

## An Example:

- I check 10,000 acres in S. Texas:

Question		(a) Number of acres infested by this pest:		(b) Number of acres treated for this pest:	
		<i>Non-Bt</i>	<i>Bt</i>	<i>Non-Bt</i>	<i>Bt</i>
	<i>Type of Cotton</i>				
29	Boll weevil	<b>4000</b>	<b>6000</b>	<b>400</b>	<b>1200</b>
	<i>...or if you prefer:</i>	<i>100%</i>	<i>100%</i>	<i>10%</i>	<i>20%</i>

*Ellsworth/UA*

Answering the insect questions depends on an understanding of terminology used in this survey...

To help with this, let's examine a fictitious example:

I'm a PCA from S. Texas who checked 10,000 acres of cotton this past season, 4000 of which is non-Bt and 6000 is Bt cotton. For each insect pest, there are a series of questions across the top of the page (a-e). In this example, I know that boll weevils are present on all the acreage I check. They are therefore considered "infested". However, I only had to treat 400 of my non-Bt and 1200 of my Bt acreages. I choose to think and to therefore response in number of acres (as directed). However, if you think better in percentages, you may respond in terms of percentages, but please be **CONSISTENT!**

## Understanding Acreages

- **Planted acreage:** from question #4
- **Infested acreage (a):** acres on which the pest is present; some insects are ubiquitous, like thrips, and likely are present in some numbers everywhere; others are quite unusual like cutworms.
- **Treated acreage (b):** those acres which were sprayed for the pest of interest.

**\*\*\*Note that losses are reported over all infested acres whether they have been treated or not\*\*\***

*Ellsworth/UA*

So acreages appear in different places in this survey.

Planted acreage is self-explanatory; and treated acreage should also be fairly clear.

Infested acreage (a) is less clear for people. In short, it is the acreage on which the pest is present, and has nothing to do with whether they were ever there at treatable levels or caused damage; just where they were present. Thrips are present everywhere. So your response here should reflect all of your acreage or 100%. Some pests may never appear on your acreage. Either way, it is very important that you respond on “Infested Acres” (a) for all pests in this survey! Please leave none of these blank!

Similarly, you must fill out “% reduction in yield” (e) for all pests; do not leave ‘e’ blank for any pest! Your estimate here is over all acres that are infested with the pest (NOT all acres planted). I.e., You cannot have lost yield on acreage where the pest is not present.

## Example (2)

- 1440 (3 bales) and 1540 (3.2 bales) ideal yield

(c) No. of insecticide applications required to control this pest:		(d) Cost of one application per acre (include application cost):		(e) Percent reduction in yield due to this pest:	
<i>Non-Bt</i>	<i>Bt</i>	<i>Non-Bt</i>	<i>Bt</i>	<i>Non-Bt</i>	<i>Bt</i>
1.4	1.7	\$12.50	\$12.50	3.5%	3.2%
<i>Different area or season length</i>		<i>This figure includes application cost</i>		<i>Equivalent to 50 lbs lost</i>	

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Back to our example in S. Texas where I have estimated that my non-Bt acreage had a 3-bale yield potential and my Bt acreage had a 3.2 bale yield potential.

Question ‘c’ tells us how many sprays were made against boll weevils on the acreage I check. These averages might be the same or different between Non-Bt and Bt cotton based on the areas where they were grown, production goals, insecticides used on each, etc. But be sure to read the examples of “fractional” sprays later on.

Question ‘d’ tells us how much ONE spray costs for this pest including application costs.

Question ‘e’ must be filled out for every pest on the survey; it tells us the % lost in yield due to this pest. This is your best guess estimate. In my case, I assumed I lost 50 lbs of lint per acre to Boll Weevil regardless of crop type. This roughly calculates to 3.5% (50/1440) and 3.2% (50/1540).

## **Part 'e' should reflect the loss incurred over part 'a'**

- **That is loss is estimated over all infested acres, not just the treated acreage.**
- **How much was lost to this pest where it occurred, regardless of whether there were sprays or not?**

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Let me emphasize here. Loss is estimated over the infested acres 'a', not over all acreage (unless it is all infested), and not just over the treated acreage. Giving your best estimate, how much yield (%) was lost to this pest over the infested acreage.

### **(c) No. of insecticide applications required to control this pest:**

- On average, how many applications were made to control the pest of interest.
- Fractional sprays are acceptable here (e.g., 0.5, 0.8, 1.5, etc.)
  - E.g., Half your acreage sprayed once for Lygus and the rest twice = 1.5 sprays to control Lygus
- What to do when there are multiple targets of 1 spray?
  - E.g., An acephate spray to control both Lygus (0.9) and Cotton Fleahopper (0.1)
- What to do when there mixtures are used?
  - E.g., Lorsban + acephate may have been sprayed for PBW (1.0) and for Lygus (1.0) = 2 “sprays”

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Part ‘c’, on its surface, seems straightforward; however, there are things you should consider. What is key here is what did YOU intend with your control measures. One PCA may be targeting one pest while another might be targeting 2 or more pests with the same spray, even the same chemical. Mixtures or tank-mixes of more than one insecticide introduce more complexity. The examples here are for guidance only. They might reflect my personal INTENT when I was spraying my acreage; your intent will be different. Keep in mind that this survey measures foliar spray “intensity” not just the number of flights or passes over a field. So when we use mixtures that target multiple pests, your responses should reflect this increased intensity. One flight over a field of Lorsban + acephate, for example reflects my desire to control two different pests, each with one of these compounds (Lorsban against PBW and acephate against Lygus). As such, it is no different than flying twice over the field or 2 sprays, 1 against PBW and 1 against Lygus. But there are even other possibilities...

### **(c) No. of insecticide applications required to control this pest (2):**

- **Sometimes mixtures are used to target only one pest:**
  - Danitol + Orthene (low rate) to control wfs = 1 “spray”
- **Another PCA (and another rate) might use the same mixture to control two pests:**
  - Danitol + Orthene (hi rate) to control wfs & Lygus = 2 “sprays”
- **Or perhaps:**
  - wfs were primary (1.0) and Lygus were secondary (0.5) or 1.5 “sprays”

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When mixtures target only one pest because they are needed together in order to accomplish control (e.g., because of synergism), that spray might be counted as 1 “spray”. On the other hand, altering rates might change your INTENT for that same mixture. So the same mixture when sprayed once might count as 1 or 2 sprays or even as something in between, again based on your INTENT.

Please consider these nuances while you fill out the “(c) number of applications required to control this pest”.