

Imidacloprid Use In Cotton ARIZONA

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Management Center**

1. What percent of the cotton acreage in your state receives at least one application of imidicloprid?

The Arizona Pest Management Center (APMC) located at the University of Arizona works directly with producers and the Arizona Department of Agriculture to maintain a pesticide use database that ultimately spans nearly 20 years. Full use reporting is not required by the state; however, the nature of how and what is sprayed is such that most cotton insecticides are reported to the state and captured in this database. For example, all custom-applied pesticides must be reported. The database is currently being developed into a product that can be easily queried to answer questions just like this one. It is not yet complete; however, I have examined 5 years worth of pesticide usage in the past (2001-2005). Plus, I am well aware of the use patterns of imidacloprid, as it is a neonicotinoid that was subject to our cross-commodity efforts to proactively manage resistance to this valuable class of insecticides (Palumbo et al. 2003; see <http://cals.arizona.edu/pubs/insects/az1319.pdf>).

In short, imidacloprid is only rarely used as a foliar insecticide in cotton in Arizona. Its use is generally discouraged because of performance limitations and cross-commodity resistance management concerns. What usage there is might be incidental to another product that premixes this active ingredient together with a primary insecticide, like Leverage. Even then, very little is used, likely much less than 5% of the acres.

Imidacloprid is used as a seed treatment. Use statistics are difficult to obtain as seed treatments are not reportable pesticide uses in our database. In general, seed treatments are not used widely in Arizona, though the industry is actively marketing them. Even then, we discourage the use of neonicotinoids on treated seed in deference to our cross-commodity guidelines. When they are used, their function is to control thrips and perhaps flea beetles, neither a major pest of cotton in Arizona.

2. What is the average number of applications of imidacloprid for treated acres? Again, the usage is so low that this number would be very close to zero for foliar imidacloprid.

3. On a scale of 0 to 3 (0=not important, 3=critical), how important is imidacloprid for your state?

Despite its low usage in cotton in this state, imidacloprid is a keystone compound because of its need and widespread usage for whitefly control in melon and vegetable

crops. Strictly speaking, the importance in cotton *per se* would be very low; however, factoring in the impact this has on areawide dynamics of whiteflies in Arizona generally, '3' would be our score overall for this compound.

4. What is the primary target pest for imidacloprid applications in your state?

In cotton, the main target would be thrips on treated seed. Secondarily some growers may be trying to actively control flea beetles including pale-striped flea beetles. As a foliar, the target is likely governed by the premixed active ingredient. In Leverage, cyfluthrin is the major active ingredient and might be targeting various lepidopteran pests including Pink Bollworm, *Spodoptera* spp., and cabbage looper.

5. What other pests are occasionally targeted with applications of this product?

A naïve user might be attempting control of aphids or whiteflies with this product. But much more effective alternatives are available.

6. What is the primary application method in your state? Secondary?

(example 20% seed treatment, 40% foliar by air)

The majority of imidacloprid use in cotton is on seed. Secondarily, imidacloprid is delivered by air in a premix with cyfluthrin.

7. Are there better alternatives?

In cotton and in general, yes. Acetamiprid is a much more active neonicotinoid when applied foliarly to control whiteflies. Other products include spiromesifen, pyriproxyfen, and buprofezin. In the future, spirotetramat might be available in cotton as a premix with imidacloprid. Many companies are exploring various premixes with imidacloprid. In some cases, our only access to these new active ingredients will be through a premixed product. In these future situations, imidacloprid may become important for this reason. Aphid control is accomplished, in the rare instances when we have problems in cotton, with flonicamid or acetamiprid.

To re-iterate, imidacloprid is crucial to our vegetable and melon pest management programs even with active development of alternatives there as well.

8. Is this product a critical component of resistance management in your state?

Yes! While we do not promote its use in cotton, *per se*, its use in vegetable and melon crops is critical to our overall whitefly and aphid management programs.

9. Additional Comments: