THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
COOPERATIVE EXTENSION
Yuma Agricultural Center

Areawide Diamondback Moth Trapping Network

In response to the Diamondback moth (DBM) , *Plutella xylostella* outbreaks in Yuma in 2016, we established a pheromone trap network designed to monitor the activity and movement of adult populations of DBM. PCAs had difficulty controlling DBM in cabbage, broccoli and cauliflower that fall. Traps were initially placed in Roll, Wellton, Dome Valley, Gila Valley and Yuma Valley in locations where cole crops were being grown or in areas where infestations were known to occur that fall. In the 2017 -2018 season we have expanded out network to include traps placed in Texas Hill, Tacna, Roll, Wellton, Dome Valley, Gila Valley, Yuma Valley and in the Bard /Winterhaven area.

The data is not intended to indicate field infestations, as trap data is largely a reflection of adult movement. The data may reflect emergence of adults in adjacent fields with known infestations, or provide an indication that DBM may be moving into fields not previously infested. If nothing else, the data may make PCAs aware of increased pest activity in some areas and encourage intensified scouting in susceptible produce fields.

We have monitored DBM trap activity throughout summer to determine whether DBM is active when brassica hosts are not available. This may give us an indication of the potential for more problems on this years fall crops. One thing we've learned thius far based on pheromone trapping is that DBM moths are not captured during July and August; understandable since there are not sufficient *brassica* hosts for them to develop and reproduce. It is highly likely that the local populations that show up each fall are immigrants coming into the area via monsoon and other tropical storms. The exception to this would be the outbreaks we experienced in 2016 where the DBM entered fields on infested transplants. In an attempt to better answer this question, in the August/Sep of 2019 we established traps at several sites (n=19) where we could compare trap captures in direct-seeded, transplanted and sites where no brassica crops are being grown. The traps are separated by at least 0.5 mile at each location to minimize movement between crops.

