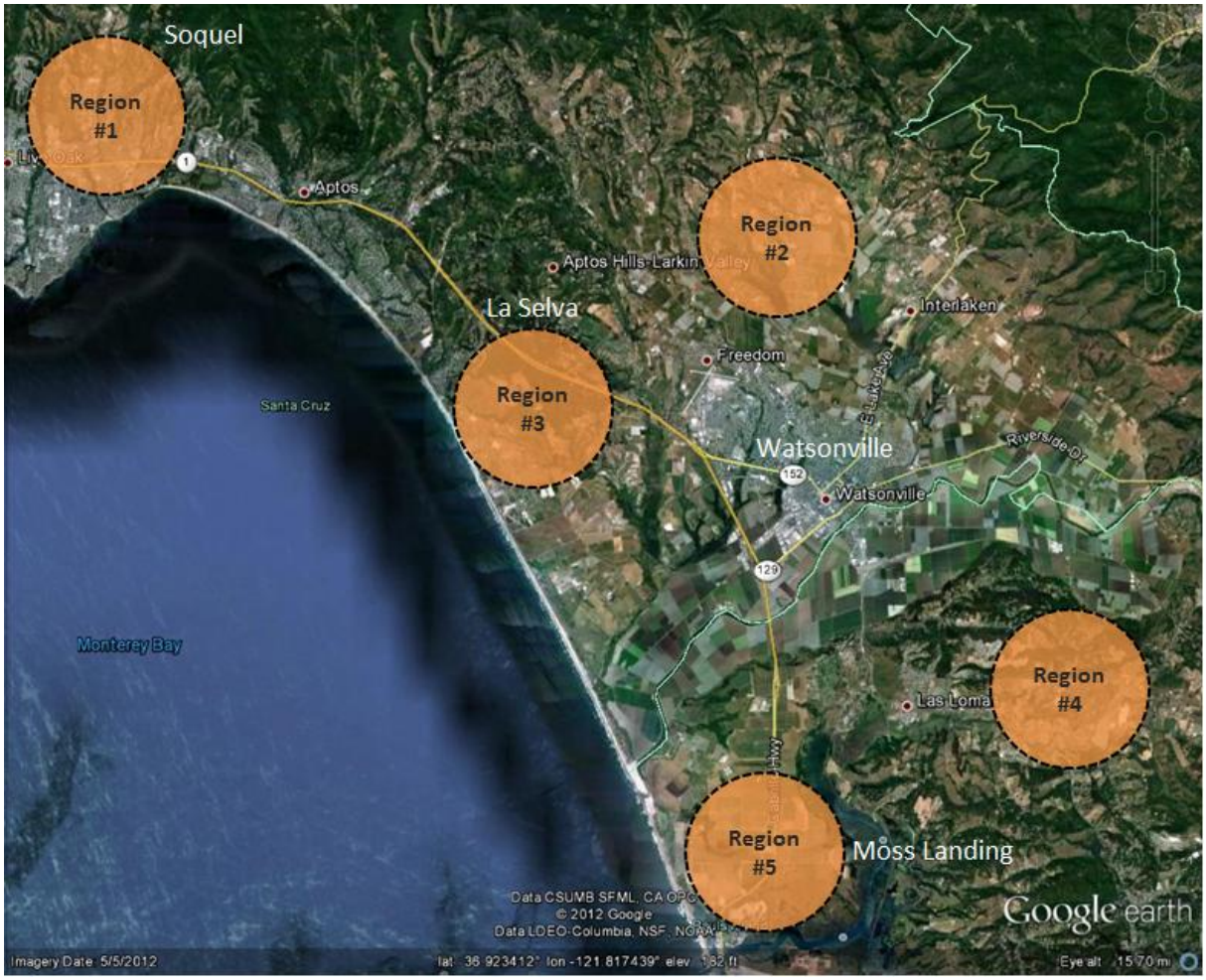
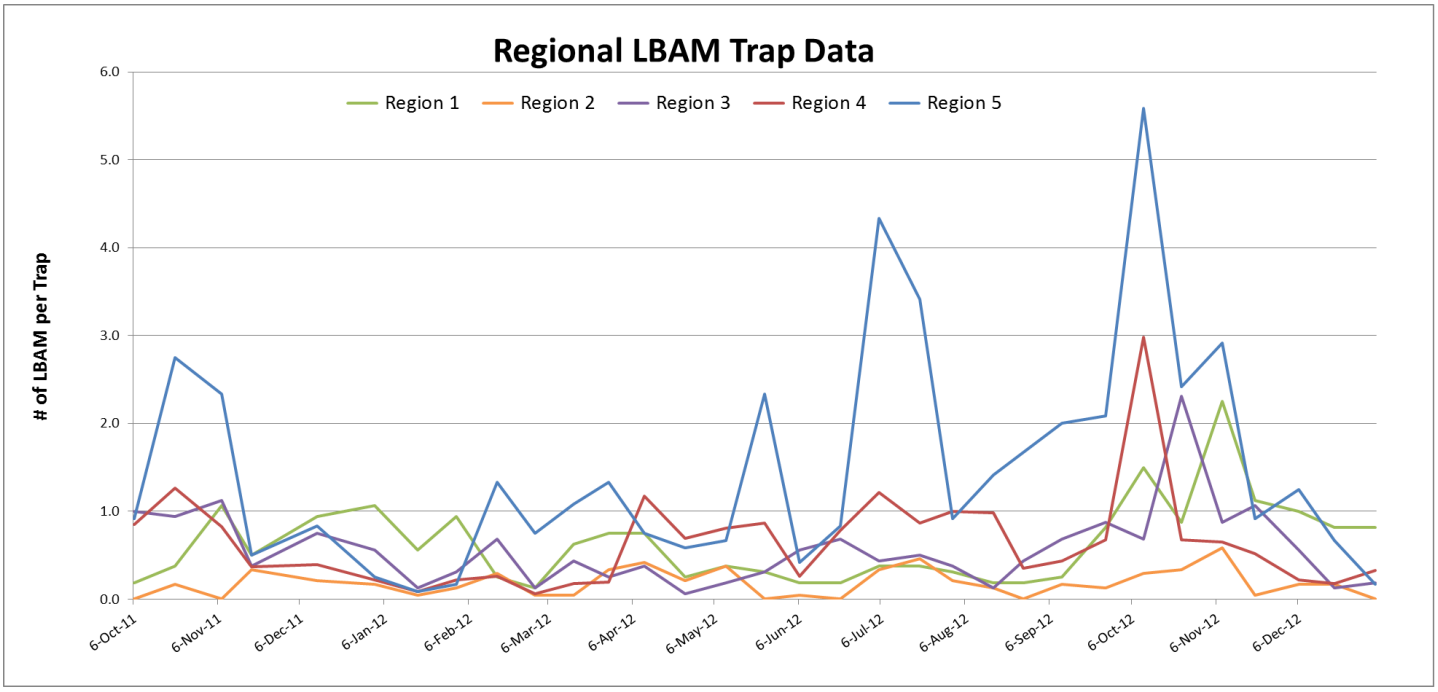
The Light Brown Apple Moth (LBAM) is an important invasive pest for California, and has become established throughout much of California's central coast. It is a regulated pest in ornamental and fruit crops important to the central coast economy. The University of California Cooperative Extension (UCCE) in Santa Cruz County conducts research in Santa Cruz and Monterey counties to aid in LBAM detection and management. UCCE has been trapping LBAM in and around wholesale nurseries, apples, and berries since 2009.

