Reflections on the Winter/Spring Transition

Most folks receiving this newsletter will not need to be reminded of the weather on Easter weekend. You know it was cold. You’ve seen the damage done to plants. You’ve heard the news reports about the cost of the damage to farmers. And I think there are lessons that we can learn if we stop to ponder.

While there have been some temperature extremes this year, the general pattern was not extremely unusual. It is normal in central North Carolina to have winter temperatures in the 80s as well as in the teens. It’s not unusual to have those temperatures in alternation. In fact it’s one of the things that native plants have to adapt to. You may notice that exotic Magnolias (star magnolia, tulip magnolia) don’t “know” that they’re not supposed to bloom the first time it gets warm and often bloom in February. Native Magnolias (southern magnolia, sweet bay magnolia) don’t bloom until May, a pretty safe blooming time.

In the two weeks prior to the Easter cold snap high temperatures ranged from 63° to 85° degrees with a single low temperature below freezing at 30°F. (Temperatures from the Siler City Airport.) In fact, in all of March there were only 10 mornings with a temperature below freezing. During that same period daytime highs were generally in the 60s and 70s and even in the 80s the last week of March.

During February there had been 19 days with temperatures below freezing with a low of 11°F. February high temperatures were generally in the 30s and 40s. So March was quite a change that many of us noticed. Summer clothes were brought out and annual plants were planted. Plants too responded to the weather as if winter had ended. The native oaks, hickories, and maples were “fooled” by the warm March; many had broken dormancy. There will be very few local pecans this year.

Then on Friday morning April 6 the low temperature was 26°F. Cold enough to damage most tender young tissues – leaf buds, flowers, fruits. We have to move into generalities here because we deal with 100s or 1,000s of species of plants. Each is different just as humans and camels and flounders are different. Each has different tolerances. And different plant parts will be damaged more or less quickly than others. So there are lots of variables.

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Plants also may be able to tolerate extreme cold for a given period of time before damage occurs. If it goes to 28° for an hour then goes back to 34°, damage may be negligible. Curiously the temperature went back into the 40s and even 50s during the daytime that Easter weekend. But heat loss was intensified by the wind. On the morning of April 6 the temperature was below freezing for about 3 – 4 hours. By 10:00 that night the north wind was gusting to 22 mph. On April 7 again there were only 3 – 4 hours below freezing and the temperature never went below 30°F.

But before Easter morning (about 10:30 the night before), the temperature went below freezing and would stay there for nearly ten hours with a low of 19°. You saw what happened to plants.

Could those plants have been protected? In some cases, yes. In my yard Hosta and Solomon’s seal were emerging just ten feet below the thermometer that would register 22° on Easter morning. For several nights I covered them with blankets. They were slightly bowed by the weight but not damaged by cold. Today the Solomon’s seal is in full bloom and the Hosta are in full growth mode.

You may have noticed that not all plants were affected the same. In fact as I drove around I noticed some dogwoods (just for example) seemed to be relatively undamaged while others were serious shades of brown. What’s that about? I make two assumptions: one is that seedlings are genetically different. Just as no two members of your family are identical, no two plant seedlings are identical. The other factor I assume is what we call microclimate. Just because it was 19° at the airport, doesn’t mean it was 19° everywhere.

A professor once sent us home from class, each of us with five plastic cups. The assignment, on a night when the temperature should approach freezing, was to fill the cups with water, place them outdoors in five different microclimates, and observe. In my yard about 3 miles east of Pittsboro, I had one cup with no ice at all. I had one cup freeze solid and burst. The other three cups had varying degrees of ice on the top or sides.

Knowing how plants responded to extreme temperatures in your landscapes and gardens may give you clues to understanding your microclimates. That may give you better ideas about what you can and can’t do in your gardens. A microclimate in winter may also be a microclimate in summer. Canopies of foliage overhead slow the loss of heat into the atmosphere creating a warmer area beneath the canopy. Bare soil tends to lose heat more quickly than soil covered with plants. Hard surfaces like walks, patios, fences, and walls absorb solar heat and continue to release it through the night. The same plant that was saved from the cold by a “heat sink” may also suffer unbearably from the same heat on a summer night unless it is well adapted to long, hot summer nights.

