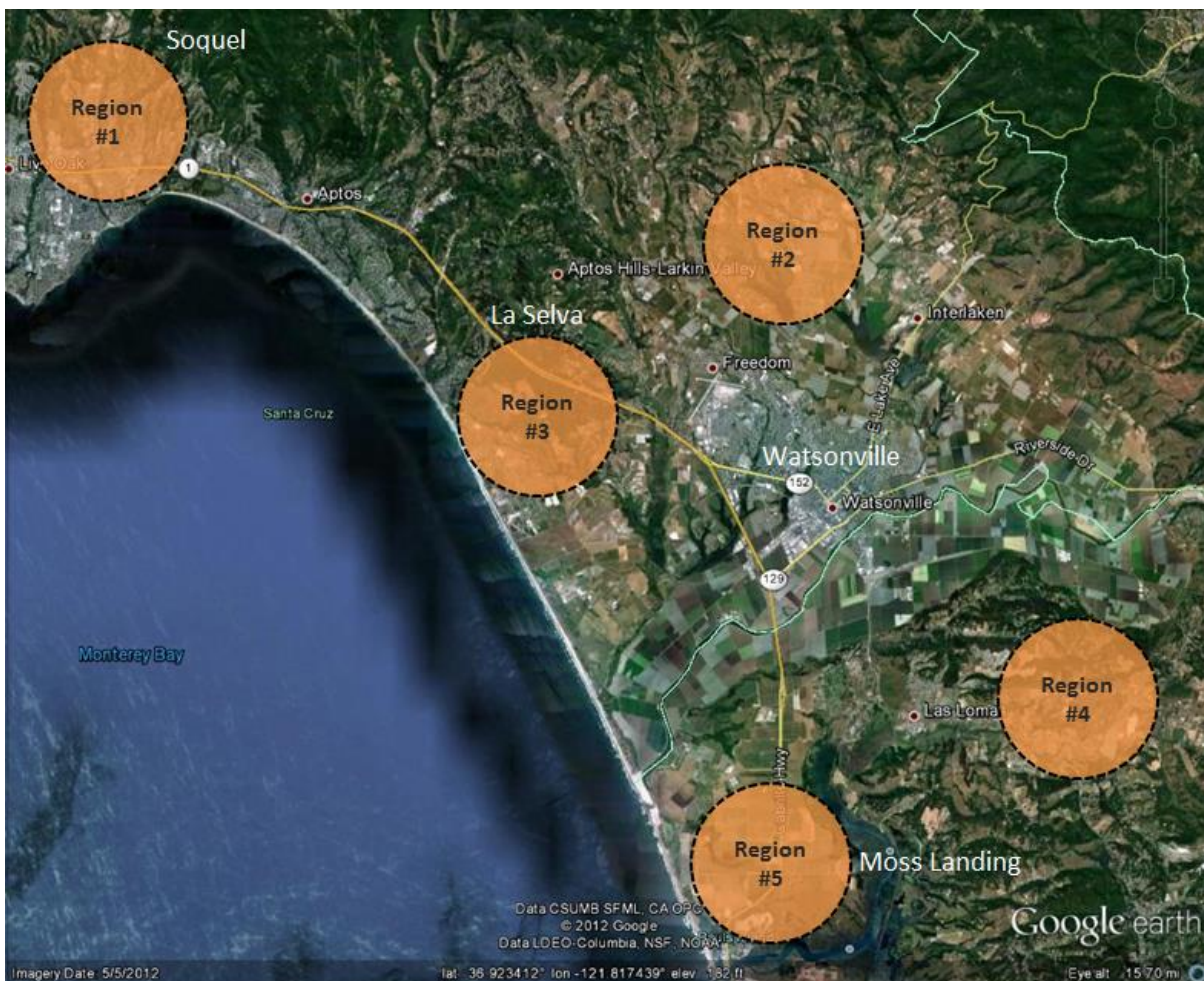


The Light Brown Apple Moth (LBAM) is an important invasive pest for California, and has become established throughout much of California's central coast. It is a regulated pest in ornamental and fruit crops important to the central coast economy. The University of California Cooperative Extension (UCCE) 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.

