



COLLEGE OF AGRICULTURAL AND  
ENVIRONMENTAL SCIENCES  
AGRICULTURAL EXPERIMENT STATION  
TELEPHONE: (530) 754-8378 / 752-7010  
FAX: (530) 754-8379

WESTERN REGION PEST MANAGEMENT CENTER  
DEPARTMENT OF ENVIRONMENTAL TOXICOLOGY  
ONE SHIELDS AVENUE  
DAVIS, CALIFORNIA 95616-8588  
<http://www.wrpmc.ucdavis.edu>

June 20, 2006

Dr. Teung F. Chin  
Office of Pest Management Policy  
USDA Animal & Plant Health Inspection Service  
4700 River Road, Unit 149 (Room 5A66)  
Riverdale, MD 20737-1237

RE: Aldicarb Use on Several Crops in California

Dear Teung,

This letter is in response to your May 25, 2006, request for information concerning the use of aldicarb. Specifically, you requested the following information:

In what regions (state/county, etc.) of the U.S. is aldicarb use occurring? Responses are for California cotton, dry beans and pecans.

Cotton

1. What is the percent crop treated in the states where aldicarb is used? Approximately 23%.
2. What are the pests that you feel aldicarb is critical for controlling? CA has 2 primary uses, at planting (mites, aphids, thrips and nematodes). At side dress (pre-bloom), Lygus is THE target. Actually, Bayer doesn't make any claim on aphid. That is an extension of the timing for Lygus. It is the high side dress rate that the industry wants to maintain. See enclosed documents.
3. What are the details of typical usage patterns (e.g., number of applications per season, use rate per application, acres treated, and time of application in the season?) At planting, 0.75 lbs a.i. are applied per acre. At side-dress, 1.8 lbs a.i. are applied per acre. There were 186,355 acres treated with aldicarb in 2004.
3. What worker activities typically occur when aldicarb is applied?  
Seed planting by tractor and irrigation.  
Side dress: cultivation by tractor, irrigating, maybe hand hoeing, scouting.

4. What alternatives, if any, do you believe are available to replace aldicarb?

At planting: thimet, gauchio seed treatment, Admire (not used, expensive), Avicta (Syngenta: Cruiser, abamectin, dynasty) seed treatment.

Side dress: Pyrethroids, vydate, monitor, a new BASF product near registration called Carbine.

What would happen?

At planting: some adjustment but all replacements are also pre-emptive. Foliar available if problem develops (4 miticides, 3 new ones; aphids – good neonicotinoids; thrips – acephate (with risk of mite outbreak)

Side dress – Temik is really good near residential areas. New application (Lock and Load, positive drive applicators) make application very safe. None is left on the ground.

Alternatives (see above) are available.

Dry beans – not widely used due to PHI and low rates. Three applications in 2004.

#### Pecans

1. What is the percent crop treated in the states where aldicarb is used? Approximately 64%.
2. What are the pests that you feel aldicarb is critical for controlling? Aphids.
3. What are the details of typical usage patterns (e.g., number of applications per season, use rate per application, acres treated, and time of application in the season?) One application per season at 4.95 lbs a.i. per acre. Applications take place during May and June. There were 1,290 acres treated with aldicarb in 2004.
4. What worker activities typically occur when aldicarb is applied? Scouting and irrigation.
5. What alternatives, if any, do you believe are available to replace aldicarb?

Aphid control was difficult in California prior to registration of aldicarb on pecans. Production and quality were definitely being influenced by aphid populations and resulting sooty mold development on their honeydew. In 2000, trials began using the systemic insecticide aldicarb (Temik) for aphid control; other aphicides did not provide adequate or complete control. Formerly, aldicarb was only available in CA for experimental purposes. Steve Sibbett, Univ. of Calif. Cooperative Extension Farm Advisor and Dr. Bruce Wood, conducted research over a period of six years showing the benefits of aphid control using aldicarb as the aphicide. Test blocks showed significant increases in production, nut size and kernel yield due to aphid control and possibly an additive effect of the aldicarb itself. After many years of work, aldicarb was approved for use in CA and first applied to orchards in the summer of 2000. Essentially all pecan growers in California now use the systemic aphicide for aphid control and have realized the same results. In that it is well known aphids will develop resistance to aldicarb, new work is proceeding to register imidacloprid (Admire) for aphid control in California.

Dr. Teung F. Chin  
June 20, 2006  
Page 3

The use of aldicarb has had a dramatic effect on CA orchards. In orchards where the only change in management practices over the last 5 years was the use of aldicarb, growers experienced increased kernel yields, increased production and a decrease in alternate bearing. In our orchards, where we have been using aldicarb in conjunction with hedging and mechanical nut thinning, the results have been even more dramatic. Production has doubled, edible kernel yields have increased by 10%, and growers have not experienced any alternate bearing during the last two years.

If you have any further questions, please contact me.

Sincerely,

A handwritten signature in black ink that reads "Rick Melnicoe". The signature is written in a cursive, flowing style.

Rick Melnicoe  
Director, Western IPM Center

Enclosures



UNIVERSITY of CALIFORNIA

# Agriculture & Natural Resources



COOPERATIVE EXTENSION • KEARNEY AGRICULTURAL CENTER  
9240 South Riverbend Avenue, Parlier, CA 93648 • Tel. (559) 646-6500 • Fax (559) 646-6593

August 15, 2005

TO: R. Isom  
E. Williams  
California Cotton Ginners and Growers Association

RE: Comments on Aldicarb Rate Review

The follow brief is being provided at your request. It was requested as part of a review by US-EPA for aldicarb label rates. The question being asked was "what are the typical rates and can these be reduced?" This topic was address at the quarterly cotton Extension Workgroup meeting and the brief report represents the summary of comments.

