



INSECTS AND WEEDS IN FOCUS

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FURADAN USE ON COTTON

EPA and TDA have granted approval for use of carbofuran (Furadan) on cotton for aphids under provisions of Section 18 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). It applies immediately to all counties in Extension District 11 (Aransas, Austin, Bee, Calhoun, Colorado, DeWitt, Fayette, Goliad, Jackson, Karnes, Lavaca, Matagorda, Nueces, Refugio, San Patricio, Victoria, Washington, Wharton) and to 3 adjoining counties (Kleberg, Jim Wells and Live Oak). A copy of the Section 18 letter from EPA to TDA dated 12 April 2000 outlining specific requirements and special Furadan labeling from FMC must be in (available at <http://www.agr.state.tx.us/pesticide/furadan2000.htm>) the user's possession at the time of application. We had to document certain levels of infestation after use of labeled rates of some of the other insecticides and certify that fact in writing.

Following are some of the points important for users as outlined in the EPA letter:

- Flowable Furadan may be used under this exemption either as an early-season (pre- bloom) treatment, or as a mid-to late-season treatment.

S Early season is defined as the period when the cotton plants have reached the sixth true leaf

stage until bloom. During this period, Furadan may be applied when aphid populations reach the treatment threshold of 50 aphids per leaf as determined by the following sampling plan:

Sample 1 top leaf (first fully expanded leaf) and 1 mid leaf per plant on 5 randomly selected plants 100 feet from edge of field. Repeat in each of the four quadrants of the field until a total of 40 leaves are collected. Treat only if aphid populations exceed an average of 50 per leaf.

S Mid-season is defined as the period beginning when the cotton plants have bloomed. During this period, Furadan may be applied when aphid populations reach the treatment threshold of 100 aphids per leaf as determined by the following sampling plan:

Sample 1 top leaf (first fully expanded leaf) and 1 mid leaf (5 nodes below "top" leaf) per plant on 5 randomly selected plants 100 feet from edge of field. Repeat in each of the four quadrants of the field until a total of 40 leaves are collected. Treat only if aphid populations exceed an average of 100 per leaf.

- When 5% of the bolls in a field have opened, that field may be treated when a threshold of 15 aphids per leaf is reached. To determine the number of aphids per leaf, use the sampling plan as described in the following sampling plan:

Sample 1 top leaf (first fully expanded leaf) and 1 mid leaf (5 nodes below "top" leaf) per plant on 5 randomly selected plants 100 feet from edge of field. Repeat in each of the four quadrants of the field until a total of 40 leaves are collected. Treat

only if aphid populations exceed the averages stated above depending on condition of the bolls.

- **Furadan 4F may be applied as a foliar application, using ground or aerial equipment, at a rate of 8 oz. product (0.25 lb. a.i.). A maximum of two (2) applications may be applied under this exemption. Do not apply more than 0.5 lb. a.i. per acre.** A 27-day pre-harvest interval must be observed.
- In order to protect Federally-listed threatened and endangered species from potentially harmful exposure to Furadan, **applicators must ascertain whether there are any listed species which could be adversely affected by use of this product.** If the applicator/landowner does not know whether there are any listed species that could be affected, they must contact the U.S. Fish & Wildlife Service (FWS) to determine whether currently occupied habitat for any listed species is located on or adjacent to the property to be treated with Furadan. Application will be prohibited in treatment areas within one (1) mile of bald eagle nests; within 100 yards for ground applications and 1/4 mile for aerial applications for other terrestrial species; and within 20 yards for ground applications and 100 yards for aerial applications for aquatic species.
- Do not apply directly to water, including immediately before or during irrigation. Do not apply where run-off is likely to occur to aquatic habitats. Do not make aerial applications within 200 yards, or ground applications within 20 yards of bodies of water, including rivers, streams, lakes, ponds, bogs, etc.
- This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. Do not use in areas where groundwater is shallow and/or likely to become contaminated as a result of this use. The state of Texas will forward to EPA the results of any groundwater monitoring conducted in Furadan use areas where this exemption is utilized.
- In order to minimize risk of spray drift, the following measures must be adhered to:
 - S (Aerial) The distance of the outer-most nozzles on the boom must not exceed 3/4 of the length of the wingspan or rotor.
 - S (Aerial) Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

