AREA WIDE PEST MANAGEMENT AT WORK

A CONSULTANT'S VIEW

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This paper is based on my views and experiences from the four Area Wide I P M Groups in the Macintyre Valley.

These groups cover the majority of the irrigated cotton from Yetman to just east of Boomi.

There are 72 farms and 9 consultants in these groups covering 34669 Ha

DEFINITION - Area Wide Management is a unified approach of a number of farmers to manage pests using all the tools available with a minimal impact of beneficial insects, the environment or their neighbours.

FEATURES OF AREA WIDE MANAGEMENT

(1) Area Wide Management allows groups to have a common approach to pest management. A range of I P M tools can be used by individual group members with the most common rule that disruptive chemicals should be avoided for as long as possible.

With the release of three robust soft option chemistries in the past three years it is now possible for growers to stay soft season long, as shown in table 1.

Product Usage as % of Heliothis Sprays 2001-02

		No.of sprays
Tracer	30.2%	1.80
Steward	26.1%	1.60
Dipel	15.5%	0.90
Affirm	10.8%	0.60
Gemstar	10.3%	0.60
Endo	7.8%	0.50
Amatraz	2.3%	0.10
Curacron	0.9%	0.05
Predator	0.8%	0.05
Intrepid	0.7%	0.04
Agrimec	0.5%	0.03
Pyrethroids	0.0%	0.00
Total Sprays		6.00

Table 1:
Data supplied by Chris Wicks covering 354 fields for the 2001/2002 season.

Trap cropping is used by some growers, but it not a prerequisite for Area Wide Management however, it is proving useful for resistance management and reducing the total pool of Heliothis.

In recent years we have seen improved effectiveness from trap crops once we get to areas larger than 4 – 5 % of the farm.

(2) IMPROVED COMMUNICATION

Area Wide Groups provide an ideal venue for growers and consultants to meet and discuss current issues affecting the crop, while meetings do not need to be regular, a couple of paddock meetings through the season and a review and planning meeting in winter allows good grower interaction and discussion on crop and pest management.

New ideas and techniques can be shared and potential pest problems discussed to reduce their impact.

(3) GROWER OWNERSHIP

The biggest positive from Area Wide Management is the ability of growers to take ownership of their crops pest management. By having growers more actively involved in the decision making process and with a better understanding of pest and plant compensation interactions, consultants can now implement I P M more fully without always having to take the safest option.

This has resulted in fewer sprays with obvious environmental benefits and has improved growers understanding of resistance.

(4) BENCHMARKING

In the Macintyre now we are looking at 3 – 4 years of benchmarking data where every input and output from each cotton field is documented. The database allows the groups to look at trends across the valley on all aspects of cotton growing and by looking at fields with the best gross margins they can confirm what practices are working.

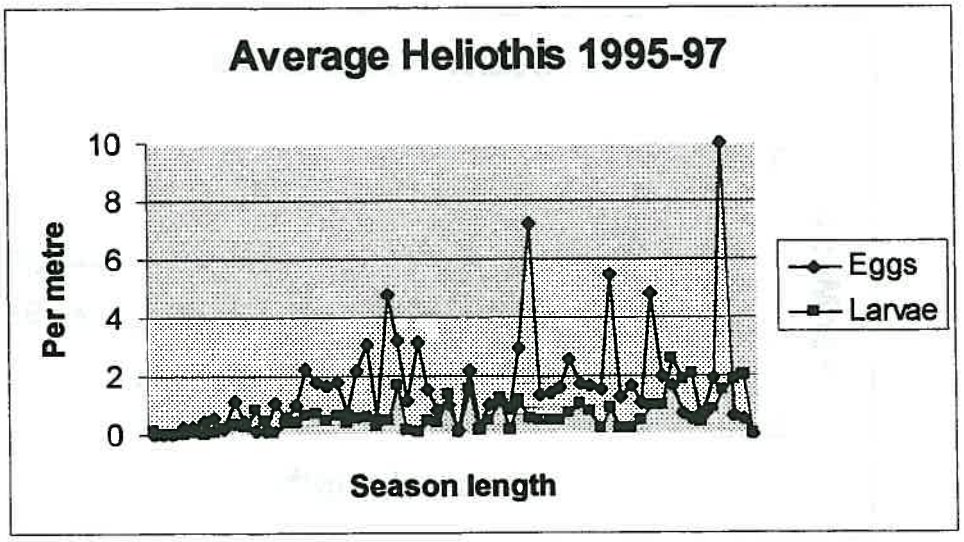
This benchmarking done by Chris Wicks has been a significant tool in the adoption of IPM across the Macintyre through its ability to show that the softest sprayed fields were the most profitable.

(5) REDUCED PEST PRESSURE

By approaching Heliothis on an Area Wide Management basis we are effectively trying to reduce the total pool of Heliothis.

