



Capture of *Alabama argillacea* Hübner (Lepidoptera: Noctuidae) Adults in Light Traps in Cotton, *Gossypium hirsutum* (L.) (Malvales: Malvaceae) Crop Infestation, an Alert Mechanism

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ABSTRACT

In cotton crop management it is important to carry out periodic scouting to evaluate the degree of infestation with lepidopteran pests, which can be captured at the adult stage with light traps and/or specific pheromones. The objective of this study was to try to identify an association between *Alabama argillacea* adults captured in light traps and eggs and larvae that infest the crop. A light trap was established in a cotton field at Sáenz Peña, Chaco, Argentina. Daily capture of *A. argillacea* adults in light traps was determined, and periodic eggs and larvae counts of that species in plants of neighbour fields were carried out. There is a positive association between the number of adults captured and the presence of larvae in the crop the following week ($r = 0.62$ significant at $p = 0.05$). This suggests that the capture of adults could be useful means of alerting farmers to scout their cotton to establish the degree of infestation in the crop and the right timing for control decisions.

Introduction

Integrated Pest Management (IPM) comprises a group of practices to keep pests populations for the different stages of crop development below acceptable levels, above which economic damage takes place. Parencia *et al.*, 1964, determined the occurrence of pests in cotton crops with light traps.

The cotton leafworm, *Alabama argillacea* (Hübner), is a pest of high incidence in Argentinean cotton. It is a defoliant that diminishes the photosynthetic leaf area, causing a decrease in weight and quality in fiber and seeds and also in the number of seeds.

Light trap captures of adult lepidoptera provide an estimation of the population, using a sample of the active part of the population at a given moment and in a certain area (Kranz and Theunissen, 1995). This information alerts the producer to detect eggs and small larvae through direct observation of plants, (L1 and L2), at a time when they have the highest susceptibility to control measures and when damage to the plants is still limited.

The aim of this study was to develop methodology for predicting *Alabama argillacea* infestations in cotton crops using light traps.

Material and Methods

Light traps located in fields close to the crop had white light, generated by a 25-watt fluorescent tube. Daily counts of captured *A. argillacea* adults were carried out. Direct monitoring of cotton plants in 10 hectares fields at 30 set sampling points was carried out every

10 days. At each point, the number of eggs, larvae (small, medium and big) and pupae of *A. argillacea* were recorded on 10 cotton plants. Correlation and regression analyses were carried out. Larvae infestation on cotton plants and capture of adults in light traps were plotted to identify any possible association.

Results and Discussion

When analyzing the relationship between quantity of adults captured and larvae and pupae in the crop, it was found that when the quantity of adults increased, immediately or the following week, an increment in the quantity of larvae was observed, and little more belatedly, in the quantity of pupae. This originated a new generation of adults.

Figure 1 shows the weekly numbers of adults captured in light traps and the count of larvae in the cotton crop. An increase of the number of adults captured in the traps corresponds to an increase in the number of larvae (L1 and L2) of *A. argillacea* in the crop a short time later.

Analyzing the association between number of captured adults and presence of larvae in the crop the following week (Figure 1), a correlation coefficient of $r = 0,616$ significant at $p = 0,05$ was found, with a regression equation where $y = 5.55 + 2.82 x$. This allows the estimation of the degree of infestation in the crop, through the number of adults captured, a week in advance.

These results are preliminary and should be corroborated over time. If they are proven, it would be

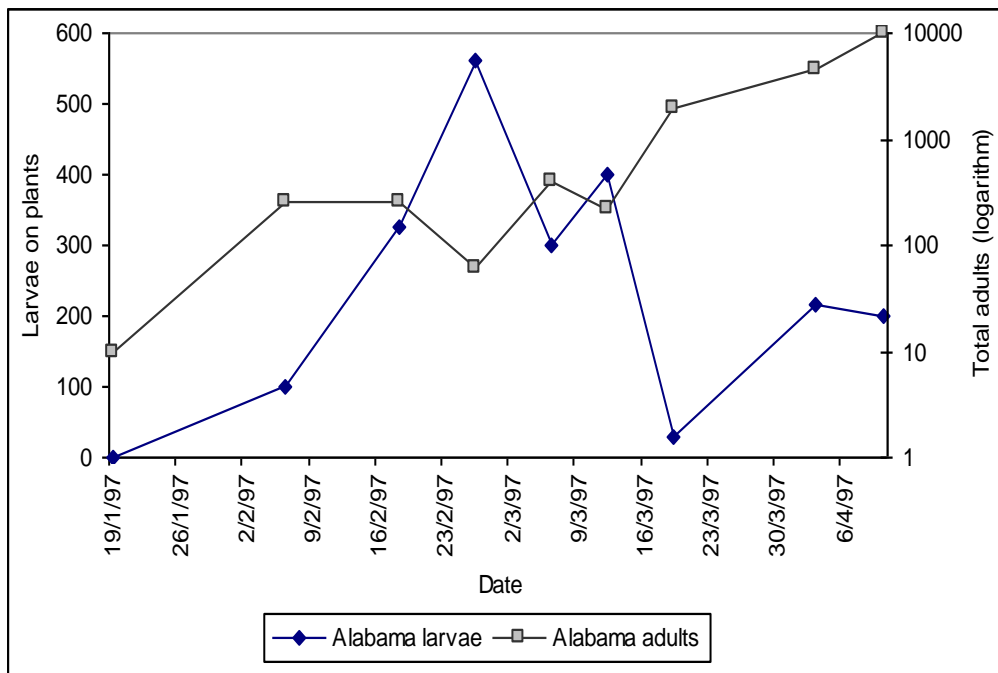
useful in the prediction of *A. argillacea* infestation in cotton crops.

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Figure 1. Adult *Alabama argillacea* captured in light traps and count of larvae in cotton crops.



Correlation coefficient	Coefficient of determination	Intercept	Slope	f	Probability
0.616	0.381	5.54	2.81	7.37	0.018