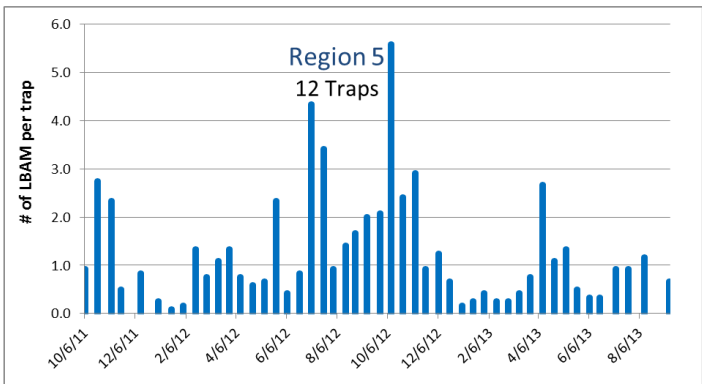
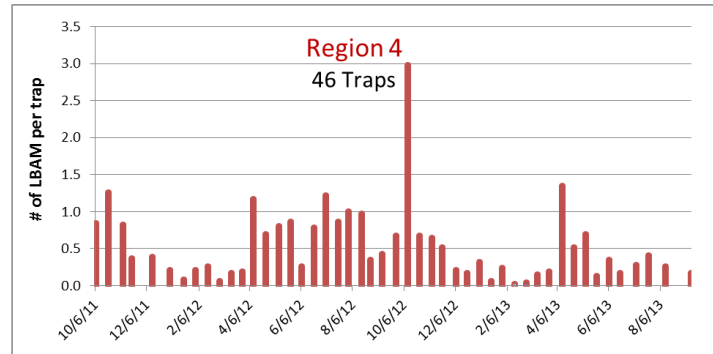
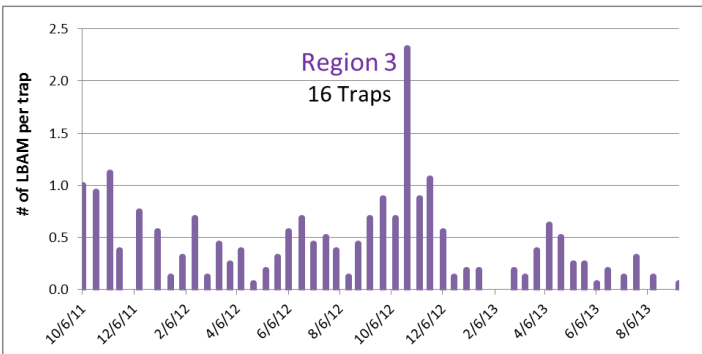
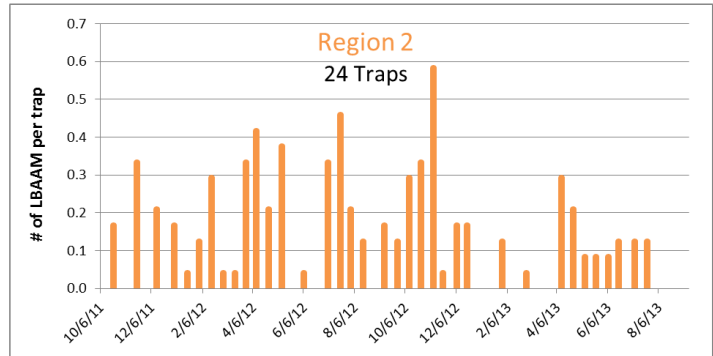
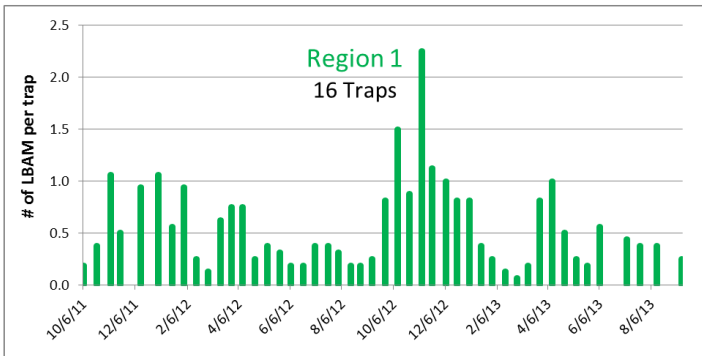
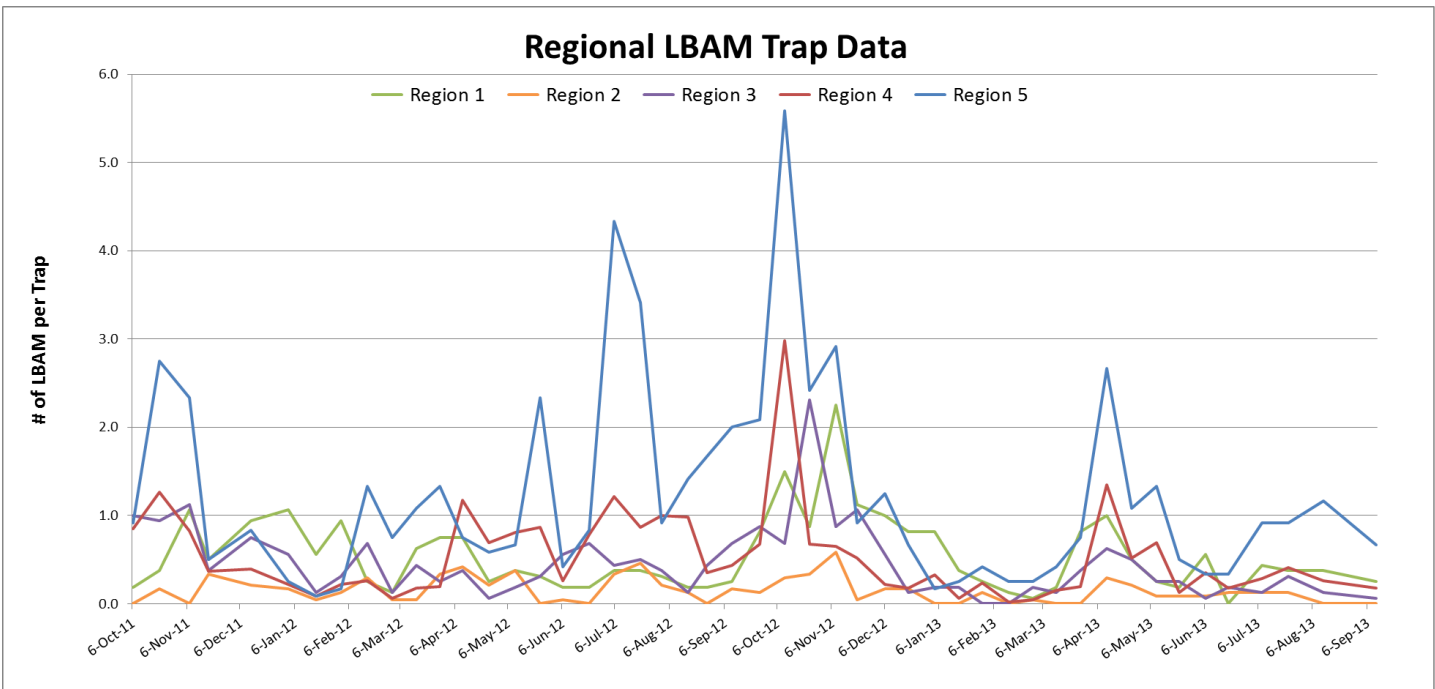
The graphs below represent actual trap data from current research where we are monitoring LBAM population dynamics in natural vegetation and weeds surrounding some local production nurseries and berry fields. Five research regions were chosen based on the occurrence of LBAM around production nurseries and berry crops in the areas. LBAM-pheromone baited Jackson 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](mailto:nbmurray@ucanr.edu) or Steve Tjosvold at [satjosvold@ucanr.edu](mailto:satjosvold@ucanr.edu). This research was funded by a Specialty Crop Block Grant (CDFA/USDA).



