Pruning

I recently sent out an E Letter (subscription by email only with request to al_cooke@ncsu.edu) to over 800 subscribers lamenting excessive pruning that sometimes occurs from late summer to late fall. During this time, plants normally are storing energy for later use; and growth is slowing.

One reason that we should avoid pruning at this time of year is that pruning stimulates cell division and growth. By stimulating growth we are working against the plant. Instead of storing energy, the plant starts redirecting energy to the pruning sites to seal off the wounds. And these processes often initiate new growth. New growth that has not had time to harden off is more susceptible to injury from cold weather.

By pruning we remove growth that might be producing energy that could be stored for next year. Instead we not only lose that potential energy, we also redirect stored energy and reinvest it in risky growth. And we do it at a time when the plant is most likely to lose that investment to changes in weather. The result is that the plant is weaker going into the winter and weaker coming out of it.

Perhaps obviously, we see a bit of major pruning being done at this time of year, frequently to evergreens that have gotten a bit larger than the space they were allotted. These are often plants that were not shaped during the summer when they were experiencing rampant growth. Now someone notices that they look a little ragged so maybe we should shape them up. And by the way, aren’t they too large? Can we just take them back to half their size?

Fortunately for humans, many plants can tolerate this abuse. And because they tolerate it, the harm that we do may be subtle or slow in coming. It may be a plant that just seems a little less vigorous for the next year or two. It may be a plant that has more disease or insect problems. Maybe a stem will die. If the plant survives, we may not associate delayed reactions with actions that we have taken.

Perhaps it is useful to think about why we prune at all. I get numerous calls through the winter inquiring about how to prune. I routinely ask about why the plant will be pruned. If I know why, I can usually discuss how. But many people seem to prune because “you’re supposed to prune in winter” or some such reason. Winter is a good time for (Continued on page 2)
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certain purposes. Spring is good too. So is summer. But plants have existed much longer than humans have been pruning. And while we can improve on plant health by pruning we also prune for some human purposes such as developing a pleasing shape; improving the quality or quantity of flowers or fruits; or to stimulate or restrict growth.

**Pruning for plant health** begins with training a healthy plant in its early years. We train the plant by selecting branches to keep and removing others. We select to keep branches that are well spaced and that optimize exposure to sunlight. The plant, like a lot of young folks, is botanically programmed to grow to maturity and reproduce. Humans tend to want more from the plant. We want it to be free of leaf spots and cankers. We want it to last years into its maturity. Air movement and light exposure tend to optimize plant health and minimize opportunities for plant disease pathogens. Pruning at this stage is part of Integrated Pest Management (IPM) or Plant Health Management and is far more effective than any remedial treatment after diseases are present. So this type of pruning is part of an organic management strategy also.

We train a plant in concert with its general growth habit. If the tree develops a central leader, we encourage it by subordinating competing stems. Scaffold branches are selected for wide angles and strong attachment to the trunk. If the shrub has vigorous shoots, we may tip prune them to develop fullness. Rather than asking the plant to grow a long shoot for us to cut off, we attempt to pinch and tip prune to direct growth early on.

And at any time in the plant’s life we remove the 3 Ds: anything that is dead, diseased, or damaged. Dead stems will never be alive again; we might as well remove them. Otherwise as the dead wood decays, it may continue decaying into live tissue. Diseased plant parts may get worse, especially if the disease is something like a canker or fire blight that will result in the loss of the stem anyway. We have to use some discretion here. Not every leaf spot disease is serious enough to merit removal of all the leaves. And if the diseased or dying part of a stem happens to be the main leader, then we know that the plant may die within a few years. But we may get a few more years pleasure before bringing out the chainsaw. But much diseased plant material gets worse. By pruning we either remove it so that it doesn’t get worse or we establish a benchmark so that we can define whether it is getting worse. If everything was green after pruning two months ago and now we have brown leaves or stems, it got worse.

**Pruning for flowers and fruits:** Flower and fruit production is an energy use for plants. If they make a lot of flowers and fruits, then growth may be reduced resulting in less flowers or fruits in subsequent years. By pruning we may reduce the number of flowers or fruits this year, perhaps resulting in larger flowers or fruits, and likely allowing enough growth to produce more of the colorful bounty next year. We try to strike a balance.

When to prune for flowers or fruits varies according to the plant and its bloom time. Most plants that bloom in winter or spring develop flowers on wood that grew in the previous year. If we prune after that growth occurs, then we reduce the floral displays. In most cases those plants are best pruned in the spring after flowering. That sets up more new growth that will set buds later in the summer for the following year’s display.

