



AN ORGANIC TWO-STEP METHOD FOR IMPORTED FIRE ANT CONTROL

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Texas Imported Fire Ant Research & Management Plan

The “Two-Step Method” (see [L-5070](#)) is an integrated approach for control of the red imported fire ant, *Solenopsis invicta* Buren (Hymenoptera: Formicidae), that uses a sequential application of (1) a broadcast application of a selected bait product, followed by (2) the use of a selective treatment of individual mounds. This approach provides long-term ant suppression in ornamental turf and non-agricultural lands, including roadsides, and is best suited for moderate to larger sized areas. The cost is moderate. The goal of this program is to minimize the need for the use of individual mound treatments. **Note:** This program is also suitable for pasture and rangeland, provided that the products selected are specifically registered for use in these sites. Furthermore, this approach is *not* suggested for previously untreated areas with large numbers of native ants and few fire ant mounds (i.e., 15 to 20 per acre or fewer). For more information, see [FAPFS007](#), [B-1536](#) and [B-6076](#).

There are many home remedies, products and treatments that could arguably be considered “organic” (see [FAPFS012](#)). However, several state and federal agencies and some organizations now offer “organic” standards used to certify products. In Texas, the Department of Agriculture has developed an **Organic Standards and Certification Program** (see <http://agr.state.tx.us>). These standards establish the types of materials (including those used as insecticides) that are approved for use by producers who want to be certified as producing organic crops. The United States Department of Agriculture’s **Federal Organic Program** (see <http://www.ams.usda.gov/nop>) has also developed “organic” standards and a certifying process through the National Organic Standards Board (NOSB).

At its May 6 to 8, 2002, meeting in Austin, Texas, the National Organic Standards Board (NOSB) ruled on the petition for spinosad. The petition requested that spinosad, the active ingredient in the fire ant control products such as **Justice®**, **Eliminator® Fire Ant Killer** (see addendum), be added to the National List of Allowed and Prohibited Substances for use in organic crop and livestock production for pest management. The NOSB determined that spinosad is a natural substance, and as such, does not require addition to the National List, according to Richard Mathews, Program Manager of the National Organic Program (personal communication, June 19, 2002). The NOSB does not review formulated products, just individual ingredients. Accordingly, formulated pesticide products consisting of spinosad and EPA List 4-Inert Ingredients are approved for use in organic agriculture. However, formulated pesticide products consisting of spinosad and EPA List 3-Inerts shall not be used in organic production (**Appendix 1**). In the past, two spinosad products have been reviewed: **Success®** and **Tracer®**. In both of those cases, the product contained inert ingredients that are now prohibited under the National Organic Standards.

On October 24, 2001, Leslie McKinnon, Coordinator for Organic Certification with the Texas Department of Agriculture notified the manufacturer of **Citrex® Fire Ant Killer** (see addendum), EnviroSafe Labs, that their product, a botanical insecticide containing an extract of the oil from citrus peels (d-limonene), had been reviewed by the Texas Department of Agriculture (TDA). The agency determined that the ingredients and manufacturing processes were consistent with the TDA Organic Standards for the production, processing and handling of organic or transitional food and fiber, and that the product has been categorized as “allowed” under the *Texas Organic Standards and Certification, 4 TAC, Ch. 18 (Appendix 2)*.

“Certification” applies to crops that are grown organically. Products such as Citrex® and Justice® are “reviewed” for consistency with the organic standards, to determine whether they can be used on an organic farm. So no “certification” documents exist for either of these products. However, with spinosad bait to broadcast apply, and the citrus oil extract as an individual ant mound treatment, a program approaching a “certifiable” organic **Two-Step Fire Ant Control Program** is now close to a reality. This program, however, is not necessarily “better” than other combinations of available products, whether “organic” or conventional, and may not be as cost-effective as other alternatives. However, for those individuals seeking least-toxic methods and that have a strong interest in organic methods of pest control,

this program offers a viable choice.

Before any control efforts are made, study the area to be managed. Be certain that the pest ants to be controlled are red imported fire ants and that their population levels are sufficiently high to warrant implementation of this approach (see [FAPFS007](#), [FAPFS010](#) & [FAPFS013](#)). The steps to implement the program are as follows:



Step 1. Broadcast bait



Step 2. Treat only nuisance mounds

Step 1. Broadcast apply the bait in the fall and, if necessary, in the spring (see [B-6099](#), [FAPFS020](#), [FAPFS021](#), [FAPFS027](#), [FAPFS029](#), [FAPFS035](#)).

