

ARIZONA PINK BOLLWORM ERADICATION PROGRAM UPDATE 2013**Leighton Liesner****Larry Antilla****Michael Whitlow****Joahna Solis****Arizona Cotton Research & Protection Council****Phoenix, AZ****Abstract**

Zero native captures season long means Arizona's Pink Bollworm eradication program reached an important milestone in 2013. The last native capture occurred in April of 2012 in a Bt field east of Yuma, before the cotton crop had reached a host-able stage. The last larval find (evidence of reproduction) in Arizona was isolated in the Yuma growing area in 2009. For 2013, the entirety of the International Pink Bollworm Eradication Program including the Lower Colorado River Basin was free of native captures or evidence of reproduction season long.

Introduction

The following updates the progress of the 2013 Pink Bollworm eradication effort in Arizona. Background information including methods and materials can be found in previous Beltwide proceedings; information provided here will be generalized and focused on current program results.

Results

Arizona cotton acreage for 2013 totaled 167,232 (17% decrease over 2012), conventional cotton comprised 4,889 (3%) of the total acreage. Yuma County (Area III) conducted year six of eradication activities. La Paz and Mohave counties (Area II) completed year seven eradication activities. Central and eastern Arizona (Area I) completed an eighth year of eradication activities (Figure 1). In the three zones, 3,099 traps were checked weekly.

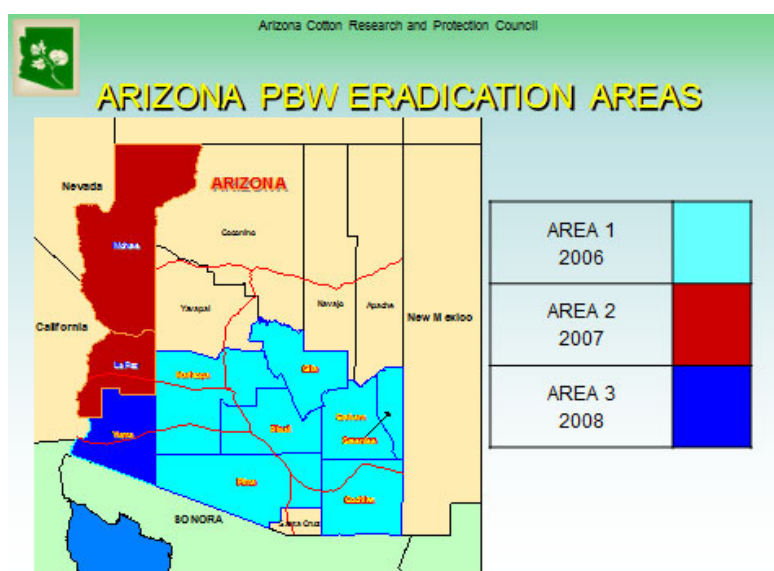


Figure 1. Arizona program areas.

In 2013, no pheromone or insecticide treatments were made for control of Pink Bollworm, and limited sterile releases were conducted in the Yuma area (Southwest portion of the state) on a precautionary basis. In conjunction with Pink Bollworm eradication, a cultural shift to Bt cottons has continued to enhance eradication efforts across the state (figure 2).



Figure 2. 2013 Arizona Cotton Distribution

In Central and Eastern Arizona (Area I), no native moths were captured in 2013 (figure 3), and no immature Pink Bollworm life forms were detected in targeted boll sampling or boll incubation mirroring results in the previous 4 years (figure 4).

