



**Response to EPA’s Proposed Interim Decision for Thiophanate-methyl  
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Comments submitted by the Arizona Pest Management Center,  
University of Arizona**

Date: March 26, 2023

Docket ID: EPA-HQ-OPP-2014-0004

Re: EPA’s Proposed Interim Decision for Thiophanate-methyl, Case Number 2680

To Whom it may concern:

The EPA is seeking public comments in response its Proposed Interim Decision for Thiophanate-methyl, a fungicide registered for use on a variety of fruit, nut and vegetable crops and on turf and ornamentals. We wish to provide information on current use patterns, importance, and potential alternatives for thiophanate methyl on Arizona melons and golf course turf, and to respond to some of EPA’s proposed risk mitigations in these systems.

**Thiophanate-methyl Use in Arizona**

In Arizona, agricultural uses of Thiophanate-methyl are reportedly limited primarily to cantaloups and other types of melons, with only isolated uses on other crops. In turf and ornamental markets, thiophanate-methyl is known to be used on golf course greens for control of Bermudagrass decline.

**Melons Use and Propose Mitigations**

Arizona produces high quality cantaloup and watermelon for the fresh market. In 2021, melons ranked among the top five crops in Arizona. Growers produced 14,200 acres of melons valued at \$124 million (USDA 2022). Despite Arizona’s dry climate, field-irrigated melons are subject to several yield-limiting diseases.

According to the Arizona Pest Management Center Pesticide Use Database, thiophanate-methyl has been reported at significant use levels on cantaloup and other melons through 2016, at which point, use dropped off (Fournier et al. 2017). According to a licensed Pest Control Advisor (PCA) with expertise in melon production, thiophanate-methyl (Topsin) is currently being used “a fair amount” in melons. He confirmed that use was discontinued for a few years, then increased again in 2021. In part, this resurgence has been attributed to supply chain issues with other important fungicides. However, Topsin (thiophanate-methyl) remains a valuable tool when

used in rotation for disease control in melons. As one of a small group of fungicides that are xylem-mobile, Topsin provides fairly effective for control of gummy stem blight or charcoal rot (*Macrophomina phaseolina*), compared with other types of fungicides. It also helps to suppress *Monosporascus cannonballus*. Topsin is applied through drip irrigation at the 8oz rate, once or twice, in rotation with other fungicides. According to PCAs, thiophanate-methyl is not as efficacious in our system as it once was. However, thiophanate-methyl has a unique mode of action (FRAC Class 1), which makes it extremely valuable as part of integrated resistance management programs in melons. The consequences if Topsin were not available would be increased dependence on Quadris (azoxystrobin), which could lead to concerns about resistance management. Another factor to consider is the potential for ongoing market shortages of alternative chemistries. For these reasons, it may be important to retain access to thiophanate-methyl as an option, though it may not be used every year in melons, depending on the circumstances.

#### Proposed Label Mitigation: Soil Application Restrictions

To limit leaching of thiophanate-methyl and carbendazim into groundwater, EPA is proposing soil application restrictions. The restrictions will include “not applying thiophanate-methyl products where the depth to groundwater is 20 feet or less, the soil texture is sand or loamy sand, and the soil has less than 2% organic matter.” It is our interpretation by the use of the word “and” (not “or”) that the soil use restriction would kick in only when all three factors are present.

Based on input from experienced Pest Control Advisors (PCAs), two of the three conditions that would trigger use restrictions are fairly to very common in Arizona. The low organic matter component (<2%) would apply nearly everywhere in Arizona. The soil type restrictions would apply in many areas. The ground water component, a depth of 20ft or less, is not an issue in most areas of the state, but there are some production areas where this could come into play, for example, certain areas around Yuma, Arizona. It is unknown whether any melons are currently produced in these areas. In addition, we have determined that not all of our PCAs recommend the use of thiophanate-methyl in melons. **We therefore conclude that this proposed mitigation would have minimal negative impacts on our melon producers.**

#### **Turfgrass Use on Golf Course Greens and Propose Mitigations**

The Arizona golf industry is a strong contributor to the state economy with a total economic contribution of \$3.9 billion in sales in 2014, including golf facility operations, golf tourism, and golf-related businesses (Duval et al. 2016). Unlike most areas of the nation, due to warm winter temperatures, golf courses in many areas of Arizona are available for year-round play. According to sources familiar with the Arizona golf course industry, thiophanate-methyl has been used regularly over the past ten years, as a rotational chemistry for the control of bermudagrass decline on golf course greens. It is available in several products, often as a premix with iprodione or other fungicides.

Bermudagrass decline has been thought to be a complex problem caused by several disease organisms, although researchers in Texas have implicated the fungus, *Gaeumannomyces graminis*, to be associated with declining areas. If not effectively managed, the turf thins out and may be killed off in patches (Duble 2023).