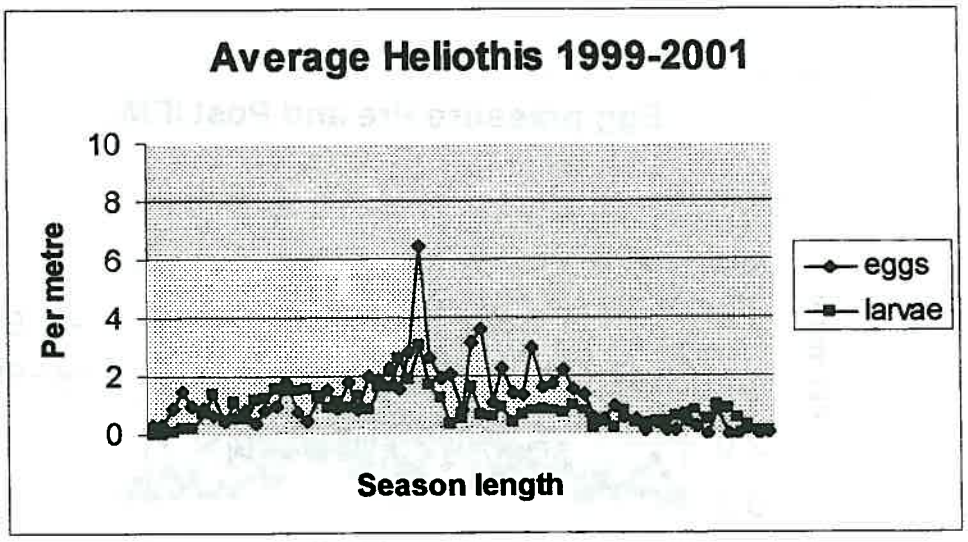
Pupae control under all crops, trap cropping and preservation of beneficial insects are the primary tools in reducing the Heliothis pool.

Graph 1 shows Heliothis pressure on a 400 Ha management unit west of Goondiwindi from 1995 to 97 which is prior to Area Wide Management in that area.



Graph 1

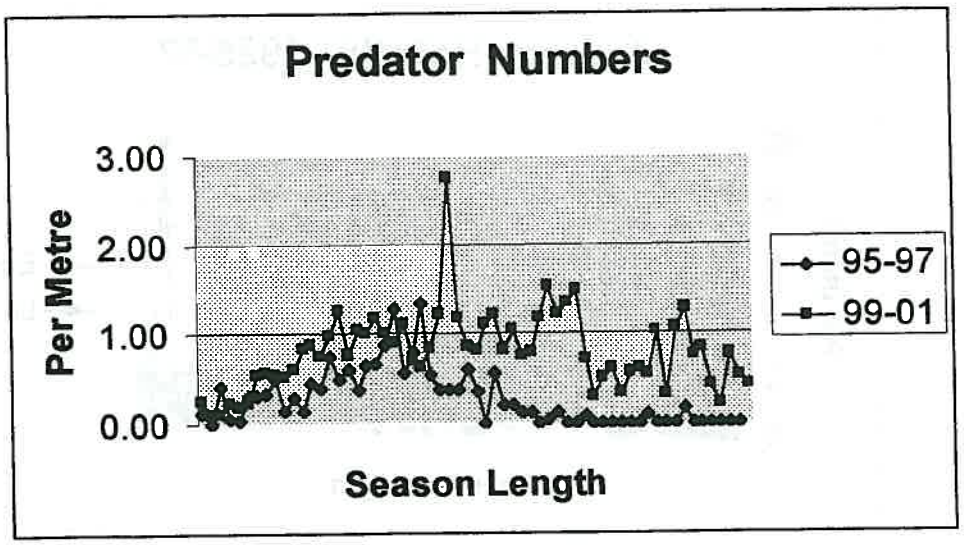
Graph 2 show Heliothis pressure for the same 400 Hectare unit from 1999 to 2001 which is post area wide management.



Graph 2

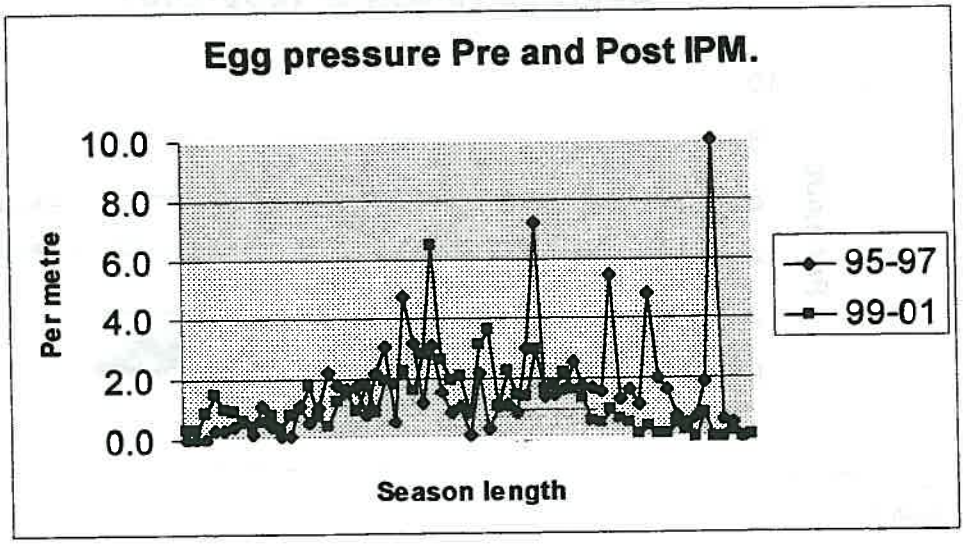
The notable difference here is that in the past three years, although we started with similar pressure we have seen significantly less pressure in the last half of the season. This reduction of pressure has reduced spraying by 50% on average and resulted in substantial cost reductions.