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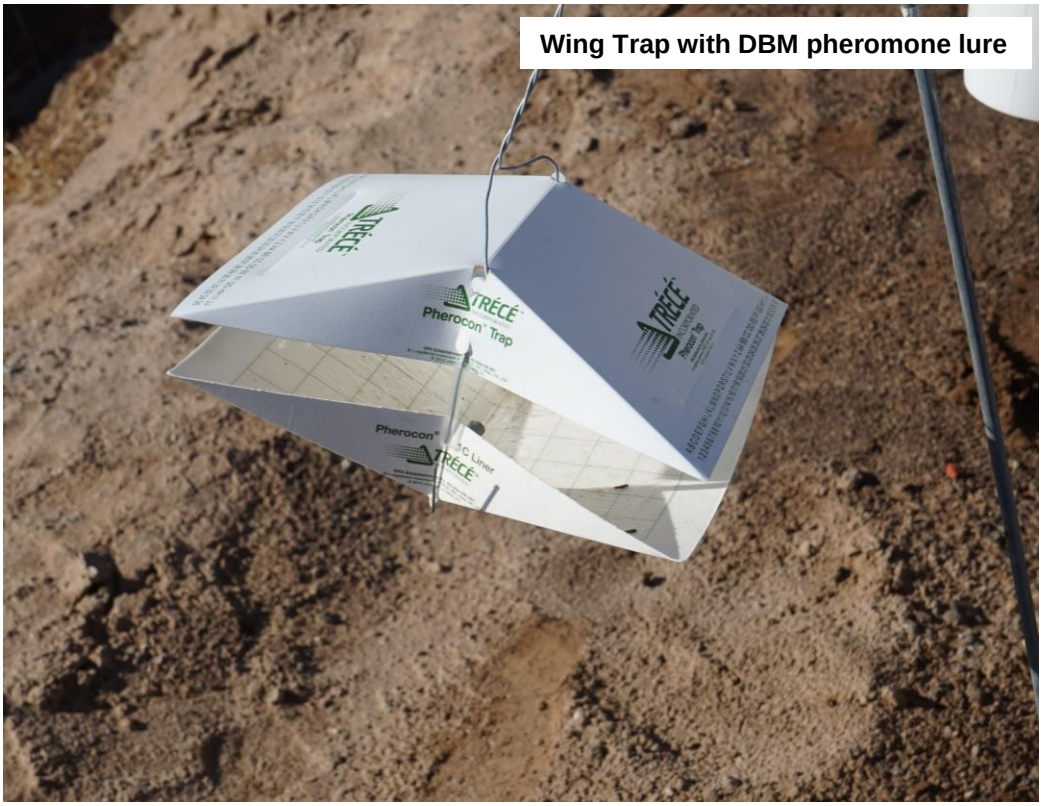
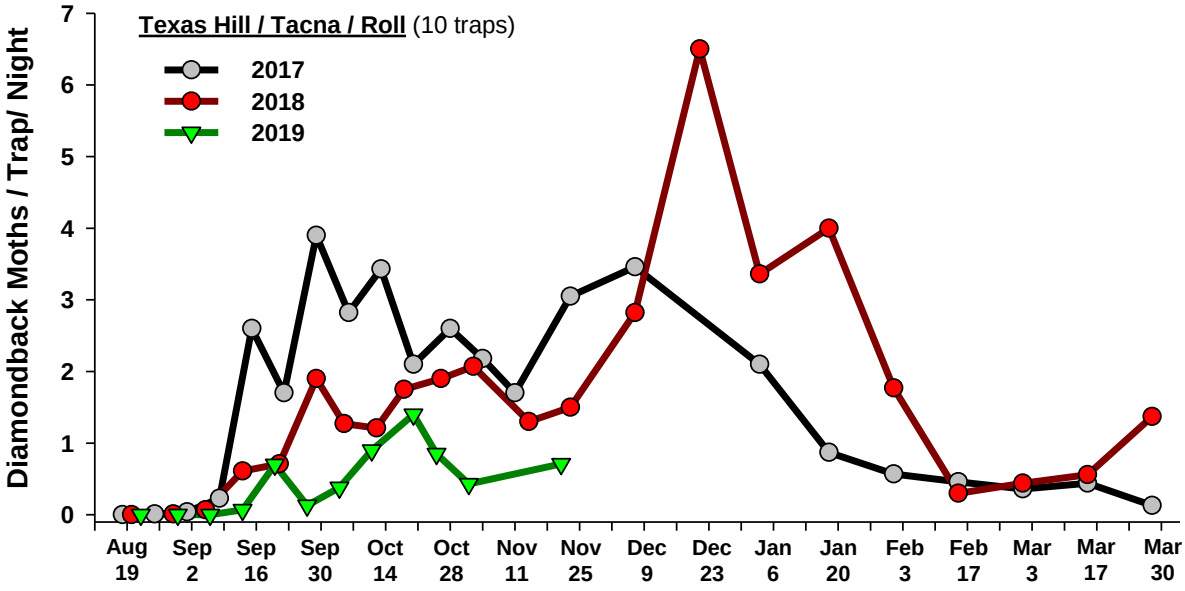
Area-wide DBM Trapping Network