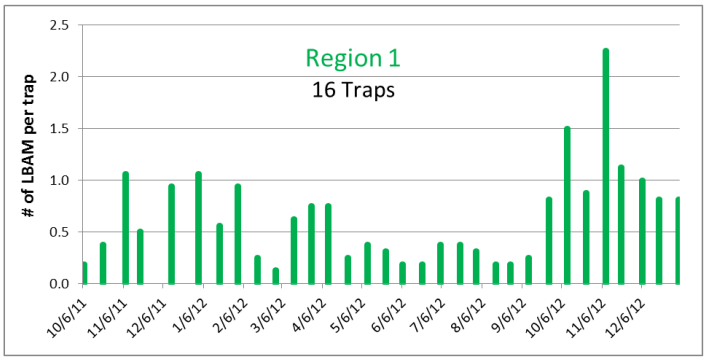
The graphs below represent actual trap data from current research where we are monitoring LBAM population dynamics in natural vegetation and weeds surrounding some local production nurseries and berry fields. Five research regions were chosen based on the occurrence of LBAM around production nurseries and berry crops in the areas. LBAM-pheromone baited Delta traps trap only male LBAM moths and bucket traps (baited with terpinyl acetate and brown sugar solution) trap both male and female adult moths. Traps are checked and maintained every two weeks. LBAM has no diapause or dormant, over-wintering state, but rather usually survives as smaller, multi-stage larvae until the spring when they pupate and emerge as adults. The lack of diapause causes overlapping generations throughout the year, with multiple life-stages present at any one time, making it more difficult to identify the biofix date essential in pest forecasting. Biofix dates are based on specific biological events such as planting dates, first trap catch, or first occurrence of a pest (UCIPM website).