Now we’re observing the recovery. Plants holding dead leaves are flushing out new leaves again. In some cases (such as oaks) the new leaves are earliest in the top of the canopy. In others (such as redbuds) the new

What Zone Am I In? (Or in which zone am I? – Twilight?)

What zone you are in may depend on who you’re listening to. (to whom you are listening) And I’ll make the point right away that I have never seen a plant refer to or even acknowledge one of the plant hardiness zone maps. But let’s have a look at what is out there.

The old standby is the USDA Plant Hardiness Zone Map, published in 1990 that you can view online at http://www.usna.usda.gov/Hardzone/ushzmap.html. That map determines hardiness zones according to the “average annual minimum temperature” in a given area. (I can still hear JC Raulston saying that it’s not the averages that kill plants, it’s the extremes – like 1984 when we went to –9° F. - that’s minus 9°) That map is based on the lowest recorded temperatures from 1974 to 1986. According to that map, Chatham County is in zone 7a with “average annual minimum temperature” of 0° to 5°F.

Then there is the new map from the National Arbor Day Foundation. It is dated 2006 and doesn’t specifically say what dates were included in its data analysis. It just “updates” the 1990 USDA map. A look at the map “looks like” Chatham County would be in zone 8. But a zip code search for 27312 (Pittsboro) suggests Zone 7-8. For 27344 (Siler City) Zone 8. For zips 27523 and 27502 (Apex) Zone 7-8. Chapel Hill and Moncure are Zone 7-8. Perhaps they’re not sure. It looks like Siler City may be warmer than the rest of the county; that idea is not consistent with my memory of weather station data. Memory is a funny thing. At any rate, according to that map the Average Annual Low temperature for zone 7 is 0° to 10° F and for zone 8, 10° to 20° F. You can view that map at http://www.arborday.org/media/zones.cfm.

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leaves are starting lower down and continuing out the stems. There are lots of learning opportunities out there.

We may not have seen all the damage yet. Those who get my sporadic E Letter have been warned of the possibility of damage under the bark. What I said then is that there may be some serious injury that is beyond our capacity to observe: freezing of the vascular or conductive tissues beneath the bark of trees and shrubs. These vascular cells are the conduits that move water and nutrients between the roots and shoots. When the temperature dives rapidly from very warm to sub-freezing, these tissues may be permanently injured. But we can’t see that now.

Over the next several weeks or even months, damaged tissue beneath the bark may shrivel up leaving the bark disconnected. Eventually that bark may split or peel. I have one crape myrtle with about an inch of bark split on the south face of the trunk. It may have been caused by freezing – or perhaps something else.

Unless you’re looking for that injury, you may not see any problem. It may not be obvious until the plant’s demand for water in the summer exceeds the capacity of the damaged portion of the plant to deliver. Wiltting and dieback may follow. When we experience a heat wave, it’s difficult to convince people that the problem is a result of freezing temperatures weeks or even months before. I am not aware of anything you can do either now or later to fix it.

This situation is not limited to landscape plants. It also occurs in nurseries. It is possible that you can buy a plant that looks great in April or May even though it has permanent damage from freezing. It may be difficult to explain this in July or August.

I have never been a fan of “guaranteed plants.” Living things can be guaranteed to die, but we cannot guarantee that they will live for any period of time. They require certain resources that a gardener may provide. Some nurseries will guarantee the plant to live for a given time period regardless of how you treat it. And they just redistribute expense in their overhead or price structure. Some nurseries will guarantee that the plant is alive when it leaves the nursery – only.

Regardless of which nursery you deal with, you may want to inquire about how they deal with such situations. Growing plants is a risk. When you purchase a plant you buy into the risk. There may be concealed injury that is not obvious.

Over the life of a plant that we purchase and maintain, we as gardeners can affect how well that plant thrives by selecting a desirable location, providing good soil tilth and fertility, providing adequate water and drainage, and controlling the weather. OK, that last one is a stretch. Gardeners hate it when we can’t be in control.