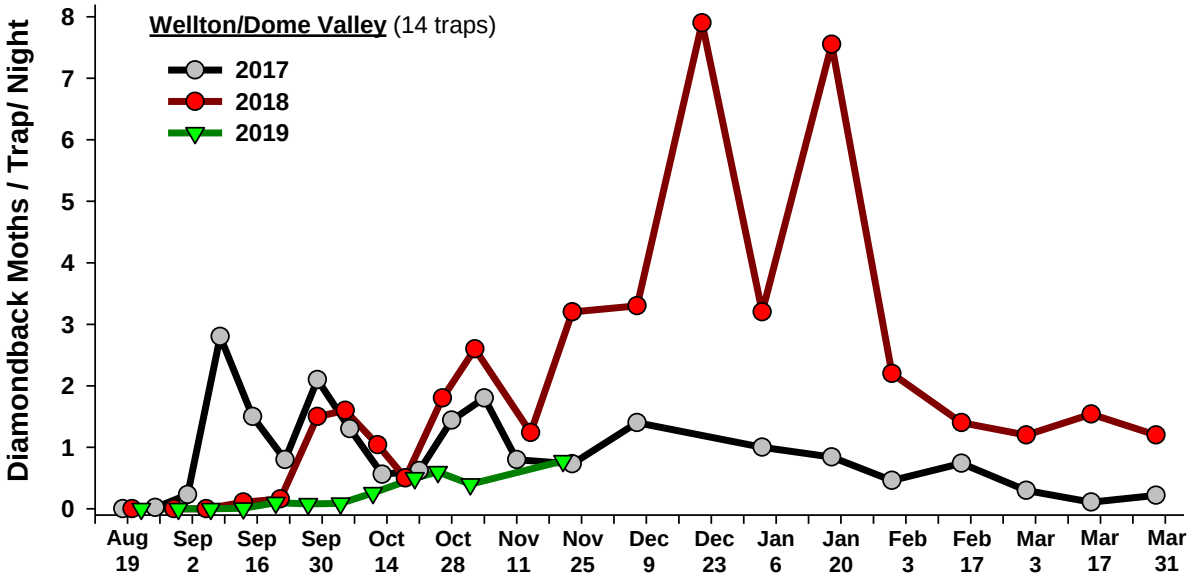
Yuma, Arizona

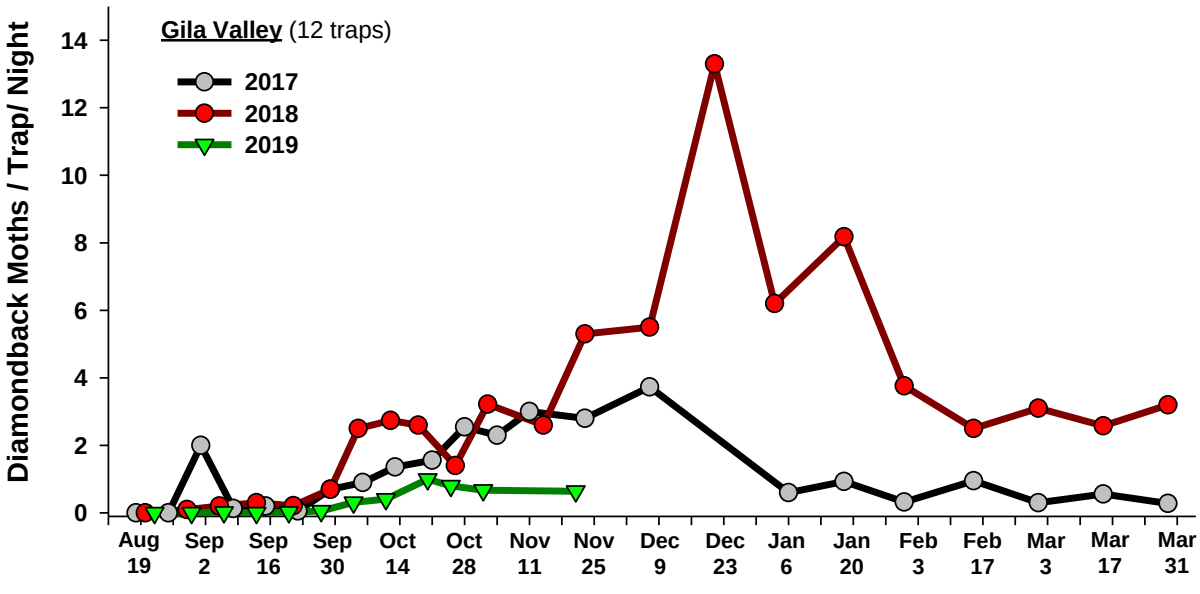


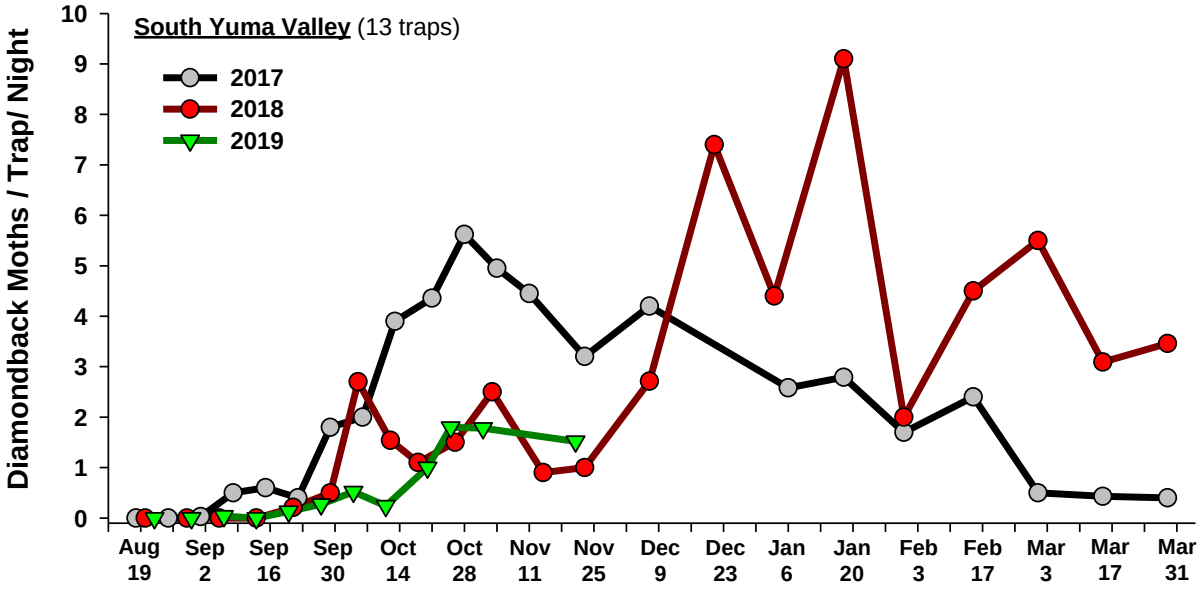
Wing Trap with DBM pheromone lure

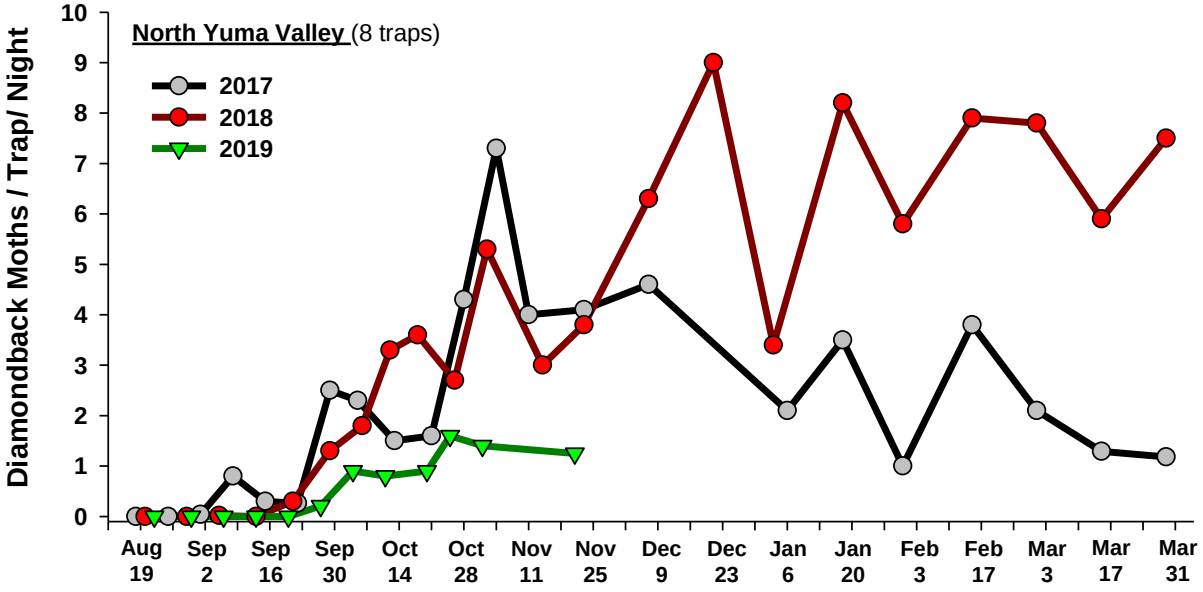
DBM moths captured in trap

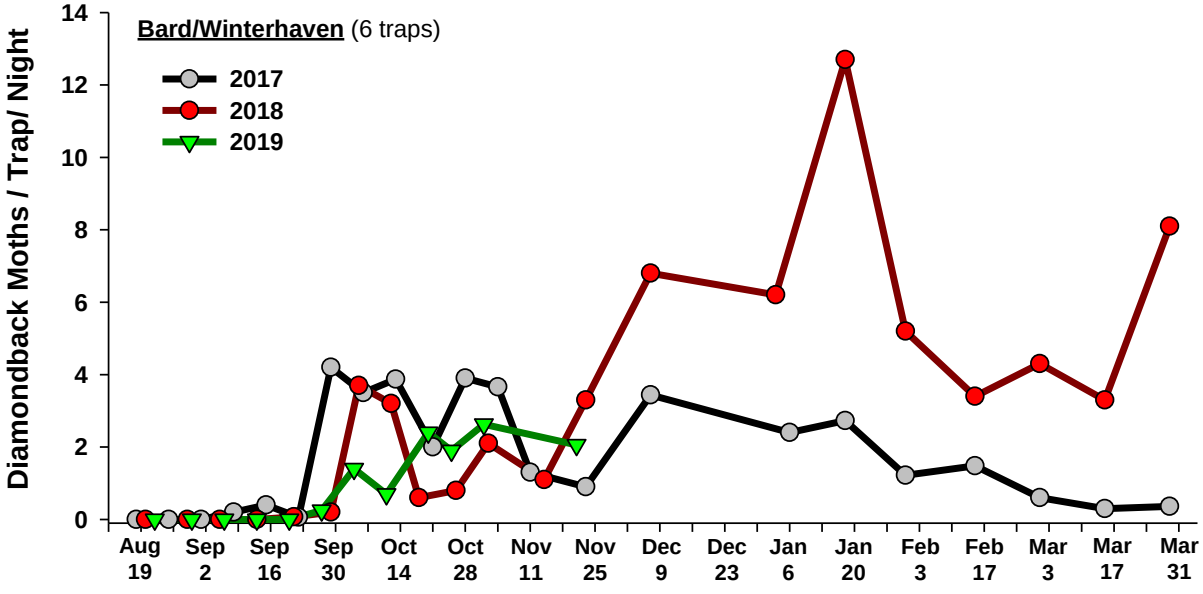

Texas Hill / Tacna / Roll (10 traps)
2017
2018
2019
Diamondback Moths / Trap/ Night
0
1
2
3
4
5
6
7
Aug 19
Sep 2
Sep 16
Sep 30
Oct 14
Oct 28
Nov 11
Nov 25
Dec 9
Dec 23
Jan 6
Jan 20
Feb 3
Feb 17
Mar 3
Mar 17
Mar 30


Wellton/Dome Valley (14 traps)
2017
2018
2019
Diamondback Moths / Trap/ Night
0
1
2
3
4
5
6
7
8
Aug 19
Sep 2
Sep 16
Sep 30
Oct 14
Oct 28
Nov 11
Nov 25
Dec 9
Dec 23
Jan 6
Jan 20
Feb 3
Feb 17
Mar 3
Mar 17
Mar 31


Gila Valley (12 traps)
2017
2018
2019
Diamondback Moths / Trap/ Night
0
2
4
6
8
10
12
14
Aug 19
Sep 2
Sep 16
Sep 30
Oct 14
Oct 28
Nov 11
Nov 25
Dec 9
Dec 23
Jan 6
Jan 20
Feb 3
Feb 17
Mar 3
Mar 17
Mar 31