## Regional LBAM Trap Data



### Comments and Analysis

The number of LBAM adults trapped this week is below average for all regions. Overlapping generations are making it more difficult to identify peaks in adult activity. All stages of development will be present in the field. Careful scouting and monitoring are vital during this period.

The overall graph for last year, shows there was a major peak in adult activity in late September into early October. Stay sharp!

Mating disruption dispensers should already be in place and thorough scouting should be utilized to look for feeding larvae.

**UPDATED: September 16, 2013**

# Example

## Accumulated Degree-days

October 9<sup>th</sup> to December 9<sup>th</sup>, 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       |

## Degree-day Requirements for LBAM Development

| DD needed to complete life stage |             |
|----------------------------------|-------------|
| <b>Egg</b>                       | <b>235</b>  |
| <b>Larvae</b>                    | <b>685</b>  |
| <b>Pupae</b>                     | <b>235</b>  |
| <b>pre-oviposition</b>           | <b>50</b>   |
| <b>Total DD</b>                  | <b>1205</b> |

To calculate accumulated degree-days, choose either the historical data method (1) or current data (2) from the degree-day calculator, and then use the historical model for forecasting.

1.) To learn more about using the historical degree-day method for pest forecasting, go to:

<http://cesantacruz.ucanr.edu/files/157930.pdf>.

2.) To learn more about using the degree-day calculator to calculate accumulated degree-days go to:

<http://cesantacruz.ucanr.edu/files/157929.pdf>.

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.

To view previous postings to this website please click the link below.

