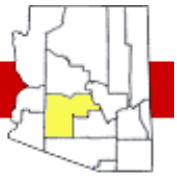
THE UNIVERSITY OF ARIZONA
Cooperative Extension
Maricopa County



Use of PPO Herbicides as a Cotton Harvest Aid

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Introduction

Carfentrazone (Aim) and pyraflufen ethyl (ET) are herbicides that inhibit the production of protoporphyrinogen oxidase (PPO) in the plant. The end result of PPO inhibition is quick disruption of cell membranes and a build up of ethylene in the leaf causing it to abscise.

The table below provides general information related to the use rates, pre-harvest intervals, and rotational restrictions for Aim and ET. Labels are subject to frequent change, therefore, always consult the label attached to the product container before use.

Table:	Aim (EC)	ET
Use rates (oz product/A)	1.0 - 1.6	1.5 - 2.0
Pre-harvest interval	7 days	7 days
Rotational restrictions		
Labeled crops	anytime (barley, corn, cotton, grain sorghum, oats, wheat)	anytime (corn, cotton, potato, wheat)
Root and leafy vegetables	30 days	30 days
All others	12 months	30 days

Use Patterns

Use patterns for the PPO herbicides as a cotton harvest aid were evaluated from 2000 to 2003 in Arizona. The following sections summarize results observed for using Aim or ET alone, as a tank mix partner, or as a follow-up treatment.

As a Stand Alone Treatment

Aim and ET are contact herbicides and they only provide 25-45% defoliation as a first application. Two to three applications have been required to achieve acceptable levels of defoliation (product labels will only allow two applications). Application rates at the low end of the labeled range for each product have worked best under Arizona conditions. Higher rates can result in excessive "leaf stick". *(continued on back)*

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As a Tank Mix Partner

Tank mixing Aim or ET with other defoliants will speed up visible injury symptoms on the foliage but actual defoliation was not increased at 7 days after treatment. Under cooler conditions, defoliation at 14 days after treatment was improved with the addition of Aim or ET to commonly used defoliants. When tank-mixing always follow the most restrictive label with regards to rotational crop restrictions.

As a Follow-up Treatment

Aim, ET, paraquat (Gramoxone Max), and sodium chlorate all provide good results to clean up remaining foliage after initial applications of a defoliant. In the graph below, the dotted line represents the level of defoliation (73%) provided by 8 oz/A of Ginstar. The contact materials were then applied and the bars represent the final level of defoliation achieved. Both ET and Aim provided statistically better performance than Gramoxone Max or Sodium Chlorate, however there was no difference in fiber quality at harvest.