- ! **spinosad** baits (Eliminator® Fire Ant Killer Bait, Justice®, and others, including Penn-Kill™ Fire Ant Killer, Strike™ Fire Ant Killer Bait and Maxide®), consist of a blend of the two most active forms of compounds called spinosyns, A and D. Spinosyns are the products of the fermentation of the soil actinomycete *Saccharopolyspora spinosa*. Spinosad received the 1999 Presidential Green Chemistry Challenge Award which recognizes chemicals that reduce negative impacts on human health and the environment (see [Fire Ant Trails 3\(3\)](#)).

Eliminator® Fire Ant Killer Bait (Note: in Spring 2003, the product will be released as Ortho® Fire Ant Killer Bait Granules)(0.15% spinosad) sells for \$7.97/lb (Wal*Mart, June 17, 2002) and is broadcast-applied at a rate of ½-¾ cup/1000sq ft.

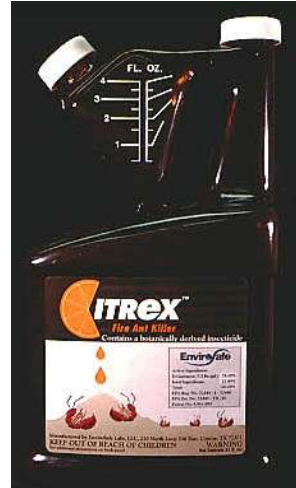
This is a relatively fast-acting fire ant bait product, making it comparable to the action of Amdro® (hydamethylnon). Broadcast treatments usually begin to show results within two weeks, with maximum suppression in four to six weeks. Control of 80 to 95 percent of active mounds can be expected. Researchers have found that efficacy is good and consistent when the product is applied in the fall. However, spring or early summer applications have resulted in inconsistent control between rates and from plot to plot within rates. Currently, the product, Justice®, registered for use in pastures, does not include broadcast application directions on the product label.

Note: Eliminator Fire Ant Killing Bait is also an excellent product to use as an individual mound treatment at a rate of 4 Tbsp/mound. This treatment will eliminate ants in treated mounds within a few days and is the preferred treatment for ant nests located in inaccessible locations such as under pavement, in compost piles, nest to trees and in utility units when applied to turfgrass areas closest to these sites. It can be used in Step 2.



Step 2. Treat individual “nuisance” ant mounds *only* as needed (see [FAPFS037](#))

- ! **d-limonene** is an ingredient in a fast-acting mound drench product, **Citrex® Fire Ant Killer**, containing 78.2% d-limonene (EPA Reg. No. 72244-1-72440; EPA Est. No. 72440-TX-01) is manufactured by Envirosafe Labs, LLC (210 North Loop 336 East, Conroe, TX 77301; www.envirosafelabs.com). This ingredient is an extract of orange oil released from crushed or grated citrus peels. The product is mixed at a rate of 5 fl. oz. per gallon of water and applied as a drench to undisturbed fire ant mounds, making sure to completely saturate each mound treated (see [Fire Ant Trails 3\(1\)](#) and reports of field trials on <http://fireant.tamu.edu> under “research” and “applied research”).



Citrex® Fire Ant Killer sells for \$15.49 for 32 fl oz (2002 price). The per mound treatment cost 1 gallon of diluent per mound treatment is \$2.42. However, application of less than one gallon dilute drench per mound can result in additional reductions in treatment cost. For instance, treating a "small" ant mound with a quart of material would cost \$0.61, which is comparable to many other individual ant mound drench products currently on the market. Both the 5 oz/gal and 4 oz/gal rate being considered the revised product label provide the highest reduction in ant activity with reduced phytotoxicity problems. However, under some conditions discoloration of turfgrass following treatment may occur in a week or so.

Be patient for the broadcast application of the Eliminator® Fire Ant Killing Bait to work and there will be fewer ant mounds to treat individually. Between the bait treatments, use of individual mound treatments, using either the bait product or Citrex® Fire Ant Killer, should maintain control of imported fire ant colonies. Control can be enhanced by teaming up with your neighbors to manage ants on a neighborhood or community-wide basis (see [FAPFS015](#)).