What Zone Am I In? (Or in which zone am I? – Twilight?)

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And then the American Horticultural Society has a Plant Heat-Zone Map. This map considers the maximum daily high temperatures from 1974 to 1995 and creates zones based on the number of days when the daily high temperature exceeded 86°F. Heat is another factor that plants must tolerate and we observe that things like spruce or white pine may not tolerate our climate well. And even “full sun” plants like Geranium may benefit from some shade by afternoon. You can study this map at http://www.ahs.org/publications/heat_zone_map.html#2. The lines are a trifle difficult to decipher, but we appear to be in either zone 7 (60 – 90 days above 86°F) or 8 (90 – 120 days above 86°F).

So now that we’re all thoroughly confused about which map to follow, which zone we’re in, and if we’ve really entered the twilight zone, what do we do? Well, this is where I remind myself that the plants don’t pay attention to the maps. And the maps are only guidelines. They are not rules! And it is highly unlikely that you have to worry about the health of plants at any of the 5,000 weather stations where data were collected. You only need to know about the plants at your location. Who keeps the data there?

In the previous article’s discussion of the Easter freeze, I suggested that there are numerous microclimates across the county and even within your garden areas that have subtle differences in exposure. These are areas where you may not be able to grow things that your neighbors can. Or considered another way, these are areas where you may be able to grow things that no one else in your neighborhood can. You may have areas where you can grow zone 8 plants. You may have areas where you can grow zone 6 plants. And it may be that the only way you can determine that is to experiment.

And you may learn some lessons just by observing. Earlier this winter, I drove up behind the Agriculture Building in Pittsboro and observed a microclimate in the way the snow was accumulating – and not accumulating – on the parking lot. Consider the picture in

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What Zone Am I In? (Or in which zone am I? – Twilight?)

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Fig. 1 and consider why the falling snow was accumulating in such a limited area. (Answer at the end of this newsletter.) I know some of you don’t like the no rules approach and don’t want to “waste” money experimenting. That’s OK. You can stick to the tried and true. Just remember the maps are guides and don’t guarantee anything. For those of you a little more adventurous, I’ll mention something else JC Raulston said: “The only reason we have 6,000 varieties of plants in the arboretum is because we have tried 30,000.”

You may also consider the philosophy of Tony Avent of Plant Delights Nursery: “I consider any plant hardy unless I’ve killed it three times.” If it doesn’t survive in one place, try another.

Getting Down with Mulch

I recently received an inquiry about the difference between bark and mulch. Certainly bark on the tree doesn’t do what we usually expect of mulch; but it does function to retard moisture loss from the vital layers beneath the bark. And bark is one of the products we use as mulch around plants, once it comes off the trees.

So perhaps a definition of mulch is in order; Merriam Webster’s Online dictionary provides a good one: “a protective covering (as of sawdust, compost, or paper) spread or left on the ground to reduce evaporation, maintain even soil temperature, prevent erosion, control weeds, enrich the soil, or keep fruit (as strawberries) clean.” Mulch usually does all of those to some degree.

An important concept to recognize from that definition is that mulch is defined by the desired effect rather than by the material. Many materials can provide one or more of the functions listed. The mention of “sawdust, compost, or paper” merely provides some examples. To those examples we could add pine bark nuggets or chips, pine needles, grass clippings, leaves, small twigs, grain straw (wheat, oats, barley, rye – preferably without seed heads), shredded paper, sheets of newspaper, peanut or pecan hulls, wood chips, cardboard, magazines, rocks, lava rock, gravel, brick chips, geotextiles (ground fabrics), and plastic.

Probably many readers would have an objection to at least one of those materials, perhaps to several. As with many items, none of them is inherently good or bad. We as humans apply judgments based on our own purposes. Each of the materials mentioned has both advantages and disadvantages for mulch.