The answer to the question in part is dictated by the timing of use and targets being managed. In the San Joaquin Valley, aldicarb is used during important crop development stages; emergence and early fruit development. The use rates during these two periods differ by 60%. Within these two periods usage can be "typified" but across an entire season, it makes no sense to do so.

Even though frequency of the side-dress use of aldicarb is less then at-planting, it plays an important role in cotton insect pest management. It provides targeted application against specific pests (Lygus and aphid) and offers another mode of action in our insecticide resistance management programs.

Reducing the label rates or further restricting the side dress use will do little to reduce the environmental or human risk. The current rates and usage do not indicate that a particular problem exists from the use in cotton in the San Joaquin Valley when used according to label. However, restricting or reducing (especially at side-dress) the rates, could impact the insect management programs by reducing the choices for mode of action or alternative to other products which cannot be used in sensitive environmental areas.

We support the current use rates of aldicarb in cotton.

PETER B. GOODELL, Ph.D. (for the UC Cotton Extension Team)  
IPM Advisor  
UC Statewide IPM Program

**The Use and Value of Aldicarb in Cotton IPM in the San Joaquin Valley of CA**  
**Peter B. Goodell, Ph.D.**  
**IPM Advisor**  
**August 15, 2005**

---

This opinion is being written as part of a US-EPA review of aldicarb, a carbamate insecticide. It represents University of California, Division of Agriculture and Natural Resources Guidelines for the management of cotton pests. Specific references can be found at;

- ✓ <http://www.ipm.ucdavis.edu/PMG/r114301611.html> - UC Pest Management Guidelines, Cotton, Lygus
- ✓ Insecticide Resistance Management in Cotton in the San Joaquin Valley in 2001, UC ANR Publication 8033.

**Synopsis:**

Aldicarb plays an important role in insect pest management in San Joaquin Valley cotton. While the bulk of the product is applied at planting (March and April), the use of side-dress application (June – July) for Lygus and aphid control also occurs. Data from the Department of Pesticide Regulation for Kern, Kings, Tulare, Fresno, Madera, and Merced Counties for three years (1990, 1995, and 2000) illustrate this trend (figure 1). In these three years, an average of 71% of the applications were conducted at-planting at about 5 lbs/acre and 29% percent of the aldicarb was applied side-dressed at 12 lbs/acre. While the actual number of applied acres fell between 1990 and 2000, the trend in usage and application rate was very stable.

A good portion of the reduction in total number of applications from 1990 to 2000 may be associated with planted cotton acreage reductions during this period rather than a reduction in percent treated fields. In particular with side-dress applications, usage of aldicarb will vary with anticipated and realized insect pest problems

The distinct use patterns reflect two different pest management scenarios. The at-planting treatment is applied for early season insects and mites, primarily thrips, mite and to a lesser extent aphid. The 5 pound rate is less than the 7 lb. allowable label rates at planting. The side-dress is applied for mid-season Lygus and aphids. The use of the 12 pound rate (14 is top of label) is expensive (about \$50/A) and used when alternatives are not available (e.g. fields situated near urban environments or rural schools where aerial applications may be limited). It is also often used when Lygus movement is anticipated over a period of weeks and multiple foliar applications are anticipated. This often occurs in fields near desert or riparian vegetation, near alfalfa or safflower, or in wet springs.

The value of side-dress aldicarb to IPM is the ability to place the toxin into the plant without the risk of drift or general non-target impacts. While predatory bugs may be affected through visitation to cotton nectaries, this effect is limited in contrast to broad-spectrum aerial application. The value of having another mode of action (IRAC Class 1A) supports resistance management through mode of action rotation. In the past 10 years, pyrethroids (IRAC Class 3) probably have become the most frequent class of insecticides used against Lygus. In addition, the choices of insecticide classes that give effective aphid control are very limited.

Figure 1. The number of applications of aldicarb made to cotton at-planting or side-dress in cotton in the San Joaquin Valley in 1990, 1995, and 2000. The numbers inside each bar represent the average rate of product applied at each of these periods. Source: CDPR PUR data.

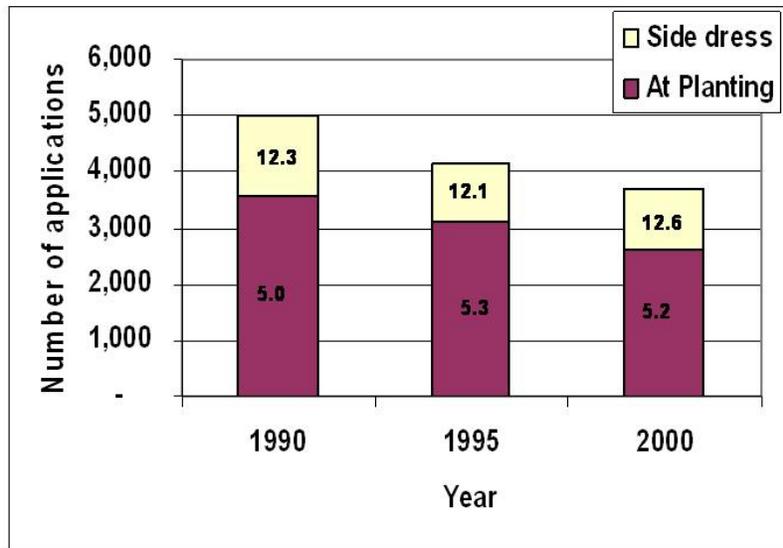


Figure 1. The number of applications of aldicarb made to cotton at-planting or side-dress in cotton in the San Joaquin Valley in 1990, 1995, 2000 and 2004. The numbers inside each bar represent the average rate of 15 G product applied at each of these periods. Source CDPR PUR data. Original table by Pete Goodell, UC IPM.