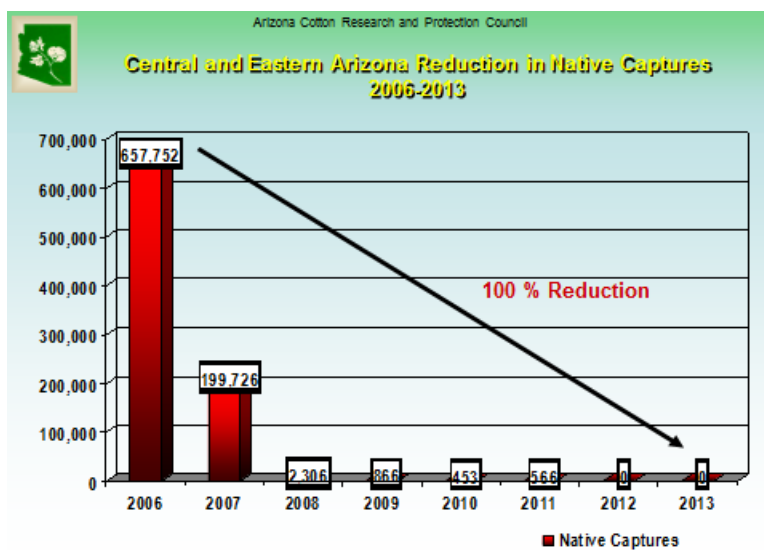


Figure 3. Area 1 native moth captures

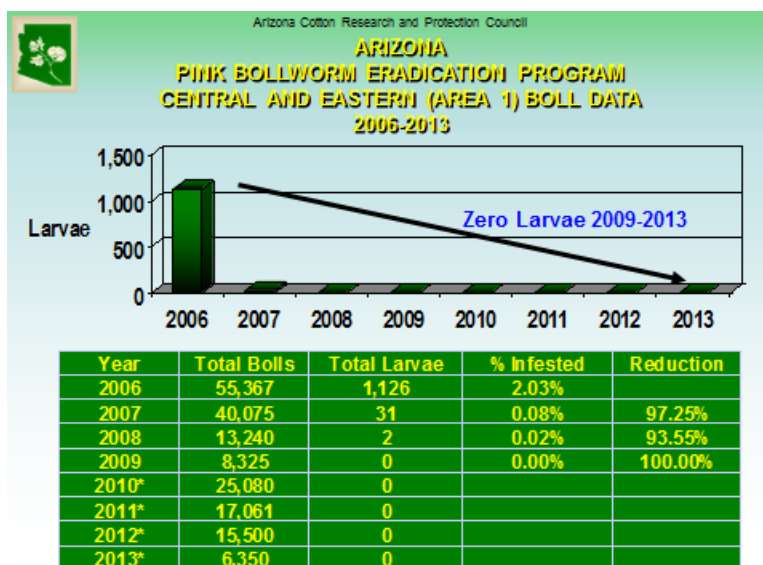


Figure 4. Area I boll data

In the river counties of La Paz and Mohave (Area II), two years have passed without a native moth capture (figure 5), and no immature Pink Bollworm life forms in targeted or incubated boll samples as in the previous five years (figure 6.)

