

**ADAGE™ (THIAMETHOXAM) SEED  
TREATMENT FOR COTTON**  
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**Abstract**

Adage is a new highly efficacious seed treatment insecticide belonging to the chemical class known as neonicotinoids being developed by Novartis Crop Protection. Adage at 200 gr. ai/100 kg. cotton seed is providing early season control of aphids, and thrips similar to the current Temik® 15G standard applied in-furrow at planting at 0.5 lbs. ai per acre (3.5 lbs. product). Yields from 4 cooperator trials conducted in 1998 are also similar for Adage and Temik at these rates. Adage outyielded the fungicide check by over 260 lbs. lint cotton per acre in 1997 and over 60 lbs. lint cotton per acre in 1998. At a use rate of 12.7 gr. ai per acre (based on planting 14 lbs. seed per acre) Adage has an excellent worker safety profile, while also being safe to the crop and the environment and should make an excellent new product for the cotton producer.

**Introduction**

During 1998 Adage (200 and 300 gr ai/100 kg seed) was evaluated in comparison to Temik 15G (3.5 lbs. product/A.) applied in-furrow at planting and to Gaucho® (250 gr ai/100 kg seed) across 10 cooperator trials and several (>5) company trials. All seed was treated with the fungicides Apron XL™, Maxim® and NuFlow® M. Data was taken on stands, thrips (both tobacco thrip and western flower thrip), aphids, and in some cases bloom and yields. These as well as the importance of the water solubility and systemicity of the active ingredient will be discussed.

**Discussion**

There are 5 major criteria for developing a new seed treatment (1) efficacy, (2) safety (seed/workers), (3) handling (bagging/planting), (4) cost and (5) world wide registration.

Table 1 shows the water solubility of Adage compared to Gaucho. Adage having a value of 4,100 ppm has proven to be a key factor in the consistent performance of this product over Gaucho. An example of this is given in a trial conducted by Ngoan Ngo at Greenville, MS in 1997 (Table 2). In the irrigated trial all products performed well against tobacco thrips 14 days after planting. In the non-irrigated trail only Temik 15G (3.5 lbs./A) and Adage (200 gr ai/100 Kg seed) provided control of the thrips.

Novartis had Adage in University trials across the cotton belt in 1998. Few trials had severe aphid infestations with the exception of R. Parker's trial in Texas (Table 3). Adage was clearly superior to the standard Temik when the cotton was rated (5 leaf-stage). The data from 4 aphid trials conducted at Greenville, MS in 1997 is given in Table 4. Not only do the Adage treatments show the fewest number of aphids per 10 plants, the range of the means as depicted by the bars are shorter showing that the Adage at the recommended rate of 200 gr ai/100 Kg seed performs more consistently than either Temik or Gaucho.

Tables 5 and 6 show the activity of Adage on tobacco thrips at 11-14 days and 20-25 days after planting. The key value to note is the number of immature thrips. Data for control of western flower thrip is shown in Table 7. At 4 weeks after planting the product is reaching the limits of its residual activity on thrips.

Table 8 shows the stand counts taken from 5 cooperator trials conducted in 1998. This data clearly shows the safety of Adage to the seeds and its consistency; whereas the mean values for Temik applied in-furrow have a considerable variability. The relevance of this data becomes more importance with the continued downward trend in seeding rates of cotton.

Table 9 shows the impact of Adage on cotton blooms in 2 cooperator trials; again demonstrating the safety of this exciting new seed treatment. The yield data Table 10, shows all the treatments superior to the fungicide treated check.

Table 11 shows a summary of the performance of Adage compared to Gaucho and Temik. The registration package has been submitted to EPA and a full registration is expected in early 2000 for cotton. Table 12 summarizes the advantages of Adage.

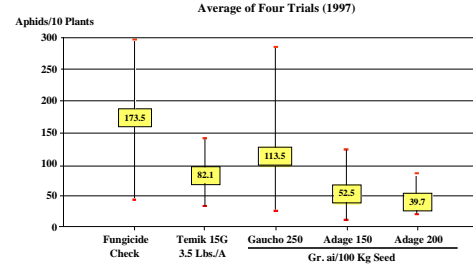
Adage represents a target application of a low use rate, efficacious product with an excellent profile for beneficials. The suggested use rate of 200 g ai/100 kg is equivalent to only 12.7 g ai/A (based on a 14 lb. seeding rate). The comparable equivalent for Temik 15G at 3.5 lbs./A is 238 g ai/A. Thus comparable thrip and aphid control is obtained with a 18X reduction in loading rate for the environment.

