



Cornell University



Cornell University
Cooperative Extension
of Suffolk County



Department of
Environmental
Conservation

MEFENOXAM: Reducing Risks to Groundwater from Field Use to Potato & Tomato Crops Practical Approaches for Users

Introduction. The pesticide mefenoxam (a form of metalaxyl) is showing up in Long Island’s groundwater. Mefenoxam fungicide is used for important diseases affecting potato and tomato crops, notably late blight, one of the most destructive diseases. Mefenoxam remains the most effective chemical for the class of pathogens that is sensitive to it (Oomycetes). It is more effective than others due to its better activity against these pathogens and greater mobility in treated plants. This fact sheet was prepared to help vegetable growers use mefenoxam more conservatively while continuing to produce high-quality products while at the same time protecting Long Island’s groundwater.

This and other factsheets have been developed as part of The Long Island Pesticide Pollution Prevention Strategy, which became effective July 2014. The strategy was developed by the NYS Department of Environmental Conservation (DEC) in collaboration with numerous stakeholders. The goal of the strategy is to protect groundwater and surface water from pesticide related contamination while continuing to meet the region’s pest management needs.

Protect Our Drinking Water

The Long Island aquifer is used by nearly three million people as a source of high-quality potable water. The aquifer is an underground water source that yields over 300 million gallons of water every day. The characteristics that allow the aquifer to reliably supply this much water also make it vulnerable to contamination from above ground. This is especially important for materials like mefenoxam that have widespread use and can move easily through soil to the underlying groundwater. For these reasons, vegetable growers need to exercise careful environmental stewardship when using mefenoxam.



A profile of a Long Island's sandy/gravelly subsoil.

Modify Practices (Best Management Practices)

To reduce or eliminate the risk of movement of mefenoxam to Long Island’s groundwater, vegetable growers should begin modifying their day-to-day practices as follows:

Application Timing – For late blight, apply Ridomil and other fungicides containing mefenoxam only after symptoms have been found in the crop. Use other fungicides in a different FRAC* group preventively and in alternation with mefenoxam applications to reduce

the need for mefenoxam. Obtain current information on pathogen genotypes occurring and their sensitivity to mefenoxam from Extension and at USABlight.org. Do not use mefenoxam when resistant genotypes are very likely to be present.

Make applications when conditions will not promote spray drift and rain is unlikely before fungicides are rainfast.

Application Method - Maximize efficacy of all fungicides used in the management program by obtaining thorough spray coverage on the crop foliage. Replace worn nozzles, select nozzles designed for fungicides, use drop nozzles with trellised tomatoes, apply with appropriate gallonage and pressure, use water sensitive paper to check coverage.

- Fungicide Resistance Action Committee (www.frac.info)



KEY POINTS

Three key practice modifications can be applied to reduce mefenoxam usage:

- Use for late blight only when disease is present in crop, not preventively, and pathogen is likely sensitive.
- Use alternative fungicides preventively and alternately with mefenoxam.
- Maximize spray coverage.

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Some Alternative Fungicides

There are other fungicides that can be used in place of and in alternation with mefenoxam on Long Island. Some alternatives are summarized below according to major disease. FRAC M3 and M5 fungicides are recommended used preventively when there is not high risk for late blight and also used with the other fungicides to manage resistance.

Disease	Fungicide	Active Ingredient	FRAC Group Code
Late Blight Management	Bravo, Echo, Initiate, etc.	chlorothalonil	FRAC M5
	Dithane, Manzate, etc.	mancozeb	FRAC M3
	Ranman	cyazofamid	FRAC 21
	Gavel and Zing!	zoxamide	FRAC 22 + M3 or M5
	Curzate	cymoxanil	FRAC 27
	Previcur Flex	propamocarb hydrochloride	FRAC 28
	Omega (potatoes only)	fluazinam	FRAC 29
	Forum	dimethomorph	FRAC 40
	Revus and Revus Top	mandipropamid	FRAC 40
	Presidio	fluopicolide	FRAC 43
Pink Rot Management	Ranman	cyazofamid	FRAC 21
	Phostrol, ProPhyt, etc.	phosphites	FRAC 33
	Presidio	fluopicolide	FRAC 43
Pythium Leak Management	Phostrol, ProPhyt, etc.	phosphites	FRAC 33

Integrated Pest Management Practices

The following are practices that can be implemented to potentially reduce the need for mefenoxam for the major diseases that it has efficacy for:

Late Blight Management in Potato and Tomato

1) Destroy potato cull piles before sprouting;	6) Inspect crop weekly for symptoms;
2) Select certified seed potatoes;	7) Obtain a disease diagnosis and report occurrence;
3) Select resistant tomato varieties when possible (suitable for market);	8) If appropriate for the operation, use the Decision Support System to determine when to apply fungicides;
4) Use potato seed piece treatment with FRAC M3 ingredient, FRAC 27 ingredient can be used too;	9) Read CCE-Suffolk County weekly newsletter for information about late blight occurrence;
5) Destroy volunteer potato plants;	10) Apply alternative fungicides for preventive control.

Pink Rot and Pythium Leak Management in Potato

1) Plant pathogen-free seed;	5) Avoid overwatering;
2) Select varieties moderately resistant to pink rot when possible (suitable for market);	6) Use alternative fungicides (Ranman and/or Presidio) where only pink rot is a concern;
3) Avoid planting in poorly drained areas;	7) Obtain a disease diagnosis.
4) Apply FRAC 33 fungicide with mefenoxam in furrow;	

Trade names used in this publication are for convenience only. No endorsement of products is intended, nor is criticism of unnamed products implied.

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For more information or electronic copies of this factsheet go to www.ccesuffolk.org. For more information about the Long Island Pesticide Pollution Prevention Strategy go to <http://www.dec.ny.gov/chemical/87125.html> (February 2016)