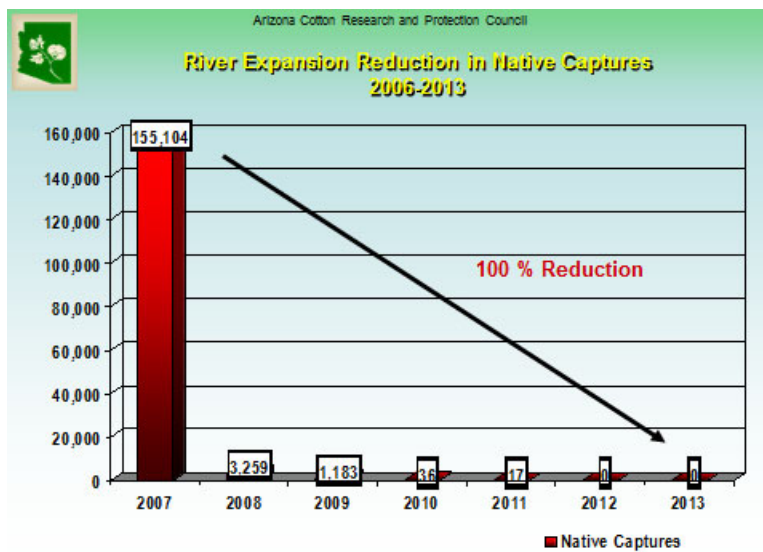


Figure 5. Area II native moth captures

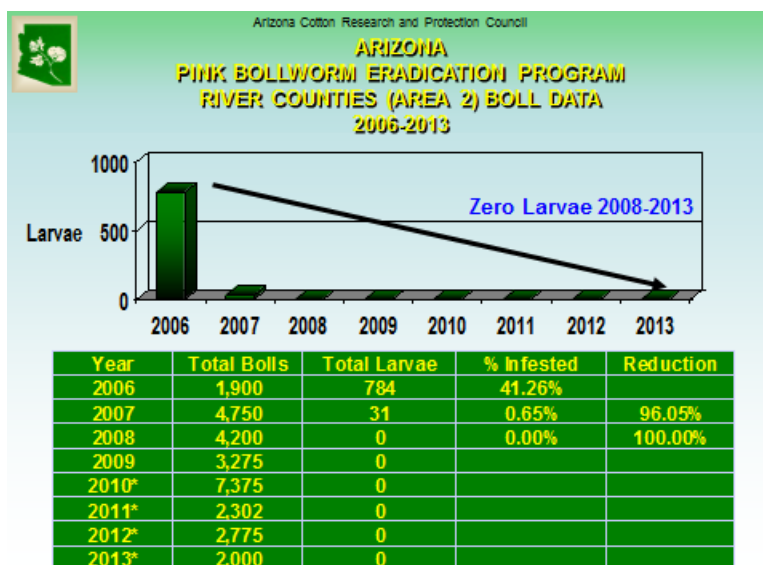


Figure 6. Area II boll data

In Yuma (Area III), zero native moths were captured in 2013 (figure 7). Targeted and incubated boll samples provided no indication of any Immature Pink Bollworm life forms in Area III for the fourth year (figure 8).

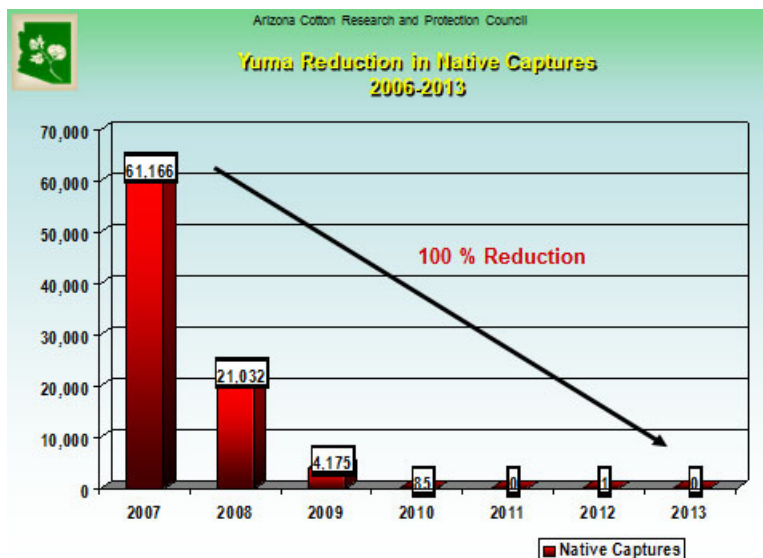


Figure 7. Area III native moth captures

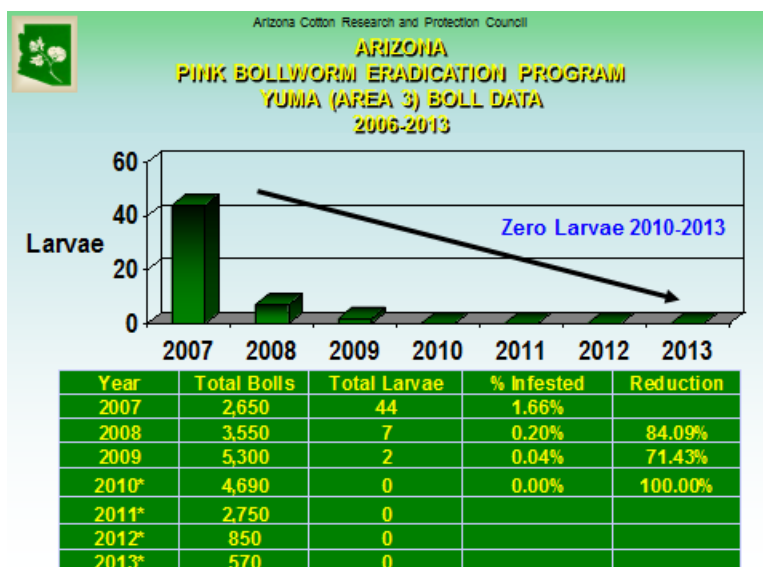


Figure 8. Area III boll data

For the third consecutive year desert line trapping yielded no captures of native moths (figure 9). This result is also a strong indicator of program success in the Lower Colorado River Basin comprised of portions of Arizona, California and the states of Baja California and Sonora in Mexico.