- S Use high flow nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- S Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- S Use the minimum number of nozzles that provide uniform coverage.
- S (Aerial) Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations, and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- S (Aerial) Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the least drift.
- S For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.
- S Applications should not be made at a height greater than 10 feet above the top of the largest plants, unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.
- S When applications are made with a cross wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).
- S Drift potential is lowest with wind speeds between 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided at wind speed below 2 mph due to variable wind direction and high inversion potential. Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.
- S When making applications in low relative humidity, set up equipment to produce larger

droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

- S Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions, due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude, and are common on nights with limited cloud cover and light to no winds.
- S Pesticides should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, know habitat for threatened or endangered species, non-target crops) is minimal (e.g., when the wind is blowing away from the sensitive area).
- S **A copy of the section 18 labeling must be in the user's possession at the time of application.**
- S **Use of closed mixing and loading systems for both aerial and ground application is required.**
- S **All areas where Furadan is applied under this specific exemption are required to be posted with signs developed and distributed in accordance with EPA's Worker Protection Standard (WPS).** These signs picture a face with outstretched hand, and the words "Danger/Peligro, Pesticides/Pesticidas, KEEP OUT/NO ENTRE." For all use areas, signs must be visible from all usual points of entry to treated areas. For example, signs must be visible from each access road, each border with any labor camp next to the treated area, and each footpath and other walking route that enters the treated area. When there are no usual points of entry, signs must be posted in the corners of the treated area or in any other location affording maximum visibility. Signs must be visible and legible during the time they are posted. The signs shall be posted prior to treatment, so that they are present while application is being made. Signs shall remain in place for the entire re-entry interval as defined on the product's registered label (14 days post-application).
- S Handlers of Furadan are required to wear coveralls over a long-sleeved shirt and long pants, shoes and socks for each job function,

chemical resistant apron (when cleaning equipment, mixing, or loading), chemical resistant headgear for overhead exposure, protective eye wear, chemical resistant gloves, and respirator.

- S The EPA Headquarters and EPA Regional Office shall immediately be informed of any adverse effects or misuse resulting from application of Furadan in connection with this specific exemption.
- S It is EPA's understanding, based upon statements made to the Agency by Texas Department of Agriculture, that cotton gin trash containing residues of Furadan resulting from this emergency exemption are not routinely fed to animals.
- S This specific exemption expires on October 31, 2000. RDP

BOLL WEEVIL SITUATION

There are areas where boll weevil trap catches have been high enough to require treatment by the Boll Weevil Foundation. Of special concern are fields near locations that were not properly treated last season to include fields where regrowth produced fruit late in 1999. There are striking differences ranging from almost no boll weevils to locations with significant numbers, such as between Robstown and Corpus Christi (Table 1). For comparison, catches from a 32-mile long trap line (1 trap/mile) in Wharton County are included in the table. Basically, one trap near Violet has accounted for most of the boll weevils captured in that region.

Table 1. Number of boll weevils captured per pheromone trap per month in 2000 at 4 locations along the Texas Gulf Coast.

Month	Wharton ^a	E. Alfred	Welder	Violet
Jan	4.47	1.0	0.1	57.6
Feb	4.17	0.0	0.0	9.6
Mar	29.73	0.0	0.0	10.3
Apr	53.13 ^b	0.0	0.0	4.7 ^c

^a 32 mile trap line operated by D. Fromme, Extension agent IPM.

^b Through April 10, 2000

^c Through April 13, 2000

FALL ARMYWORM DAMAGING CORN AND SORGHUM



Numerous reports of fall armyworms feeding in large numbers have been received. Numbers were great enough to require treatment. To find larvae, pull the whorl leaf from the plant and unfold it. Frass or larval excrement is present where larvae feed within the whorl. Damaged leaves unfolding from the whorl are ragged with "shot holes". Although this may look dramatic, leaf damage usually does not reduce yields greatly and control of larvae during the whorl stage is seldom economically justified unless fall armyworms are present in high numbers. Also, larvae within the whorl are somewhat protected from insecticide.

Insecticide application may be justified if larval feeding reduces leaf area by more than 30% or is damaging the growing point. Fall armyworms are more likely to cause more than 30% leaf area loss due to greater numbers of caterpillars per plant compared to normally 1 corn earworm per plant. RDP

INTERESTING INSECTS



The decline in bee numbers over the past few seasons has been attributed to the spread of two mite species that are parasitic on honey bees. These mites may also be responsible for the slowdown in the spread of the Africanized honey bee (aka "killer bees"). But as with most such challenges, nature has a way to bounce back. The bees, after a temporary decline, appear to be on the rebound this spring.

There are several excellent resources on bees available through the Internet. TAEX, publication, **Honey bees in and around homes** (L-1791), is available at <http://agpublications.tamu.edu/> and more specifically at <http://agpublications.tamu.edu/catalog/query.cgi?id=752>. There is also a leaflet (in English, Chinese, Spanish, and Vietnamese) called "Bee Alert: What is the Africanized honey bee?" available through DAC and at the address <http://agpublications.tamu.edu/catalog/topics/Insects.html>.

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The Texas A&M University System, U.S. Department of Agriculture, and the Commissioners Courts of Texas Cooperating