This lower pressure may be just luck but, is most likely contributed to maintaining beneficials all season as shown in Graph 3. This graph does not include any parasitoids or ants but does show that predators will stay all season when the softest chemicals are selected.



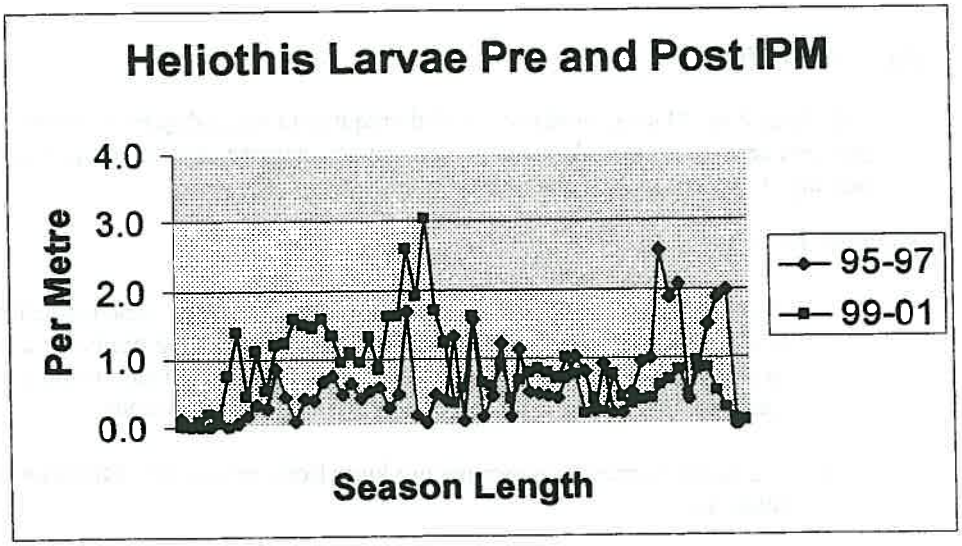
Graph 3

Further supporting this is a comparison of egg pressure for pre Area Wide Management to post Area Wide Management in graph 4. This shows similar starting pressure on average for both periods but there is notably less pressure late season since IPM was adopted.



Graph 4

Graph 5 is a comparison of larval pressure for the same two periods. Notably in 1999 to 2001 there are higher larval numbers early season due to the change in thresholds from 1 to 2 larvae per metre but this has not followed on to late season where numbers are much lower and tend to stay below threshold.



Graph 5

Late season is where Area Wide Management and I P M are really paying off. By preserving beneficials we are reducing the survival of larvae and reducing pupation under our crops, hence reducing late season pressure and the cost of control.

We are no longer generating our own problems and as a result we have gone from averaging 12 sprays per season to 6 for the past three years.

(6) IMPROVED ENVIRONMENTAL AND SOCIAL ACCEPTANCE

Area Wide Management creates an environment were I P M can be implemented and should include all crops and cropping systems.

The notable winner in the Macintyre has been the environment with a reduction in spray complaints and odour problems giving cotton growers greater social acceptance.

Area Wide Management and I P M is not simply putting a bandaid on one of the cotton industry's problems, it is going a long way towards solving the problem of excessive chemical use.

(7) RESISTANCE MANAGEMENT

The Area Wide system is expected to have a positive impact on resistance development due to the reduction in spray frequency and the activity of predators and parasitoids on any spray survivors.

However, this has yet to be proven and should be an industry priority as we continue to see resistance develop to new products under our current resistance strategy.

(8) NEGATIVES

Both Area Wide Management and I P M do require a greater degree of knowledge of the crop and pests. This extra knowledge necessitates increase crop scouting, monitoring and meeting attendance, which could result in increased costs.

(9) THE FUTURE

- The first major hurdle we have to address is to develop a sustainable farming system that best utilises all crops in a rotation. Each crop needs to be synergistic in pest management (act as trap crops), give an improvement to soil health, minimise disease build up and be profitable in their own right.

- We need to continue improving our knowledge on pest and beneficial ecology and interactions.

- More research will be needed on what is in the environment that can help pest management further. For example Insectivorous Bats that naturally occur in our region that control moths, or the need for eucalypts as an over wintering site for Assasin Bugs.

- Industry will need to develop a balance between transgenic cottons and I P M conventional cotton that best manages resistance and protects grower's gross margins.

- The development of repellents and attractants to apply to specific crops which will aid in Heliothis and secondary pest management.

- Area Wide Management Groups will expand to cover other issues such as water use efficiency and salinity management.

ACKNOWLEGEMENTS

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