

# Opportunities and objectivity in the IRMS

By John Barber, Consultant, St George

The Insecticide Resistance Management Strategy (IRMS) for 2003–04 has recently been published. As always the TIMS committee consulted widely before deciding on the final version, so as always the end result was a compromise of quite a few opinions and will probably be acceptable to most. But in reality, there have been some minor changes to start and finish dates for a few insecticides, which happens every year, and never seems to matter in practice.

It gives the impression, as the name implies, that we are managing insecticide resistance as best we can and thereby advancing the interests of all concerned. On the contrary I suggest we can do a lot more.

Certain very obvious changes can be made to the strategy. There should be no compromises and no concern for vested interests. Ultimately the strategy could be greatly simplified and could even be the same for all districts, except that stage dates would vary.

On the other hand how can anyone be critical of something which aims, at least, to please everybody. I suggest the answer is that the strategy should promote IPM as well as IRM. The proposed IRMS for 2003–04 certainly does not do that, nor were IPM options offered at the regional TIMS meetings.

That is unfortunate since it is easy to show that the best IPM strategy is also the best IRM strategy. A contrary argument is that good resistance management makes available as many insecticides as possible, including hard ones, for rotation at any time.

The reply is that hard or broad spectrum insecticide use creates a greater need for options than does soft or heliothis specific larvacide use. In by far the majority of cases, resistance to an insecticide cannot develop when the larvae are not exposed to it.

It should also be noted that most of the necessary and desirable elements of a good IRM/IPM strategy have been practised and recommended by the majority of consultants over the past few years. No doubt they are also the most cost effective.

## Big mistakes, easy fixes

There are four parts of the strategy released in late July for 2003–04 which should be changed. They are:

1. Chlorpyrifos and profenofos available at the beginning of Stage 2 for all areas and pyrethroids available on January 1 — which is mid Stage 2 for warm areas and beginning Stage 2 for cool areas. Not only are these insecticides broad spectrum but their insecticidal activity is so much less than that of the more IPM based alterna-

tives like Affirm and Steward.

Their correct position is at the beginning of Stage 3 where their potential need can be foreseen on the basis of Stage 2 results with other chemistry. In fact most consultants already take this course. I doubt if anyone remembers when chlorpyrifos and profenofos were last used before Christmas but for some reason the TIMS committee is unaware of this.

2. Tracer in Stage 2. Although 'Tracer 2' may not be as temperature sensitive as 'Tracer 1' was, I suggest it is best suited to Stages 1 and 3 where it can be banded (Stage 1) or used as a soft option in more moderate temperatures (Stage 3). It is not an effective larvacide when humidity and crop growth rate are high.

3. Prodigy in Stages 1 and 2. As it is a relatively slow acting and expensive IGR which must be ingested for activity, Prodigy also should be in Stages 1 and 3 where it can be banded or sprayed without growth dilution. It is most unlikely that anyone will use it in Stage 2.

4. Abamectin and Affirm from November 15 to end Stage 2. It is totally unnecessary to complicate the strategy by specifying mectin use from November 15 instead of the beginning of Stage 1. If there is an early infestation of *H. punctigera* or mites which could reduce seedling stand or vigour then, if it is available in Stage 1, Abamectin should be used as necessary.

## Stage One

With these proposals Stage 1 options would be:

- The viruses;
- Foliar Bt;
- Endosulfan;
- Mectins;
- Prodigy; and,
- Tracer.

This is more than ample. In fact in many seasons doing nothing at all is another Stage 1 option. After all we only need 60 per cent early fruiting point retention to maximise yield. We should not expect or require anything more than a modest result from a larvacide in Stage 1.