ADDENDUM: NEW ORGANIC TWO STEP METHOD PRODUCTS NOW AVAILABLE

This went out-of-date when both Eliminator (spinosad bait) and Citrex (d-limonene) were no longer being marketed at retail outlets in 2002. Replacement products are now on the shelves, including:

spinosad baits

1. Ortho® Fire Ant Killer Bait (Wal-Mart, \$9.97/1 lb., March 3, 2003)
2. Fertilome® Come & Get It Fire Ant Killer

d-limonene

3. Safer® Fire Ant Killer (Lowe’s, \$13.96/32 fl. Oz., March 3, 2003)



Appendix 1. E-mail reply from Mathews, Richard" <Richard.Mathews@usda.gov June 19, 2002, regarding Organic certification for spinosad

The National Organic Standards Board (NOSB) has ruled on the petition for Spinosad. The petition requested that Spinosad be added to the National List of Allowed and Prohibited Substances for use in organic crop and livestock production for pest management. At its May 6-8, 2002, meeting in Austin, TX, the NOSB determined that Spinosad is a natural substance, and as such, does not require addition to the National List. Accordingly, formulated pesticide products consisting of Spinosad and EPA List 4-Inerts are approved for use in organic agriculture. Please note that formulated pesticide products consisting of Spinosad and EPA List 3-Inerts shall not be used in organic production.

Appendix 2. Letter to Envirosafe Labs, October 24, 2001, regarding the status of Citrex® Fire Ant Killer with the Texas Department of Agriculture's Organic Standards.

Mr. Craig T. Gant
EnviroSafe Labs
210 North Loop 336 East
Conroe, TX 77301-1429

Dear Mr. Gant:

The product "Citrex Fire Ant Killer," a botanical insecticide, has been reviewed by the Texas Department of Agriculture (TDA). We have determined that the ingredients and manufacturing processes are consistent with the TDA Organic Standards for the production, processing and handling of organic or transitional food and fiber. This product has been categorized as "allowed".

Please keep in mind that this classification does not constitute an endorsement in any way of the product's effectiveness in various field conditions. Furthermore, TDA does not allow the use of the TDA's Certified Organic logo or any reference or implication that the product reviewed above is "Certified" or "Registered" by TDA or any other authority in your labeling and advertisement. You may, however, reference that the material has been reviewed by the Texas Department of Agriculture's Organic Certification Program as an "allowed" material under the *Texas Organic Standards and Certification, 4 TAC, Ch. 18*.

Please accept my sincere apologies for the significant delay in responding to your request. Our program has been growing, yet at the same time we have experienced a series of staff vacancies. As a result we have not been able to complete many of our reviews. If you have any questions, I can be reached at (512) 475-1641.

Sincerely,

Leslie McKinnon
Coordinator for Organic Certification

Further comments from e-mail correspondence with Leslie McKinnon
(leslie.mckinnon@agr.state.tx.us) June 18, 2002

"Certification" applies to crops that are grown organically. Products such as Citrex and Justice are "reviewed" for consistency with the organic standards, to determine whether they can be used on an organic farm. So no "certification" documents exist for either of these products. Although USDA did issue a policy statement that could allow for certification in the future - but it would require a product like Citrex to be made from organic oranges!

The National Organic Standards Board recommended that the USDA categorize the active ingredient spinosad as a natural substance. Natural (non-synthetic) substances are not listed on the National List because they are categorically allowed for use in organic production unless they are specifically listed as prohibited. If USDA accepts the NOSB recommendation, spinosad would be considered to be an allowed substance. However, this does not answer your question about Justice. The NOSB does not review formulated products, just individual ingredients. As

far as I know, two spinosad products have been reviewed in the past: Success and Tracer. In both of those cases, the product contained inert ingredients that are now prohibited under the National Organic Standards. I believe that Dow Agrosiences is working on at least two approaches - they are asking EPA to evaluate the inert ingredients in their formulated products to see if those inerts can be reclassified as List 4 inert ingredients (allowed under the national standards), and they are working on reformulating the products with different inert ingredients that would be approved. They had submitted a request for TDA to review Justice last year, but asked me to put the review on hold until they received a decision from the USDA on spinosad. I explained that additional information would be needed to complete the review. I have not heard from them about reactivating their request, and have not received the additional information. Justice may be one step closer to being approved, but it is not there yet.

For more information regarding fire ant management, see Extension publications [B-6043](#), *Managing Red Imported Fire Ants in Urban Areas*; [B-6076](#), *Managing Red Imported Fire Ants in Agriculture*; [B-6099](#), *Broadcast Baits for Fire Ant Control*; or [L-5070](#) *The Texas Two-Step Method Do-It-Yourself Fire Ant Control for Homes and Neighborhoods*. Also visit our web site at <http://fireant.tamu.edu>.

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