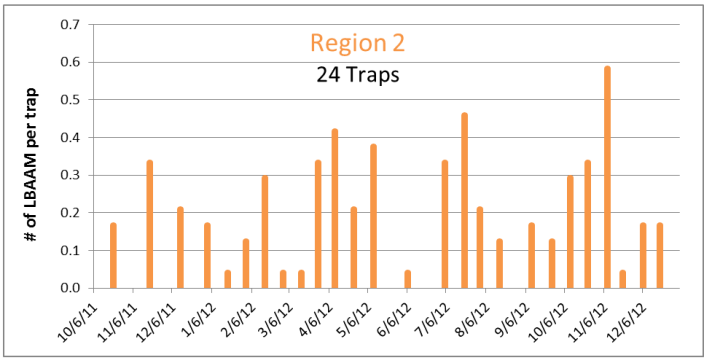
The data provided in these graphs can be used by growers to implement LBAM management programs. Regional biofix information can be used to improve the efficiency of control measures by allowing for more accurate timing of treatments. For example, using a biofix date and degree-day information, growers could reasonably predict the presence of adult migration, egg laying, and subsequent life stages in the field. See the UC IPM website for more information. In the near future, we anticipate having degree-day information posted along with updated trap data. Stay tuned.

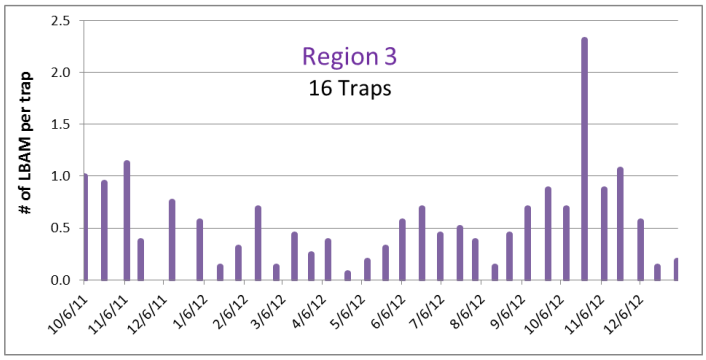
The information provided is to be used and interpreted independently by each grower and the UCCE is not responsible for the outcome of actions taken based on the information presented. For questions, contact Neal Murray at nbmurray@ucanr.edu or Steve Tjosvold at satjosvold@ucanr.edu. This research was funded by a Specialty Crop Block Grant (CDFA/USDA).

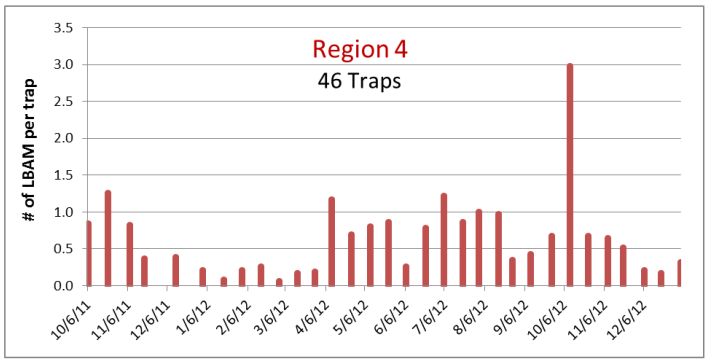


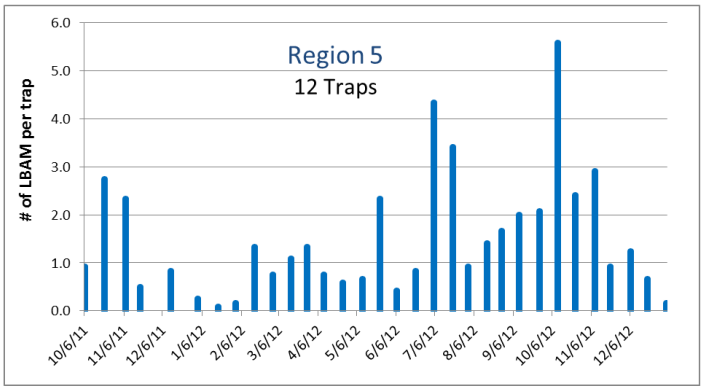












Comments and Analysis

The number of LBAM adults trapped this week is slightly above average in region 1, but regions 2, 3 ,4, and 5 are well below average. Mating disruption dispensers should already be in place and thorough scouting should be utilized to look for feeding larvae. Larvae resulting from the peak adult flight in October will still be large and forming large shelters and therefore easier to find during routine scouting sweeps.