One prominent golf course superintendent indicated that he plans on using the full maximum yearly amount of thiophanate-methyl (16 fl. oz/1000 sq ft) on greens this year. This entails three applications at a rate of 5.3 fl. oz/1000 sq ft each throughout the year, in rotation with other fungicides. An application of thiophanate-methyl remains effective for about 30 days, then users rotate to another mode of action. Other fungicides used in rotation for bermudagrass decline include Heritage (azoxystrobin), Lexicon (pyraclostrobin + fluxapyroxad), Maxtima (mefentrifluconazole) and Dithane (mancozeb). Thiophanate-methyl is effective and also represents a mode of action not otherwise used on golf turf, which contributes to effective resistance management. This Superintendent expressed concern about the potential over-reliance on the strobil fungicides, should they lose access to effective use rates for thiophanate-methyl.

A commercial distributor with expertise in Arizona turfgrass disease management confirmed that thiophanate-methyl has utility in Arizona turfgrass, mainly for golf course uses. He agreed that thiophanate-methyl can be a very effective tool for Bermudagrass decline, if used at adequate rates. Our primary area of utility for the chemical is on golf course greens, which represent a very small area of use.

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Golf course greens are typically sand based, often with less than 2% organic matter, which is consistent with EPA concerns and proposed restrictions on use. However, similar to the situation in Arizona agriculture, an industry contact here estimates that “probably most golf courses in Arizona will not be on land <20 ft. above ground water sources, but some of them will.” Therefore, **this use restriction is likely to impact some golf course users of thiophanate-methyl, who will have to seek alternative chemicals or cultural controls for Bermudagrass decline.**

#### Proposed Label Mitigation: Turf Application Restriction

EPA is proposing to reduce the maximum number of applications and maximum rate permitted on turf from 2.7 lb ai/A with 4 applications per year to 0.78 lbs ai/A with 2 applications per year.

These are very significant use rate reductions. Contacts in the Arizona golf industry, as well as Extension Specialists from other states, have indicated that thiophanate-methyl would be ineffective at the proposed lower use rate. According to a commercial distributor with plant pathology expertise in Arizona turfgrass, “the proposed maximum rate would make it largely ineffective for our use pattern. Typical use rate on golf course greens is 4-6 fl. oz/1000 sq ft, whereas the proposed 0.78 lbs AI/A is around 2 fl. oz/1000 sq ft. Even two applications at that low rate aren’t going to help us.”

Thiophanate-methyl is the only FRAC Group 1 fungicide that is still used in Arizona turf. **The proposed rate restrictions would have the effect of removing a Mode of Action from turf**

**manager's fungicide options. This would increase reliance on other fungicide groups, increasing risks of resistance.**

### **Who We Are**

The Arizona Pest Management Center is host to the University of Arizona's expert IPM scientists including Ph.D. entomologists, weed scientists and plant pathologists with expertise in the strategic tactical use of pesticides within IPM programs that protect economic, environmental and human health interests of stakeholders and the society at large.

Dr. Al Fournier is Associate Director of the APMC / Associate Specialist in Entomology, holds a Ph.D. in Entomology, and has expertise in evaluating adoption and impact of integrated pest management and associated technologies. He serves as an Integrated Pest Management Network Coordinator through the Western IPM Center Signature Program, representing stakeholders in the desert Southwest states in EPA registration reviews. Mr. Wayne Dixon holds a B.S. in Computer Information Systems and develops tools and data used in IPM research, education and evaluation, including management of the APMC Pesticide Use Database.

These comments are the independent assessment of the authors and the Arizona Pest Management Center as part of our role to contribute federal comments on issues of pest management importance and do not imply endorsement by the University of Arizona or USDA of any products, services, or organizations mentioned, shown, or indirectly implied in this document.

### **Our Data and Expert Information**

Through cooperative agreements with Arizona Department of Agriculture, the Arizona Pest Management Center obtains use of, improves upon, and conducts studies with ADA's Form 1080 data. Growers, pest control advisors and applicators complete and submit these forms to the state when required by statute as a record of pesticide use. These data contain information on 100% of custom-applied (i.e., for hire) pesticides in the state of Arizona. Grower self-applied pesticide applications may be under-represented in these data. In addition, we actively solicit input from stakeholders in Arizona and other Southwest states (Nevada, Colorado, New Mexico and Southeastern California), including those in the regulated user community, particularly to better understand use patterns, use benefits, and availability and efficacy of alternatives. The comments within are based on the extensive data contained in the Arizona Pest Management Center Pesticide Use Database, collected summary input from stakeholders and the expertise of APMC member faculty.

### **References**

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