So, when someone asks me what is the best mulch, well, you can predict

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the answer: It depends. It depends on what is important to you. One important thing to a lot of gardeners was not mentioned above, but it is consistent with our objectives in landscape gardening – appearance. Which mulch is the most attractive? You’ve heard there’s no accounting for taste and many people have strong feelings about what kind of mulch looks best. And since most products used as mulch fill the functions of mulch to a greater or lesser degree, I’ll leave the question of appearance to you. It’s your choice. But be aware that you may be able to use one type of mulch that you consider unattractive (but cheap?) and make it more attractive simply by “topdressing” it with a more attractive variety.

One function of mulch that a lot of folks overlook is the potential to “enrich the soil.” Mulch doesn’t generally provide much in terms of fertility. But it does improve soil structure as it decomposes. The reason I know a lot of folks overlook this is the question I get about which mulch will last longest. The longer it lasts, the less it contributes to improving soil structure.

Those mulches that break down most quickly can contribute to improved water infiltration, aeration, drainage, workability, and biological activity in the soil. This is part of the process that plants have used to mulch themselves since before there were gardeners. Leaves of trees, shrubs, forbs, and grasses die and fall to the ground where they are decomposed and incorporated into the soil by multiple living organisms present in/on the soil. If you have heavy soil that is hard to work (or grow roots) then the quicker mulch breaks down, the better it is for the soil.

One further thought is the distinction between compost and mulch. Compost is material that has broken down to the point that you can no longer tell what it used to be. Compost is suitable for tilling into the soil. Since mulch is not yet broken down, it usually is not good to till in. If you can still tell what it is, mulch is used only on the surface.

What kind mulch should you use? Let’s run down some of the advantages and disadvantages of some mulch materials:

Pine bark – available in various grades from coarse chunks to fine mini-nuggets. The coarser it is the slower it is to break down. Finer grades may be easier to spread over large areas with a rake. Readily available in bags facilitating ease of movement into small areas such as patio gardens. Also available in quantity to be dumped, moved and spread. Bark has a tendency to wash out in heavy rains or even float away. Some landscapers reduce this problem by lining bark mulches with a border of pine needles crimped into the soil. Generally regarded as attractive and effective. Usually not a source of weeds.

Other barks – more hardwoods and other trees are being harvested and processed providing a different bark type. These materials vary in consistency. They are often shredded, and the coarse chunks associated with pine bark are generally not present. These materials are also available either bagged or in bulk. Some hardwood and cypress bark has a stringy character. The mulch may have a high water holding capacity and limit the amount of water reaching the root zone below. If this occurs during a drought, gardeners may need to use a rake to loosen the mulch to improve water movement through it. Usually not a source of weeds.

Pine needles – generally regarded as attractive, pine needles also tend to compact more rapidly than many other materials. For this reason they are often applied more thickly during the initial application; 4-6 inches is common. Because of their loose consistency, this depth of material seldom interferes with soil aeration. Most readily available in bales, there is some variation in bale size. Feeling the weight of the bale is probably the best indicator of how much straw it contains – unless it’s wet! Size can also be considered but a loosely packed large bale may contain less straw than a smaller, tightly packed bale. Longleaf needles are generally regarded as superior in quality to loblolly needles. Usually not a source of weeds.

Leaves – many gardeners have leaves readily available for harvesting and using. Moving the leaves is labor intensive but may need to be done anyway. Variations in size and leaf thickness affect how rapidly they break down and become part of the soil. In general smaller and thinner leaves (such as ash) break down more rapidly than larger and thicker leaves (such as Magnolia). Larger leaves may be subject to blowing around, and leaves may wash out in heavy rains. Leaves are sometimes regarded as less attractive but can be covered with a thin layer of a more attractive material. Leaves are probably better as mulch if shredded or chopped with a mower before use. If shredded, they will break down more quickly and provide for the soil. Depending on the source of leaves, weeds can come with them.

Grass clippings – grass clippings have a tendency to mat down quickly and inhibit penetration of air and water to the root zone. They are generally not considered attractive.
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and may be a source of weeds depending on the source. Also depending on the source, some grass clippings have been treated with herbicides. If the residue is persistent, these clippings may not be suitable for use around certain plants. Composting will allow herbicides to break down and will generally make grass clippings a better product.

