

Monitoring for Navel Orangeworm (NOW) Under Mating Disruption

SEPTEMBER 2021

Comparison of lures and baits for monitoring NOW under mating disruption

CRITERION	PHEROMONE	PPO	PETERSON	EGG TRAP
Affected by mating disruption	---	++	+++	+++
Sensitivity of detection	+++/- - ¹	++	-	---
Affected by trap design	-	-	+	N/A
Affected by stage of crop	+++	+++	--	--
Sex-specific	Yes	No	Yes	Yes
Associated with damage	-	?	++	++
Specific for navel orangeworm	++	--	-	+++
Ease of use	+++	-	+	---

+ and - represent the relative level of advantage or disadvantage

¹ Pheromone trap sensitivity is dependent on the presence of mating disruption in an orchard.

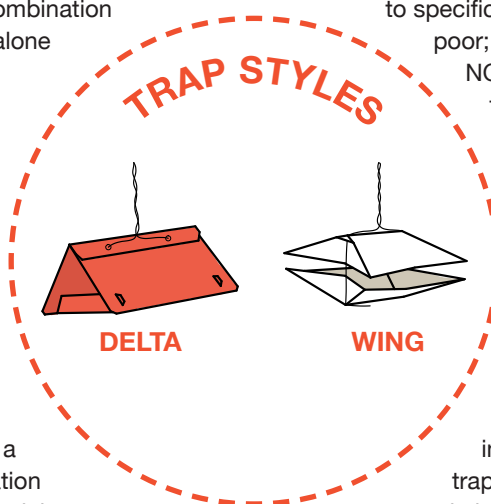
OVERVIEW OF TOOLS:

PHEROMONE: The primary use in orchards with mating disruption is to confirm the mating disruption is working. Pheromone traps should capture few or no NOW in a mating disruption block (often referred to as “trap shutdown”). To overcome “trap shutdown”, use it in combination with PPO or Peterson. Pheromone traps alone are specific for males. In the absence of mating disruption, they can show the start of new flights. But there is much variation, and the trap counts correlate weakly with harvest damage.

PPO: Captures both sexes in variable ratios. More effective with wing traps than with delta traps, although delta traps are more widely used because they are simpler, faster to change, and the liner is more protected. Can work by itself, but is strongly synergized if used in a trap along with a pheromone lure. Correlation with damage still in research. The commercial lures are simple and easy to use, but ease of use is marked down because the strong odor associated with the lure can linger if they are left in a closed vehicle cab without being in a tightly sealed outer container. Non-target capture is also a negative, and can include smaller NOW like moths and gray NOW-sized moth species that slow down data collection. The advantage is that this bait will detect NOW at lower population levels than bait traps (the Peterson trap for adults, or egg traps).

PETERSON TRAP: The NOW trap from the Peterson Trap company is the most prevalent ovibait trap. Traps with natural bait materials, like ovibait traps for adult females and egg traps for monitoring female egg-laying, are currently the only way to specifically trap NOW females. Trap sensitivity is poor; PPO or pheromone traps capture more NOW. But, conversely, research indicates that the female-specific traps are more highly associated with subsequent NOW damage to almonds. Easier to use than egg traps, and adults in glue are more persistent than eggs (which hatch within a few days in summer).

EGG TRAP: Have the longest history of use for monitoring NOW, and are particularly valuable if you consider spring biofix important. Probably a better indicator of net fertility than any other NOW trap, but labor intensive (eggs difficult to read and clean). Also strongly affected by orchard conditions and less sensitive after hull split. Inherently variable (many zero counts and a few high numbers), and several traps per block are necessary for accurate use. Fertile eggs are found on egg traps in mating disruption blocks, but the number should be lower than what would be the case in the absence of mating disruption.



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Mating Disruption for Navel Orangeworm (NOW)

	Units/ Acre:	Estimated Cost/Unit*	Unit Type	Installation & Maintenance	In-season Field Checks	Organic Option **
ISOMATE® MIST 	1	\$100-\$110	Active Aerosol	Grower	Yes	No
SEMIOS NOW® 	1	\$115-\$160	Variable Rate Aerosol	Vendor	Yes	Yes
CHECKMATE PUFFER® 	1	\$105-\$110	Active Aerosol	Grower	Yes	Yes
CIDETRAK® NOW MESO™ 	15-28	\$95-\$105 (@ 20 unit/acre rate)	Passive Dispensers	Grower	No	Yes

Responsible almond farming requires protecting the crop and trees from pests, weeds, and disease through an integrated pest management approach. This means using tools and techniques like mating disruption, as well as monitoring pest levels so that pesticides are used only when necessary.

Watch now



Mating Disruption Tools
for Navel Orangeworm (NOW)



Monitoring Tools for Navel
Orangeworm (NOW)

*Rebates are available for large acreage and/or research. Prices as of August 2021. Check with manufacturer's for actual cost.

**Always check with your organic certifier to verify eligibility or request authorization for inputs prior to use in your operation.

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