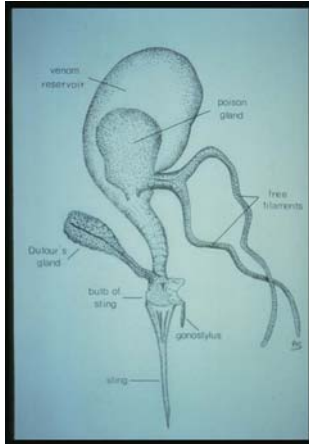


## Fire Ant Biology

*Solenopsis invicta* even their scientific name sounds fearful. The name literally means "the invincible pipe". One microscopic look at the



stinger and you'll know why.

We are talking about fire ants of course. Everywhere I go fire ants seem to be one of the most popular topics. While scientifically fire ants are one of the most studied insects they seem to be one of the insects surrounded by the greatest number of misconceptions, old wives tales, and myths. I would

like to tell you a little of what is known about fire ants.

Fire ants mate when the temperature is between 70 and 95 degrees F, when the humidity is near 100%, and the wind is calm. For those keeping score this can occur anytime of the year, but mating activity peaks in the spring and fall months. The males and females fly into



the air as high as 2000 ft.

The newly mated females can fly as far as 2-3 miles before landing. Once they land they tear their wings off. It is also worth mentioning that 99.9% of all the females die before they get this far due to predation, poor landing sites (such as ponds etc.).

This "queen to be" burrows into the ground a few inches, forms a chamber she seals off with a waterproof mixture of soil and saliva. The queen then begins to lay eggs. Using the energy reserves from her wings and wing muscles she rears a few young to adulthood; a process taking approximately 20 to 45 days depending upon the temperature.



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At this time the workers break out of the chamber and begin foraging for food. They begin to take care of the queen and care for the young. The queen from this point on does only one thing – lay eggs to the tune of 100,000 – 300,000 per year. She may live 6-7 years on average in the wild. Do the math; that's a lot of fire ants!

Fire ants while voracious predators do not eat solid food. They place food on the "lip" of the late stage larvae. The larvae excrete digestive enzymes into this "lip" and eat the liquid results. All of the other ants feed through a process called tropholaxis where they feed from oils secreted by these late stage larvae. Quite



elegant actually, since this gives them built in food tasters. If anywhere in the colony ants become sick due to poisons the queen does not eat from the food source.

Fire ants forage when the surface soil temperature is between 70 and 95 degrees, in the summer months that is primarily at night. They have been shown to forage up to 80 yards or more from their mound in search of food.

### Fire Ant Management

So what does this mean to the homeowner struggling to control this creature in their back yard? We can use this knowledge to gain the upper hand in our battle.

We must recognize that fire ant control will be a long-term commitment with the current technology because the ants can re-infest from long distances and the high reproductive potential.

**Fire Ant Management Tools:** There are three basic tools in the fire ant management arsenal: Individual Mound Treatments (IMT), Broadcast Baits, and Broadcast Granular products. Each has a place in a

management scheme. Understanding when and how to use each tool will help ensure that the right tool is used for the job.

**Individual Mound Treatments**—Individual mound treatments are very effective at killing almost all of the mounds that you treat. They do not kill any mounds that you don't treat, so if you miss some they will continue to flourish. This tool is used primarily to kill those one or two mounds that are a visible problem or an immediate health hazard.

Individual Mound Treatments include, but are not limited to: Orthene Fire Ant Killer® (Acephate), Sevin® (Carbaryl), Triazicide, Cypermethrin (this active ingredient is sold under various trade names), Velocity, Pinpoint

**Broadcast Baits**—Baits are products that the ants think are food. They bring it back to the colony and incorporate it into their food system. Because fire ants are aggressive and efficient foragers, we know they forage for long distances, and we know when they forage, we can use this in the timing and method of bait applications. *It is crucial to apply baits when the ants are foraging* and broadcast baits rather than treating individual mounds with the baits. *Place bait in small pile and return in 20 minutes. If ants are found foraging, it is a good time to broadcast fire ant bait.* A pound per acre will do the job. What about the food tasters? The baits act slowly enough that the queen eats the toxin or insect growth regulator before the effects are manifest.

In general bait treatments will need to be repeated each year in late Spring and again in early Fall.

Baits will usually reduce the RIFA population by 85—95% when used properly. They are the best choice when complete coverage is difficult, when treating larger areas, keeping costs low is important, and in environmentally sensitive areas.

Baits include, but are not limited to: Amdro®, Logic®, Award®, Affirm®, Distance®, Extinguish®, Firestar®, and Maxforce®, Advion®, and Once 'n Done

### **Fire Ant Management Strategy 2 — Broadcast Application of a Granular Insecticide.**

These products are not baits, but can be broadcast over the entire infested area. These products are very effective and give up to a year or more of fire ant control and can be applied any time of the year. There are some limitations where they can be used so read the label carefully. These products appear to be friendly to desirable native ant species, while reducing the fire ant population by 95% or more.

The disadvantages to these products are cost, and they only control fire ants where you have directly treated.

Broadcast granular products are a best choice when treating an area with zero tolerance for ants, year long control is desired, treating when ants are not foraging for food (such as winter), or when control in smaller areas is needed.

Broadcast granulars for Home Applicators include: Over 'n Out® Ortho Max®, For commercial applicators: TopChoice® Talstar®.

**Combination of Treatment Strategies**—Combining each of these strategies can be very effective in an overall management plan. For example the two step method uses a broadcast bait treatment then uses the IMT to control the most visible or problematic mounds. Another option is to use the broadcast granular products in most of the yard, then treat difficult to reach areas and edges with a bait.

In large areas a site analysis will reveal that in some areas it is more important to control ants than in others, such as the place where the kids play. In such a scenario you can use the broadcast granulars in the “zero tolerance” zones and use the baits where killing 90% of the population is good enough. This allows the use of the premium products to reduce the contact with fire ants without spending the money to do a full treatment.

The fire ant is truly a survivor, but they are manageable when an understanding of their biology is combined with the wise use of the available tools.

Label changes occur frequently so always ***read the label before you purchase and use any pesticide product.***

By Tim Davis  
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This information is supplied with the understanding that no discrimination is intended and no endorsement by the Clemson University Cooperative Extension Service is implied. Brand names of pesticides are given as a convenience and are neither an endorsement nor guarantee of the product nor a suggestion that similar products are not effective. Use pesticides only according to the directions on the label. Follow all directions, precautions and restrictions that are listed.

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