Wood chips – wood chips or shavings are occasionally available in bulk quantities and satisfy all or most of the requirements of mulch. Many gardeners know that as wood decomposes, in contrast to bark, it immobilizes any nitrogen that is available even at the expense of plants. The nitrogen is eventually released once decomposition is complete. Meanwhile, plants may need extra attention to insure adequate fertility. Another difference from bark is that wood products are made up largely of cellulose. Among the decomposers with great fondness for cellulose are termites. Your landscape and gardens probably have termites present already, but your pest control company may discourage you from encouraging termites around the foundations of buildings.

Sawdust – most of the concerns with wood chips and shavings also apply to sawdust. In addition, sawdust has some tendency to compaction and may inhibit movement of water and air to the soil beneath. Sawdust is generally better composted before use.

Yard waste – whether it’s from your own yard or someone else’s, whether it’s been ground or not, yard waste fills most of the jobs of mulch. It may be a good way to deal with material for which you don’t have other uses.

Chopped or shredded it can be applied as a base. Since it is generally not considered attractive, you may want to topdress it with about an inch of something you consider attractive. If you are acquiring yard waste from another source, be aware that there may be a bit of trash along with it (even to the point of being a health issue depending on the source). It can also be a good source of weeds.

Straw – various type of grain straws are used more in the vegetable garden than the landscape. I think this is primarily an aesthetic issue, but that doesn’t tell me why vegetable gardeners avoid pine straw. These straws do decompose rapidly. Pay attention when purchasing. If the grain was harvested first, then the straw should be relatively seed free, and you’ll have little worry about a bed of barley taking over. The straw could be a source of whatever weeds may have been growing with it. And “hay” can mean almost any plant that can be baled with or without seeds. You take what you get.

Paper products (including cardboard, newspaper, magazines, office paper, shredded paper, etc.) – cardboard, newspaper, etc. applied thickly enough can be an excellent deterrent to weeds. Depending on the weed, some of them find the seams and work their way through, so it’s not perfect. These materials are generally not considered attractive and may move with the wind, so some top-dressing may be called for. Some gardeners are concerned about the type of ink or glue included with paper products. If that is a concern, then you simply (or perhaps not so simply) have to start tracing back to the source and ask questions. And remember that most practices are not permanent, especially in the business world. What they used last year may have changed.

Nutshells – Pecan and peanut shells are sometimes readily available in parts of N.C. Both can be effective mulches. Pecan shells are generally more preferable in color. Peanut hulls are more likely to come with weed seeds and possibly lesion nematodes that can be detrimental to some host plants.

Rocks, gravel, lava rock, brick chips – many are surprised at the notion of inorganic mulches. And obviously, they do not contribute much to enriching the soil. On the other hand, one of their selling points is that they are long lasting. They will do the things that mulch does such as reduce evaporation and moderate soil temperature. But in certain situations they may increase water use by plants. These hard materials absorb heat during the day; the heat is slowly released as air cools in the evening. This release of heat may increase the amount of time that plants experience excessive heat leading to an increase in water loss. Gardeners using this type of material need an increased awareness of the impact on plants.

Placement

For those attributes of mulch that benefit the roots of plants (conserving water, moderating soil temperature), the mulch is most beneficial if applied throughout the entire root zone. For shrubbery and flowers, that means mulching the entire bed. For gardens and orchards, that often means mulching the entire row. Fruit trees and shrubs are often mulched in long rows with the “middles” left unmulched and planted in some ground cover. That strategy gives the fruit trees a linear rooting area with little or no competition.

Individual trees and shrubs, whether fruiting or ornamental are mulched individually. Extend the mulch at least 3 to 6 feet out from the trunks

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Getting Down with Mulch

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of these plants. As the plant grows, continue extending the mulch out as far as the drip line. Many people resist applying this much mulch in the middle of a lawn. If you prefer the lawn at the expense of the tree, it’s OK with me. But be aware that grass growing under and around trees is doing so at the expense of the tree. It may be time to use mulch to incorporate the tree into some other bed nearby. Use a water hose to experiment with lines then mulch the whole area.

