar oomycete pathogens and will eventually be labeled for soil-borne oomycetes also. The label includes downy mildew and Phytophthora blight of cucurbit crops; late blight and Phytophthora blight of pepper, eggplant, and tomato; downy mildew of leaf and head lettuce; and white rust of spinach.

Like mandipropamid, fluopicolide has translaminar activity in the leaves. It also has xylemic mobility -- following application to the roots*, the active ingredient is translocated up the plant to the foliage. When applied to the base or petiole of a leaf, fluopicolide moves toward the leaf tip. The molecule is not, however, phloem mobile and therefore does not move out of a treated leaf to those above and below. Presidio is rainfast within 2 hours. It is a protectant whose primary effect on the fungus is inhibition of spore germination, but it also has limited curative (reach-back) activity.

Although Presidio is a reduced-risk product, there is an 18-month plant-back restriction for all crops other than leafy and fruiting vegetables and cucurbits.

Presidio represents a new fungicide group, the acylpicolides, FRAC group 43. It is not yet known whether the mode of action is single site or multi-site. The resistance management requirements are very conservative, requiring both rotation and tank-mixing with non-related fungicides with activity against the target pathogen. Only 4 applications per crop are allowed by the label.

* The application methods on the current label - ground, air, or sprinkler irrigation - are intended for foliar contact and do not allow for the possibility of root contact with the chemical, except for the sprinkler-irrigated portion that reaches the ground. A label for application of Presidio through drip irrigation is pending. (SB)

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### 4. Neonicotinoids for Whiteflies, Aphids and Some Other Insect Pests of Vegetable Crops

Among the newer insecticides available for vegetable crops, the neonicotinoid class of insecticides has probably been around the longest and has made the biggest splash. The neonicotinoids are in the mode
of action (MOA) group 4. These insecticides bind to nicotinic acetylcholine receptors disrupting nerve transmission. Imidacloprid (Admire 2F, Admire Pro 4.6F) are soil applied systemic insecticides that can also be used to direct spray potato seed pieces or seed potatoes in the furrow or direct treatment prior to planting. Admire is labeled for various vegetable crops for listed pests such as cucumber beetles, aphids, whiteflies, leafhoppers, Colorado potato beetle, and flea beetles.

Thiamethoxam is available as Actara 25 WDG, which is taken up into the foliage after application, and Platinum 2SC which is a long lasting soil applied systemic insecticide. Actara is labeled on various crops for pests such as aphids, flea beetles, cucumber beetles, leafminers, and whiteflies. Platinum is labeled for use on tobacco, cucurbit vegetables, fruiting vegetables, tuberous and corm vegetables for pests such as aphids, potato leafhopper, flea beetles, Colorado potato beetle, Japanese beetle, and whiteflies.

One of the newer neonicotinoids is dinotefuran (Venom 70 SG). Venom has a very high water solubility for easy uptake by roots and rapid translocation in the plant and rapid knockdown of pests. When applied to the foliage, it is rapidly absorbed and has translaminar movement (moves across leaf from sprayed side to unsprayed side). It is labeled on various crops for control of listed pests such as green peach aphid, melon aphid, potato aphid, leafminer, leafhopper, thrips, whiteflies, Colorado potato beetle, and flea beetles.

Another new neonicotinoid is acetamiprid (Assail 30 SG). It is for foliar application only. It has translaminar activity and is rainfast as soon as the spray has dried. It is labeled for control of aphids, whiteflies, and Colorado potato beetle on various vegetable crops. (FH)

5. Redbanded Leafroller

Since the March 13 biofix for RBLR, 12 more moths have been caught in the Nashville trap. The Putnam County RBLR trap was put out March 16 and 12 moths were caught by March 21. Five more were caught on April 1. (FH)

The Fruit Pest News URL is: [http://web.utk.edu/~extepp/fpn/fpn.htm](http://web.utk.edu/~extepp/fpn/fpn.htm)

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