**Table 1**

**The Water Solubility of Adage™ Compared to Gaucho**

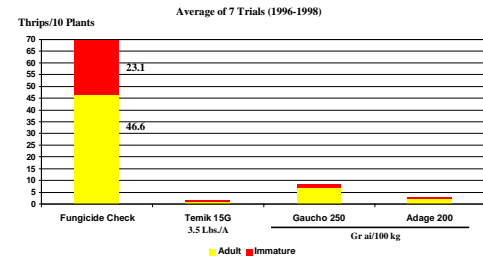
Adage            4,100 ppm  
 Gaucho           560 ppm

**The Activity of Adage™ on Cotton Aphids Four Weeks After Planting at Greenville, MS**



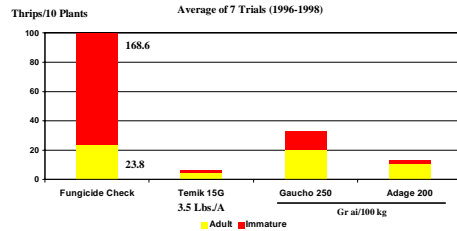
**Table 5**

**The Activity of Adage™ on Tobacco Thrips 11-14 Days After Planting at Greenville, MS**



**Table 6**

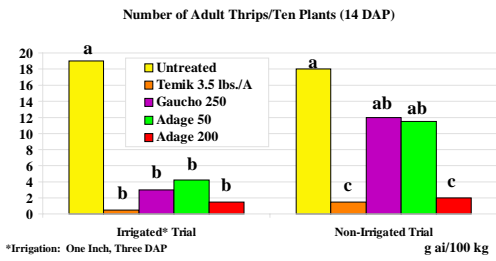
**The Activity of Adage™ on Tobacco Thrips 20-25 Days After Planting at Greenville, MS**



**Table 7**

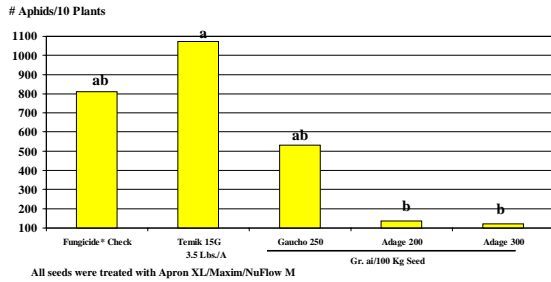
**Table 2**

**Adage™ Seed Treatment on Cotton**



**Table 3**

**Evaluation of Seed Treatments for Early Season Aphid Control on Cotton by R. Parker, Texas (1998)**



**Table 4**

## Adage™ for Control of Western Flower Thrip in Cotton

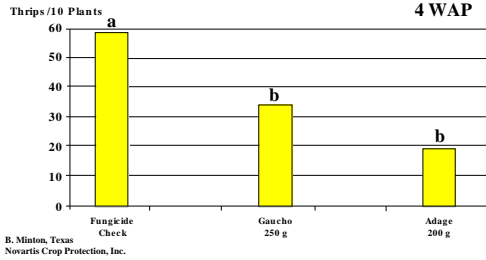


Table 8

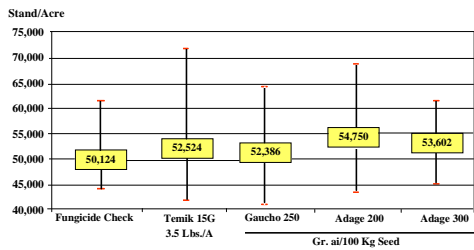
## Yields From Cotton Seed Treatments in 1998

Treatment	Rate (gr ai/100 kg)	Average of 4 Trials				Average Lbs. Lint
		I	II	III	IV	
1. Fungicide Check	-	901 b	342 a	896	732	718
2. Temik 15G	3.5 lbs./A	1083 a	311 a	945	773	778
3. Gaucho	250	1115 a	316 a	932	653	754
4. Adage 200	200	1061 a	333 a	957	777	782
5. Adage 300	300	1108 a	346 a	983	726	790

I = G. Burreis (LA)  
 II = R. Parker (TX)  
 III = G. Herzog (GA)  
 IV = J. Van Duyn/J. R. Bradley (NC)

Table 11

## Impact of Adage™ on Cotton Stands Average of 5 Trials\* in 1998



\*B. Freeman (AL), G. Herzog (GA), G. Lentz (TN), J. Mahaffey (MS), R. Parker (TX)

Table 9

## Summary of the Performance of Adage™ on Cotton vs. Gaucho and Temik

Insect	Adage vs. Gaucho	Adage vs. Temik
Tobacco Thrip	>	≤
Cotton Aphid	>	>

Table 12

## Impact of Adage™ on Cotton Blooms Average of Two Trials (1998)

Treatment	Rate (gr ai/100 kg)	# Blooms/10 Ft. Row
1. Fungicide Check	-	54.1
2. Temik 15G	3.5 lbs./A	60.7
3. Gaucho	250	63.6
4. Adage	200	70.4
5. Adage	300	75.8

- G. Lentz 7/16,
- G. Herzog 7/20-22

Comment: Porterfield (NC) Adage and Temik Plots Produced Blooms on 5th Node, Gaucho and Untreated Produced Blooms on 6th Node

Table 10

## Advantages of Adage™

- Lower Use Rates Than Current Seed Treatment Insecticides
- Cotton Aphid Activity Better Than Temik
- Longer Residual Than Gaucho
- More Consistent Efficacy Than Gaucho, Especially in Drier Soils
- Cotton Yields Equal to Temik (3.5 lbs./A)
- Excellent Worker Safety Package
- No Known Insect Resistance or Cross-Resistance
- Excellent Margins of Crop Tolerance
- No Compatibility Problems With Common Seed Treatment Products
- Environmentally Compatible Approach to Insect Control
- Good IPM Fit