When mulching individual plants avoid imitating all those “volcano mulch” jobs you see on the street. The trunk and buttress roots of the tree do not need to stay moist. Do not pile mulch around them. No matter what you see on the street, do not imitate the volcano strategy. In fact it’s often a good idea to thin the mulch around the base of plants to facilitate inspecting for voles. Voles often find the tunneling easiest between the soil and the mulch. Piling mulch around the trunks or stems of plants just gives them easy access.

The mulch should be over the roots of the plants. Keep it thickest there and away from the trunks.

How much
In most cases 2 to 3 inches of fine mulch is sufficient. In general the finer the mulch, the thinner it should be. The coarser the mulch the thicker you can apply it. Pine straw, as noted above, tends to pack down quickly. So you can apply it about 4 to 6 inches thick.

Remember that plants need air available to the roots. There’s not much air down in the soil to begin with. The thicker and denser the mulch, the more you inhibit aeration. So don’t overdo it.

Problems with mulch
I’ve probably already mentioned some of the biggest problems with mulch: piling it around the trunks and stems or placing it too deep. Too much can be worse than none at all.

Fresh mulch smells like fresh cut wood or earth. Sour mulch smells sour like vinegar, ammonia, sulfur, or silage. The sour smell results from anaerobic decomposition – composting without oxygen. In large piles of organic matter, decomposing organisms may use up the available oxygen. If the pile is not turned and aerated, anaerobic decomposition results in undesirable byproducts such as methane, ammonia, hydrogen sulfide, or alcohol. When applied to plants, these toxic materials may result in leaf scorch, defoliation, or death within 24 hours. Early symptoms resemble drought, excess water, fertilizer burn, or pesticide injury

The only way to avoid this injury is to avoid using the mulch. If you get a pile of mulch with that sour smell, avoid using it until the smell is gone. If it has been loaded on a truck and then unloaded then aeration has begun and the undesirable toxins can dissipate. You may need to spread the mulch in a pile about 2 to 3 feet deep to facilitate aeration. And running water through it may help to leach out the undesirable acids.

Occasionally I get a call from someone who has used a sour mulch and plants have deteriorated quickly. Usually the damage is mostly done. The next steps involve removing the mulch – no one ever wants to do that – or watering extensively. Watering may leach out some of the problem. But if you can see symptoms, damage has been done.

Who would have thought there was so much to say about something as simple as mulch? Select a product that fits your needs. Apply it at a reasonable depth. Renovate it about once a year. Sounds simple.

The answer to the question in the “Zone” article:

The line of snow in Fig. 1 on page 4 corresponds with the shade line of the building on sunny days in winter. The area where the snow was accumulating had been in the shade and was presumably a bit cooler than the surface farther out that had been in the sun.

Visit our Website: http://chatham.ces.ncsu.edu
Living with Fire Ants

What you need to know first:
We will not eliminate fire ants. Select mounds and locations that are important and deal with them on a mound-by-mound basis. Mounds to concentrate on include those in areas of people traffic such as parks, playgrounds, and home lawns.

To eliminate a mound you must kill the queen. She lives inside the mound. When the mound is disturbed, the ants will remove the queen by way of tunnels underground but close to the surface. Avoid disturbing the mound.

How to Proceed:
Identify the mound. Fire ants may be recognized by the mound. Unlike most ants, fire ants live both below ground and inside the mound built above ground. When disturbed, whitish rice-like larvae may be seen. Hundreds of ants may emerge.

Select one of the following treatment options:

Bait Treatment. Select a product. Keep these products in an airtight, odor free container to retain their usefulness. According to directions, distribute the bait around, not on, the mound. Baits deteriorate when exposed to moisture, high temperature, or sunlight. Make application under dry conditions, late in the day. Spring and fall are optimal. It may take several weeks for the mound to die.

OR Dry Mound Treatment. Select a granule or dust product. Follow the product label to apply the product directly to the mound. Some of these products may need to be watered in. Consult the product label. Several days later, check the surrounding area for survivors starting a new mound and re-treat if necessary.

