

**A PRACTICAL & ECONOMICAL INSECT  
MANAGEMENT PROGRAM FOR THE UPPER  
COASTAL BEND OF TEXAS "HOW WE  
SURVIVED THE BEET ARMY WORM &  
TOBACCO BUDWORM ASSAULTS OF 1995"**

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**Abstract**

As we all know 1995 was not a banner year for cotton production in the South. Every area had its problems. The Lower Rio Grande Valley (LRGV) was wiped out by drought and beet armyworms, which spread up the Texas Coast to Kingsville and the northwest to San Angelo and continued on to Sweetwater. In the Mid South drought, hot weather, and tremendous nightly TBW egg lays led to a disaster for the hill section of Mississippi. South Georgia and Alabama experienced hurricane damage. High cotton prices and government program changes encouraged farmers to extend themselves and plant more acreage than normal which, of course, led to rationing of scarce resources, especially money and management. When the worms invaded many growers were already at their budget limit and were behind schedule on insecticide applications. The horse was already out of the gate by the time that many producers knew the gate was open.

**Discussion**

**Insect management**

Our insect management program focuses on the "Proactive Approach". That is, we try to stay ahead of the insects instead of playing "catch up". You can't surf behind the wave. In this era of increasing costs and insect resistance one bad crop with high insecticide costs can put a grower out of business permanently. The days of "killing" everything out there are gone; we have to focus more on managing the insect population rather than exterminating it.

We work with a wide range of growers who farm mostly share rented land. In some instances the landlord shares the chemical & fertilizer costs. But even so, we have to limit our spending to no more than \$200 per acre. We generally plan on spending \$40 /acre for fertilizer, \$45 for insecticide, \$30 for herbicide, \$12 for defoliant, \$10 for seed and \$5 for fungicide and \$15 for crop insurance for a total of about \$147 per acre for purchased inputs. Add another \$10 for fuel, \$10 for repair, \$5 for labor, \$5 for interest and \$20 per acre for "management" or family living and we are nearing the \$200 per acre mark before land rent is paid. Assuming a cash rent of \$50 per acre puts us at the \$250 per acre mark, before picking and ginning.

Add harvesting at \$50 per acre and we have \$300 per acre in the crop, if we assume that seed will cover ginning, (which is not always the case). Historically the area yields will average between 600 and 750 pounds of lint per acre. Some years like 1991 the 2 bale per acre mark is made, but this is the exception rather than the rule. High cotton prices for 1995 encouraged farmers to spend a little more than normal. However, the tremendous increase in nitrogen fertilizer prices forced some growers to cut back on a necessary input, which in turn hurt their yields. Being frugal on fertilizer does not pay off on the heavy black lands of South Texas.

As in all cotton production areas, there is a definite "window of opportunity" for planting cotton. If we can plant our crop in the last week of March, we can have the cotton at peak bloom in late June and miss the hot, dry weather of July and the late season hordes of boll weevils and budworms that always come in August. The growers who planted in this "window" and did manage for earliness made a pretty good (750 pounds plus) crop. The growers who missed this window and planted later got caught by the worst of it and averaged 500 to 650 pounds per acre. With all these restrictions in mind, we have had to develop and Insect Management Program which is not only unique to this area but has to be "tailored" or unique to every grower. Some growers have different budget restrictions and yield goals. One can't use the same treatment or "pull the trigger" thresholds on the low input grower as one can on the high yield goal, high input grower. Applying insecticides by air or ground, banding or broadcasting as well as the promptness (timeliness) of application also has a great influence on when to treat. For a grower to remain profitable in he should use an airplane only in emergencies.

**Boll Weevil**

The primary pest for our area is the boll weevil. We have to eliminate him early on in order to give the beneficials time to rebound. The timing of these over wintering boll weevil (OWBW) sprays is critical. To facilitate this decision we use extensive trap lines. For high input growers we recommend the Boll Weevil Attract & Control Tube or BWACT (boll weevil bait stick). Some years a wet weather pattern develops making ground and/or air application impossible. In these instances, the BWACT really pays off. The foundations of our program thus far are:

1. Early season (January- February) minimum tillage.
2. Pre plant application of at least 75% of recommended nitrogen needs.
3. Early planting (late March) & Uniform Planting Date.
4. Good field sanitation (borders mowed or disked, brush burned or cleared).

5. Early season control of thrips, plant bugs & boll weevils with banded ground applications.
6. Early season use of BT's, insect growth regulators (IGR's) & BWACT's (Bait Sticks).
7. Early season releases of beneficial insects (15 - 20 days after last OVBW spray).
8. Extensive early season trapping for boll weevils.
9. Mid season trapping for bollworm(CEW), tobacco budworm(TBW) & beet armyworm (BAW).
10. Sliding action thresholds, i.e., take more damage late depending upon yield potential.
11. Early Termination of crop & re-adjust action thresholds (4 nodes above white bloom).
12. Late season (diapause) boll weevil control.
13. Timely stalk destruction & plow down.