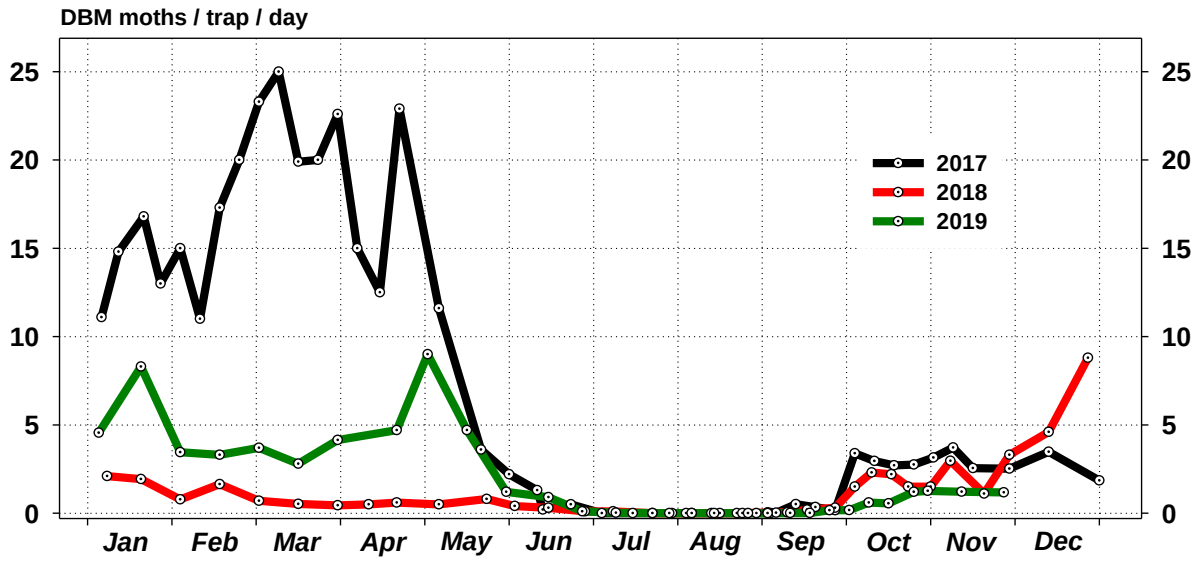

South Yuma Valley (13 traps)
2017
2018
2019
Diamondback Moths / Trap/ Night
0
1
2
3
4
5
6
7
8
9
10
Aug 19
Sep 2
Sep 16
Sep 30
Oct 14
Oct 28
Nov 11
Nov 25
Dec 9
Dec 23
Jan 6
Jan 20
Feb 3
Feb 17
Mar 3
Mar 17
Mar 31

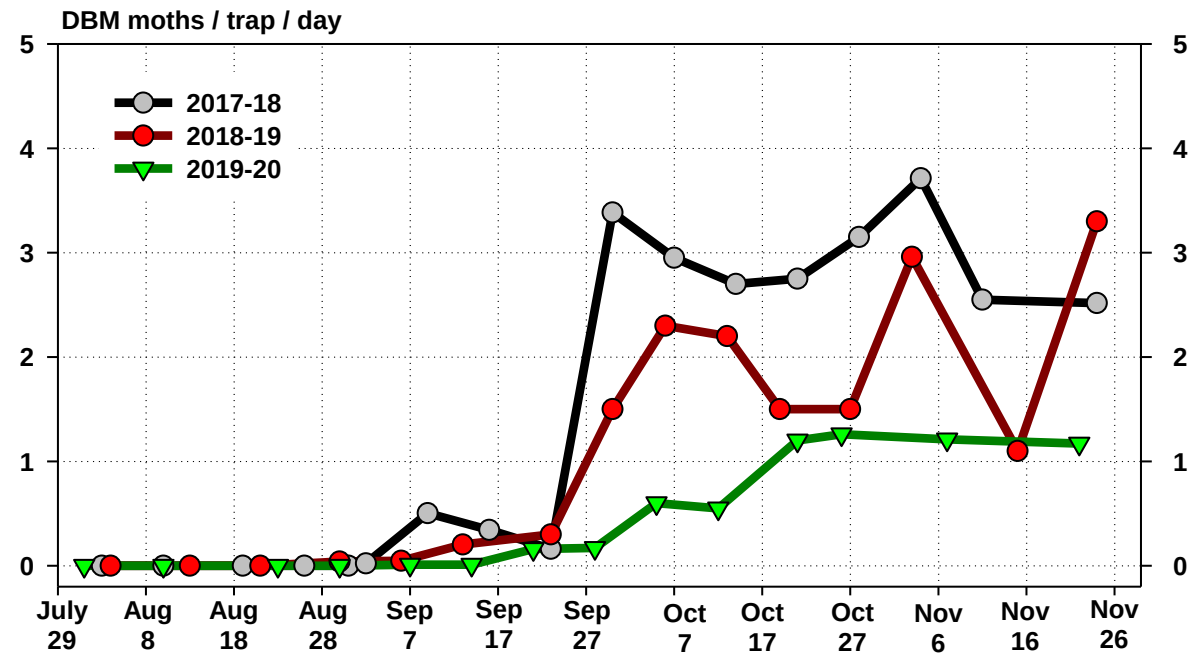

North Yuma Valley (8 traps)
2017
2018
2019
Diamondback Moths / Trap/ Night
0
1
2
3
4
5
6
7
8
9
10
Aug 19
Sep 2
Sep 16
Sep 30
Oct 14
Oct 28
Nov 11
Nov 25
Dec 9
Dec 23
Jan 6
Jan 20
Feb 3
Feb 17
Mar 3
Mar 17
Mar 31


