

Conventional Fungicide Recommendations for Cucurbit Powdery Mildew

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Control can be achieved with targeted fungicides applied starting at the action threshold of one of 50 older leaves with symptoms. It is important to look at the lower surface of older leaves as symptoms often appear there first. This disease typically starts to develop around start of fruit development so first flowers is when to start looking or when to start a preventive spray program. This pathogen has proven adept at developing resistance to fungicides, thereby rendering them ineffective. Fungicide recommendations are based on fungicide evaluations and resistance monitoring work conducted at LIHREC (results are posted at <https://blogs.cornell.edu/livegpath/research/cucurbit-powdery-mildew-research/>). Alternating among fungicides that are chemically different (in different FRAC groups) is recommended to manage resistance and to comply with label restrictions on number of consecutive applications, which is two for most targeted fungicides.

Top choices to include in a fungicide program:

- DMI fungicides (FRAC 3). Proline is highly effective, seasonal limit for a crop is 2 applications. Procure, Luna Experience, and Aprovia Top are also good choices. Multiple DMI fungicides can be used in a program.
- Vivando (50). Seasonal limit is 3 applications. Proливо, another FRAC 50, does not appear to be as effective as Vivando.
- SDHI fungicides (7). Aprovia Top and Luna Experience have two active ingredients, SDHI as well as DMI.

Fungicides that could be included:

- Gatten (U13) has exhibited variable efficacy; it was moderately effective in a fungicide evaluation in PA in 2021.
- Quintec (13) or Torino (U8). One application of either of these might contribute to control. Pathogen isolates resistant to both fungicides were found commonly in commercial crops treated twice with Quintec in a program. Multi-fungicide resistance is common. Most of the Quintec-resistant isolates in the 2021 collection and all in the 2020 collection were also resistant to Torino and Endura although these fungicides were not used in almost all locations, and these fungicides are not cross resistant.

Fungicides not recommended because of resistance:

Topsin M (1) and QoI fungicides (Cabrio, Flint, Quadris, etc.) (11) are not expected to provide any control because almost all pathogen isolates tested have been found to be resistant. Endura, Pristine, and Merivon† are not recommended because isolates with full resistance (insensitive to

highest label rate) are common and there are other SDHI fungicides (Aprovia Top, Luna Experience) that bind enough differently that they are not fully cross resistant.

Example recommended targeted fungicide programs (there are other good combinations) (including a contact, protectant fungicide with each application is recommended):

Proline, Vivando, Proline, Vivando, Luna Experience†, Vivando (6 applications total)*.

Proline, Vivando, Proline, Vivando, Procure, Vivando, Procure (7 applications total)*.

Proline, Vivando, Proline, Vivando, Aprovia Top, Vivando (7 applications total)*.

Proline, Vivando, Aprovia Top, Proline, Vivando, Luna Experience†, Procure, Vivando (8)*.

*program has maximum number of applications of Proline and Vivando permitted to a crop.

†Aprovia Top could be used instead of Luna Experience

There is additional information about this disease and its management at <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/cucurbit-powdery-mildew/>

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