**TABLE 1: Proposed Cotton IPM/IRM strategy for the warm areas, 2003–04**

Stage 1	Stage 2 Start Dec 20	Stage 3 Start Feb 1
Viruses	Viruses	Viruses
Endosulfan	Endosulfan	Endosulfan
Foliar Bt	Foliar Bt	Foliar Bt
Amitraz	Amitraz	Amitraz
Prodigy	—	Prodigy
Tracer	—	Tracer
	Agrimec until February 10	
	Affirm until February 10	
	Steward until February 10	
	Intrepid	Intrepid
		Pyrethroids
		Chlorpyrifos
		Profenofos
		Thiodicarb

In fact the best IPM and therefore IRM strategy would offer choices which encourage growers and consultants to tolerate some early tip damage and loss of fruiting points. This is certainly possible with indeterminate varieties and a Pix program as evidenced by the success of Sicot 189 and Delta Pearl for many years over a range of latitudes.

Similarly it could be argued that this proposal gives too many options in Stage 1 when only zero to four sprays at most will be needed. At least one of the proposed Stage 1 options could be moved to Stage 2 as was done in the 2002–03 trial Macintyre IPM System when the mectins began on December 1. This effectively excluded Abamectin from early use as a larvicide because *Heliothis punctigera* is not significant in December, but offered it as a miticide if required near the end of the mectin period, namely February 15.

### Stage Two

Another benefit to delaying the mectins is the choice it offers for rotating Affirm with Steward in Stage 2. The Macintyre IPM system also included Tracer from December 10 which therefore made possible a three way heliothis specific rotation for the main part of the growing season. It also excluded pyrethroids and the organophosphates until February 1 (early Stage 3) which as previously indicated is a minimum requirement of a good IPM/IRM strategy.

Of course the other way to take full advantage of all the Stage 1 options is to delay the start of Stage 2. In south west Queensland, and I suspect the other warm area regions of Macintyre, Gwydir, Lower



The best IPM strategy may also be the best IRM strategy.

Namoi and Bourke, there is no reason why Stage 2 could not begin on December 20, rather than December 10. If the mectins were also moved to Stage 2 then larvicide options for the period would include a total seven sprays from Affirm, Steward and Intrepid, not to mention unlimited endosulfan, viruses and foliar Bt for the more adventurous.

Stage 2 is the period of maximum crop growth and usually highest pest infestation. If it begins on December 20, then it must end no later than January 31, which is the approximate time taken to complete one generation of heliothis.

### Stage Three

In some ways this is the most difficult stage to plan. Whether January 20 or February 1, it will probably begin before cutout so a fairly quick acting insecticide may still be needed. The pyrethroids and organophosphates are available and so are Affirm and Steward, but the latter two should not be the last used in the season, if possible.

At present Steward is offered until February 20, which is too late in most

years. At that time the earliest crops are almost ready to defoliate. It would be better for resistance management to finish Steward and Affirm on or before February 10 then to change to thiodicarb or the broad spectrum insecticides. As a dual purpose larvicide/miticide and with only one spray available, Intrepid could be offered to the end of Stage 3.

If Prodigy and Tracer were also available in Stage 3 there would be soft choices season long for those able to take them. In fact these products were placed in Stage 3 in the first draft of the 2003–04 IRMS (released in early June), as was a January 30 end to Stage 2. Clearly some of the changes advocated in this article were also favoured by the majority of the TIMS committee at one time.

### CONCLUSIONS

Unfortunately the final version of the IRMS is not science based. Nor does it reflect popular opinion. In early April 2003 the Gwydir Valley CGA stated: "Stage 2 is the worst fit for Tracer due to growth dilution. It would be better as a soft option in Stage 3."

Perhaps the most disappointing aspect of the 2003–04 IRMS is that it does nothing to promote integrated pest management. It would require a shift in emphasis but after several low pressure years there is a real opportunity to show that IPM is compatible with IRM In the field next summer. Growers and consultants will obey the spirit of the law but I would not be too confident about the rule.

There are many consultants pushing the envelope of integrated pest management in this industry, of course some more than others. I have used both published and word of mouth information to support the opinions in this article so to those who have discussed their work in open forums, thank you.

For more information, contact John Barber, phone: 07 4625 5032.