Like the changes to the graphs? Please let us know what you think.

UPDATED: January 15, 2013

Example

Accumulated Degree-days

October 9th to December 9th, 2012

Date	Air temp(°F)		Degree-days	
	Min	Max	Daily	Accumulated
Oct 08 2012	44	69	11.6	11.6
Oct 09 2012	50	72	16.0	27.6
Oct 10 2012	56	67	16.5	44.1
Oct 11 2012	54	59	11.5	55.6
Oct 12 2012	54	65	14.5	70.1
Oct 13 2012	47	73	15.0	85.1
Oct 14 2012	49	76	17.5	102.6
Oct 15 2012	50	76	18.0	120.6
Oct 16 2012	52	79	20.5	141.1
Oct 17 2012	48	87	22.5	163.6
Oct 18 2012	58	87	27.5	191.1
Oct 19 2012	58	70	19.0	210.1
Oct 20 2012	49	67	13.0	223.1
Oct 21 2012	42	65	9.0	232.1
Oct 22 2012	51	63	12.0	244.1
Oct 23 2012	42	62	7.5	251.6
Oct 24 2012	41	65	8.7	260.3
Oct 25 2012	52	71	16.5	276.8
Oct 26 2012	44	72	13.1	289.8
Oct 27 2012	48	78	18.0	307.8
Oct 28 2012	48	76	17.0	324.8
Oct 29 2012	52	73	17.5	342.3
Oct 30 2012	52	70	16.0	358.3
Oct 31 2012	55	62	13.5	371.8
Nov 01 2012	57	63	15.0	386.8
Nov 02 2012	47	68	12.5	399.3
Nov 03 2012	45	79	17.0	416.3
Nov 04 2012	51	85	23.0	439.3
Nov 05 2012	56	95	29.2	468.6
Nov 06 2012	53	78	20.5	489.1
Nov 07 2012	52	56	9.0	498.1
Nov 08 2012	41	63	7.7	505.8
Nov 09 2012	40	57	4.7	510.5
Nov 10 2012	33	61	5.5	516.0
Nov 11 2012	33	64	6.8	522.8
Nov 12 2012	37	68	9.3	532.1
Nov 13 2012	49	76	17.5	549.6
Nov 14 2012	53	78	20.5	570.1
Nov 15 2012	45	69	12.0	582.1
Nov 16 2012	49	65	12.0	594.1
Nov 17 2012	56	62	14.0	608.1
Nov 18 2012	46	62	9.0	617.1
Nov 19 2012	45	65	10.0	627.1
Nov 20 2012	45	66	10.5	637.6
Nov 21 2012	43	64	8.8	646.3
Nov 22 2012	42	63	8.0	654.3
Nov 23 2012	45	76	15.5	669.8
Nov 24 2012	46	76	16.0	685.8
Nov 25 2012	40	65	8.5	694.3
Nov 26 2012	39	60	5.9	700.2
Nov 27 2012	48	61	9.5	709.7
Nov 28 2012	46	63	9.5	719.2
Nov 29 2012	45	61	8.0	727.2
Nov 30 2012	57	63	15.0	742.2
Dec 01 2012	56	66	16.0	758.2
Dec 02 2012	52	63	12.5	770.7
Dec 03 2012	47	61	9.0	779.7
Dec 04 2012	49	60	9.5	789.2
Dec 05 2012	56	63	14.5	803.7
Dec 06 2012	48	61	9.5	813.2
Dec 07 2012	44	63	8.6	821.8
Dec 08 2012	38	64	7.6	829.4
Dec 09 2012	40	68	9.9	839.3

Accumulated degree-days calculated using the degree-day calculator on the UC IPM website.

Min/Max temperature data gathered from CIMIS weather station in Pajaro, Ca.

Degree-day Requirements for LBAM Development

DD needed to complete life stage	
Egg	235
Larvae	685
Pupae	235
pre-oviposition	50
Total DD	1205

To calculate accumulated degree-days, choose either the historical data method or current data from the degree-day calculator, and then use the historical model for forecasting.

To learn more about using the historical degree-day method for pest forecasting, click http://cesantacruz.ucanr.edu/files/157930.pdf.

To learn more about using the degree-day calculator to calculate accumulated degree-days click, http://cesantacruz.ucanr.edu/files/157929.pdf.