THE UNIVERSITY OF ARIZONA | COLLEGE OF AGRICULTURE AND LIFE SCIENCES | COOPERATIVE EXTENSION | Arizona Pest Management Center

Making Use of Predators in Cotton

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Counting Whiteflies

- Sample at least 30 leaves (15 from two areas in the field).
- Score leaf with 3 or more adults as infested.
- Score disc (7/8 inch diameter) as infested if *any* live, large nymphs are present (3rd or 4th instar).
- Calculate the % of leaves infested with 3 or more adults.
- Calculate the % of leaf discs infested with 1 or more live, large nymphs.
- Locate % infested column 1 in Large Nymphs and Adults tables.
- Apply fully selective products when at least 40% discs are infested with large nymphs *and* 40–57% leaves are infested with adults. For all other chemistry, spray at 57% leaves infested with adults.

Counting Predators

- Count the predators in sweepnet samples (*Geocoris* big-eyed bugs, lacewing larvae, *Collops* beetles, crab spiders, *Orius* minute pirate bugs, and/or *Drapetis* flies).
- Plant material can be slowly lifted out, inspected and discarded. Once the plant material is sorted, thoroughly inspect the net seam for any remaining predators, using a hand lens if necessary.
- Compare counts of each of the 6 predators per 100 sweeps to columns 2–5 in the tables.

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https://cals.arizona.edu/crops/cotton/files/PtoPlaminate.pdf

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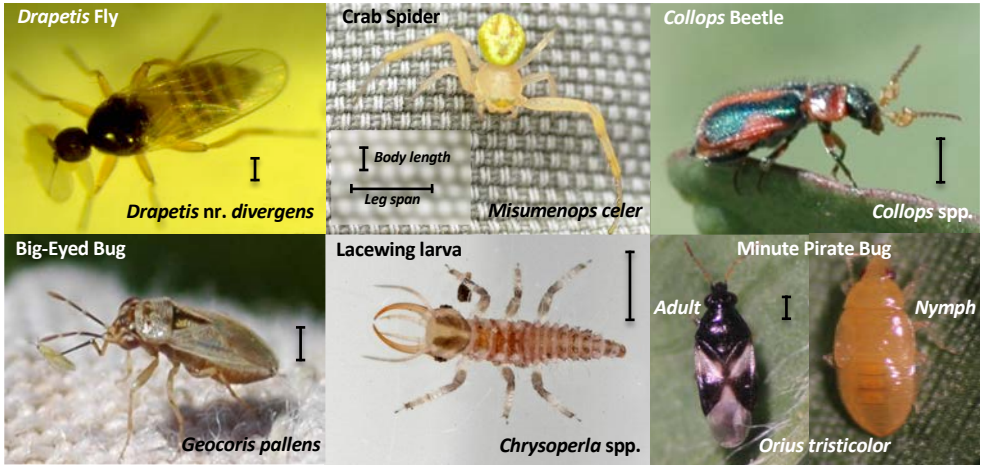
When To Count Predators?

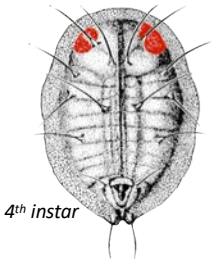
White	Below Threshold	→ No need to spray or count predators
Yellow	Approaching Threshold	→ Count Predators: 1 or more predators ≥ numbers in table. Defer Spray.
Green	At Threshold	→ Count Predators: All 6 predators < numbers in table. Spray.
Red	Above Threshold	→ Spray regardless of predator densities

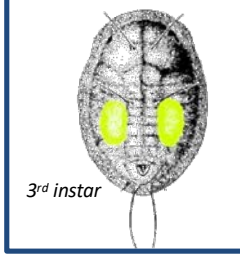


Using the Threshold – Predator Tables

1. Locate your % infested levels for whitefly Large Nymphs and Adults in column 1 of the tables.
2. Compare predator field counts (per 100 sweeps) for each predator species against the levels needed to provide biocontrol of whiteflies. Each predator count is considered independently. See columns 2–5.

Large Nymphs

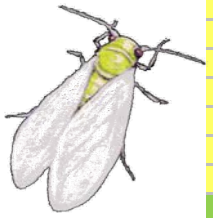




Predators per 100 Sweeps
Minimum number needed to provide biocontrol

(1) % infested discs	(2) Big-eyed bug	(3) *Collops* beetle	(4) Crab spider	(5) *Drapetis* fly
13	Whitefly numbers are far too low. No need to spray or count predators.			
17	1	1	2	14
20	1	1	2	14
23	1	1	2	18
27	1	1	2	22
30	1	2	3	27
33	1	2	3	31
37	1	2	3	36
40	1	2	4	44
43	1	3	4	49
47	1	3	5	53
50	2	3	5	62
53	2	4	6	71
57	Whitefly numbers are too high. Spray regardless of predator numbers.			

Adults



Predators per 100 Sweeps
Minimum number needed to provide biocontrol

(1) % infested leaves	(2) Lacewing larva	(3) Crab spider	(4) Minute pirate bug	(5) *Drapetis* fly
10	Whitefly numbers are far too low. No need to spray or count predators.			
13	1	1	2	8
17	1	2	2	11
20	1	2	3	12
23	1	2	3	15
27	2	3	4	17
30	2	3	4	19
33	2	3	4	21
37	2	3	5	24
40	2	4	5	26
43	2	4	6	29
47	2	4	6	32
50	3	5	7	35
53	3	5	8	38
57	3	6	8	41
60	Whitefly numbers are too high. Spray regardless of predator numbers.			

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