Bard/Winterhaven (6 traps)
2017
2018
2019
Diamondback Moths / Trap/ Night
0
2
4
6
8
10
12
14
Aug 19
Sep 2
Sep 16
Sep 30
Oct 14
Oct 28
Nov 11
Nov 25
Dec 9
Dec 23
Jan 6
Jan 20
Feb 3
Feb 17
Mar 3
Mar 17
Mar 31

Seasonal DBM Trap Data, Yuma AZ

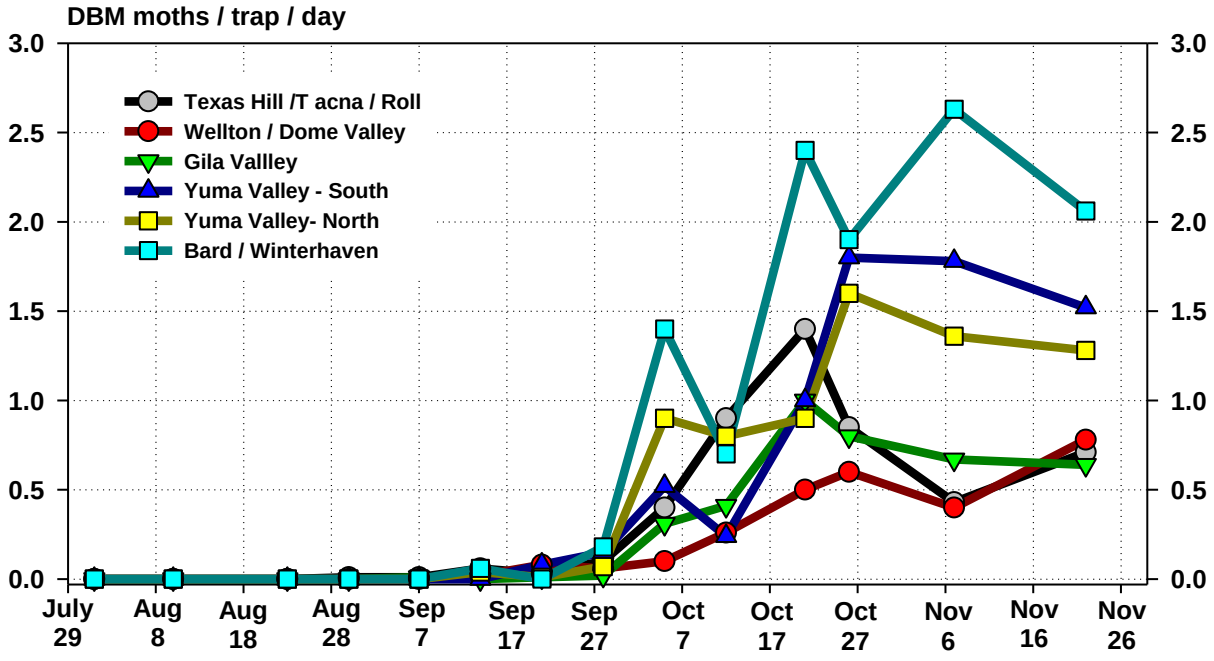
2017 vs. 2018 vs. 2019





Areawide Seasonal DBM Trap Data

2019



Comparison of DBM Trap Captures Between Direct-seeded and Transplanted Crops

Average diamondback moths adults captured per night in pheromone traps[1]

Date	Direct-seeded (broccoli)	Transplanted (cauliflower/cabbage)	Control[2] (No brassica host)
23-Aug	0.0a	0.0a	0.0.a
31-Aug	0.0a	0.0a	0.01a
7-Sep	0.01a	0.01a	0.0.a
14-Sep	0.03a	0.07a	0.01a
21-Sep	0.08ab	0.27a	0.0b
28-Sep	0.11a	0.19a	0.02b
5-Oct	0.50a	0.40ab	0.11b
12-Oct	0.47a	0.52a	0.04b
21-Oct	1.33a	0.95a	0.1b
26-Oct	1.14a	1.39a	0.11a
7-Nov	1.29a	1.17a	0.04b

[1] Traps were established at 19 locations; host crops at each location were separated by at least 0.5 mile and no further than 1 mile; traps were placed on the edge of each field.

[2] Control traps were placed adjacent to fallow fields, cotton, Sudan grass or alfalfa..

Means followed by the same letter within a row are not significantly different.

Mean ± SEM diamondback moths adults captured per night in pheromone traps