#### **Beet armyworm**

A typical insect management program for the high input producer includes the use of insect growth regulators (IGR's), supplemental beneficial insect releases (lacewings) and BT's to preserve beneficial insects. Some of the proactive applications had not been made when our BAW traps indicated an invasion was taking place. Trap counts were averaging 40 moths per night. In fields where two 4 oz./acre applications of Dimilin and Condor had been made, BAW outbreaks were much less severe and damage was at a minimum. Weather and grower indecision had delayed applications in other fields and catch up applications had to be made to bring the total amount of Dimilin applied to the plant to at least 8 oz. per acre. We like to have this 8 oz. applied by mid-bloom in 2.0 oz./ac. increments along with 4 oz./ac. of Condor and 16 oz. (1 pint) of cottonseed oil (CSO). When we found BAW hot spots they were treated with either Lorsban, Larvin or Curacron, depending upon availability. Many conventional insecticides were in short supply. The aforementioned insecticides worked well where there had been a previous application of Dimilin and Condor. The IGR and BT seemed to "set up" the BAW, making him easier for the conventional insecticides to kill. Where there had been no previous applications of Dimilin/Condor made, the conventional insecticides gave only 50 to 60 percent control at best.

#### **Bollworm**

During early July as adjacent corn fields were drying up, bollworms began invading the early planted cotton. There was no alternative but to use synthetic pyrethroids (SP's) which began an unending cycle. Fields proactively managed with the IGR/BT/beneficial insect treatments

suffered less damage. Treatment thresholds had to be raised with the threat of the beet armyworm invasion looming from the south. Luckily, this was the only bollworm flight we had, all thought it extended over a two to three week period. As usual, the later planted cotton suffered the most damage.

#### **Tobacco Budworm**

Early planted cotton escaped most of the tobacco budworm assault. Later planted cotton, however, was at its most vulnerable stage for heavy damage. The weather was uncooperative, crop dusters got behind, chemicals were short and farmers were out of money. What else could go wrong? Fields treated proactively with the Dimilin/Condor escaped heavy damage. Outbreaks were controlled with the expensive conventional; or in some cases we just waited them out, taking more damage than we wanted to, but knowing that we would have to spend \$20 per acre to clean the field up. Hot, dry weather had caused cotton to shed fruit and decisions had to be made as to the yield potential versus spending more money. We just had to grit our teeth and take the damage in many instances.

#### **Costs**

Our normal insect management programs cost about \$45 per acre. However, due to the BAW threat and the TBW occurrence in 1995 our insecticide costs increased on some fields to \$65 to \$75 per acre. Because the BAW hit us in spots, we had some fields costing below our budgeted \$45 per acre and others going about \$65. Overall, insect management costs for 1995 were \$10 to \$15 higher than our average for previous years. Normally, we only apply 8 oz. of Dimilin in four 2 oz. shots, 5 to 7 days apart. This year, we had to increase the level of Dimilin to bring the total applied to 16 oz. (1 pint) per acre. Also, on some fields, there was one or two additional sprays of synthetic pyrethroids (SP's) costing about \$7.00 /ac. each. The growers in this area are not comfortable with spending this much money (\$65-\$75) on an insect control program. Many Mid South growers would be happy to make a crop on this amount!

#### **Changes**

If the Boll Weevil Eradication Project (BWEP) move upward from the LRVG, our first year assessment in 1997 is to be ca. \$10 /ac. By 1998 the assessment will be between \$20 and \$30 per acre. This cost would be acceptable if the program took the place of our Over Wintering Weevil Sprays which costs ca. \$16 per acre in conventional programs. If a grower has to pay the assessment and make OWW Sprays his costs will skyrocket. Assuming the BAW is here to stay (hopefully, 1995 was just a freak year), insect management costs for the Texas Upper Coastal Bend (TUCB) will rise to an average of \$100 per acre. This cost rise will drive some marginal producer out of the cotton growing business. If the BWEP is not implemented (there are recall vote petitions being circulated), cotton production will shift to areas with an economic advantage like Georgia

and North Carolina. If corn and milo prices remain high and insect control costs for cotton remain high, growers will shift more acreage to corn or milo.

**Bt cotton**

Where there is presence of overwhelming numbers of boll weevils, BT cotton may not be cost effective in a normal year. But, in an adverse year such as 1995 with heavy TBW and BAW assaults, it could be a life saver. The decision to plant BT cotton would depend on the amount of risk the grower is willing to accept and what resources he has to draw from if disaster strikes. Many growers in the Texas Upper Coastal Bend have never seen or experienced the havoc resistant TBW's can wreak. Therefore, they are reluctant to spend the \$35 (est.) per acre for Bt seed. If I was a grower I'd plant all I could get, grit my teeth, and get rid of the boll weevil.