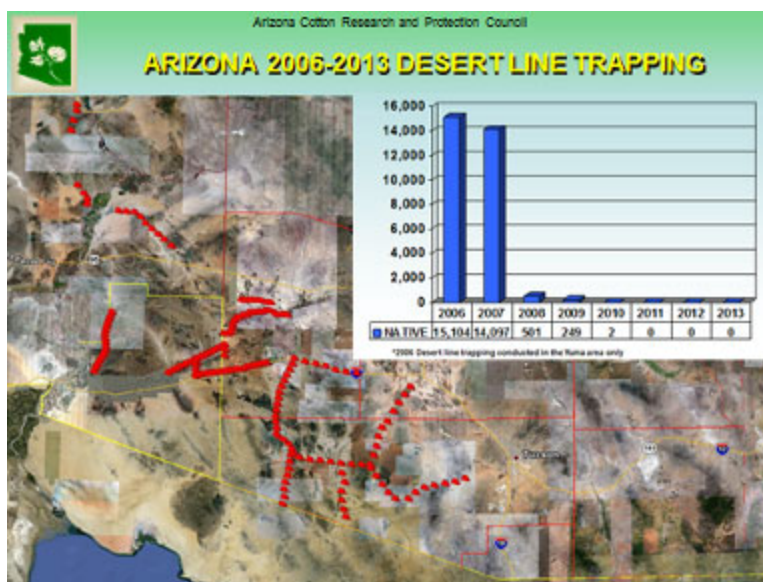


Figure 9. Arizona desert line trapping

It is the author's view that Pink Bollworm Eradication along with the introduction of Bt cotton and select pesticide chemistries brought about the overwhelmingly positive results we have encountered. This outcome has resulted in drastic savings in cost and yield loss to the Arizona cotton industry (Figure 10). These savings are coupled with large environmental and socio-economic benefits from reduced dependency on hard chemicals to control Pink Bollworm and associated secondary pests.

Cotton IPM Saves Millions \$

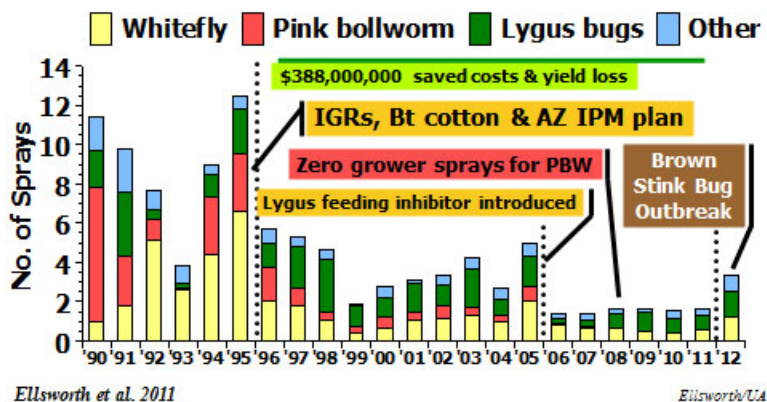


Figure 10. Cotton Integrated Pest Management in Arizona

Conclusions

As we take note of the gains made in eradication of the Pink Bollworm, the challenge becomes the protection of our current progress and transition to a long term management strategy which will economically and efficiently sustain these gains. To that end, the National Cotton Council's Pink Bollworm Action Committee voted in November 2013, to declare all eradication zones in Confirmation of Eradication beginning in 2014. This represents year one of a four year process leading to the Declaration of Eradication after a gradual step-down process in trapping densities and monitoring frequency. This is guided by a set of "minimum standards" designed to address any native finds and ensure continued vigilance and maintenance of expertise as we move forward.

This approach also enables continuation of cultural practices afforded by 24C special local need registrations for 100% use of the various Bt technologies in association with Pink Bollworm eradication without need for structured refuges. This also provides time and opportunity to work with industry and regulatory elements to secure a long term solution through regulation, technology or both to allow continued forward progression of cultural and resistance management practices in Arizona cotton production.

The recommendation for 2014 does not include the release of sterile insects and only minor reduction in trap densities. This strategy does include maintenance of the Pink Bollworm rearing facility colony and the ability to step up production to respond to any moth captures or evidence of reproduction with sterile insects quickly and efficiently.

References

Ellsworth, P.C., 2013. Ellsworth et al. 2011 (revised). University of Arizona, College of Agriculture and Life Sciences, Cooperative Extension, Tucson, Arizona.