OR Drench treatment. Select a product. Before purchase, make sure the product gives directions for a drench. "Kills Fire Ants" is not good enough; you must get to the queen. Mix in a garden watering can according to label directions mixing one gallon for each 6 inches of mound diameter. Thoroughly wet the ground around the mound to seal off the queen's exits. Continue to use all the mix to soak the interior of the mound. Several days later, check the surrounding area for survivors starting a new mound and re-treat if necessary.

Consider the Texas Two-Step Method. Apply a bait. Wait about a week, then follow-up with an individual mound treatment – dust, granule, or drench. The Texas Two-Step method was developed at Texas A&M University, http://fireant.tamu.edu/management/twostep.cfm

Other options. Treatments such as gasoline, motor oil, or grits usually cause the ants to abandon the mound and start a new one.

Special Considerations:

People with allergies. Persons allergic to stings should avoid fire ant treatments.

Protecting your water. Avoid use of pesticides within 50 feet of wells, abandoned wells, streams, or ponds. In these situations several gallons of boiling water may be applied to each mound. Repeat treatments may be necessary. The primary advantage of this treatment is to force the ants to move the mound.

Fruits and vegetables. Most insecticides for control of fire ants are neither safe nor legal to use in food crops. A spinosad bait product may include usage in these areas. It may also bear the label of the Organic Materials Review Institute (OMRI). Boiling water may be applied to each mound. Repeat treatments may be necessary. The primary advantage of boiling water is to force the ants to move the mound.

Pastures. For a product that is safe and legal for control of fire ants in pastures and forages, I encourage you to contact Sam Groce, Agricultural Extension Agent in the Chatham County office of the North Carolina Cooperative Extension Service.
Living with Fire Ants

Products that may be used for fire ant control: - 2007

Any list of pesticide products will soon be out of date. Many of the products that were available in a local “big box” outlet last year are not there this year. In some cases I have observed two different active ingredients under the same brand name. The same brand name may have a different active ingredient next year. It seems to me useful to take your glasses (or magnifier) and shop by active ingredient (in the fine print) rather than looking for a brand name.

In all cases it is important (and legal) to read and follow the label directions specifically. It is a violation of Federal law to use any pesticide in a manner inconsistent with the label. The label will tell you where you can use it, how much, how often, what kind of clothes to wear, and things like that.

Following are some products that have been observed in local outlets recently:

**Baits**

**Fenoxycarb** – Brand name, **Award** – labeled sites include ornamentals, some food crops, and horse farms

**Hydramethylnon** – Brand name, **Amdro** – two different concentrations for two different types of application. Also **Amdro Pro** may be used in pasture.

**Hydramethylnon + methoprene** – Brand names, **Amdro Fire Strike** and **Extinguish** includes insect growth regulator (IGR) methoprene

**Spinosad** – Brand name, **Come and Get It** – the active ingredient qualifies as organic, but this product is not registered as organic. Brand name, **Justice** bears the label seal of the Organic Materials Review Institute and can be used in a wide range of sites including ornamentals, some food crops, and pasture. Have not seen Justice on local shelves.

**Dry Powders**

**Acephate** – Brand names, **Orthene** and **Surrender Fire Ant Killer**

**Deltamethrin** – Brand name, **Bengal Ultra Dust 2X Fire Ant Killer**

**Fipronil** – Brand name, **Over ‘n Out**. Fipronil is also the active ingredient used in Front Line for tick control on pets.

**Indoxocarb** – Brand name, **Over ‘n Out**. Same brand name, different ingredient.

**Permethrin** – Brand name, **Spectracide Fire Ant Killer**

**Drench**

**Bifenthrin** – Brand name, **Bifen – L/P**. Applied as granules to be watered in.

**D-Limonene** – Brand name, **Safer Fire Ant Killer**. Drenches are messy but this one is acceptable to some organic gardeners.

Finally, there will be minor differences among products in efficacy. But far more important than product selection is the strategy you use. Remember that the product is just a tool and will not do the job. You use the tool to do the job if you use it correctly. Be careful.