With fruit trees we have to be aware that the spring flowers are not the end but the means to fruit production. Severe pruning after bloom will likely reduce fruit production. That may be a good thing. Most fruit trees will produce far more fruits than they can develop to a result suitable for humans. If you want lots of small fruits, keep all or most of them. If you prefer larger (but fewer) fruits, do some thinning. And remember that if the tree matures all the fruit it sets, the fruit may break some limbs. For many fruit trees one fruit every 4 to 6 inches along the branch is a full load. We may prune and/or thin these plants once risk of frost is over in late spring.

Plants that bloom in the summer produce flowers on new growth that occurred in the spring. If these plants need to be pruned (if), then pruning can be done in late winter to early spring, ideally as late as possible before breaking dormancy. Spring pruning stimulates lots of growth followed by lots of flowers. That doesn’t mean you should cut the tree to knee high to produce lots of new growth! Remember to work with the normal size and shape of the plant for its own good. Don’t try to make a 30 foot crape myrtle into a 10 foot plant.

**Pruning to control size:** As we suggested above, pruning tends to stimulate growth. For that reason it is often not a satisfactory solution to the plant that is bigger than the space allotted to it. There are lots of references that indicate how large a plant might get. If there is not sufficient space for that much growth, it is better to start early to shape and restrict the plant than to wait until it is “overgrown.”
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Once the plant has used the energy it stored in the fall and reinvested it in new growth in the spring, there is a moderate opportunity to retard growth. If the plant puts on a lot of new growth and we prune after that, then the plant loses that investment. Conversely, if we prune the plant before its spring growth flush, we reduce the number of growing points and insure that the plant will direct more energy into fewer stems that will be longer. Perhaps not what we wanted.

Pruning to restrict growth should be done with some caution. Prune too much and the plant may look bad and be very slow to recover. And if the plant is already large and overgrown, it may have lots of reserve energy. In that case we may find that it’s very difficult to retard some plants. In some cases it’s best to remove the plant and find one more suitable for the space.

Pruning can affect plant health, pest management, flower and fruit production, shape, and rate of growth. For each of these results timing and strategy can determine success. The winter months ahead can be a good time for pruning many things. But we prune to accomplish a purpose, not just because it’s the right time.

A few years ago I had a call asking about how to prune something. I followed by asking the reason for the pruning. Since my caller seemed confused by my question, I explained some of the basic reasons we prune. After that he concluded that he didn’t really need to prune at all and saved himself a lot of effort.

How Much Mulch Can a Gardener Mulch?

During the cool days of winter, re-supplying mulch to your beds offers many advantages. For one thing there is enough physical activity to help you warm up. Additionally, many plants are dormant making it easier to get into the beds and around things. You can do a better job. Mulch will help to moderate wide temperature fluctuations in the soil. Most of our plants can tolerate the coldest cold we get. But in our climate, January days in the 70s may cause the soil (and roots) to warm enough to stimulate premature plant growth. A layer of mulch will reduce incidence of plants breaking dormancy early. Most of us know that mulch also helps to reduce moisture loss from the soil and that it can help with weed management.

Mulch can also have disadvantages. In moderating the soil temperature, it may delay the growth of plants later in the spring. That’s not always a bad thing since we may get a hard freeze even into late April. Mulch can also disguise the tunneling of voles who may feed on plant roots or bark. For voles tunneling between mulch and soil is much easier and allows them to remain hidden.

Many discussions of mulch get around to what is the “best mulch.” There is probably no such thing. I have long suggested that important criteria for mulch selection include being readily available and being cheap. After that we can get around to the debate about which looks better or which stays in place better or how easy it is to apply or which decomposes quicker.

Many people see the decomposition or breaking down of mulch as a disadvantage. We have to do it all over again. I generally see mulch decomposition as an advantage. Where mulch is decomposing, then you can be assured that living soil organisms are active. And these organisms are feeding on the mulch. Some of the mulch returns to the soil in excretions of these organisms. All of it returns to the soil when the organism dies. But all the time they are living, these organisms are turning mulch into compost that improves the soil’s structure and its ability to retain nutrients. If you have had any complaints about how hard the digging is, you should not be complaining about mulch breaking down. The soil improvement also makes root growth more likely. One more advantage to mulch breaking down is how good it looks when you replenish it.

Last year we reviewed the advantages and disadvantages of many kinds of mulch. (Spring 2007, http://chatham.ces.ncsu.edu/files/library/19/GTPSpring2007web.pdf) So we don’t need to do that again. (You can get a reprint of that issue on request.) But there are a couple of issues with mulch that we might emphasize.

Readily available and cheap: The criterion mentioned above comes about this time of year for most of us in the form of leaves and pine needles. If you have either of these, they make great mulch. In fact people buy and sell pine needles. Long leaf needles are generally regarded as higher quality, and we don’t have those in any quantity in Chatham. But loblolly needles work just fine. If you’re raking them up, use them for mulch. And with pine needles we can usually apply them more heavily (deeper) than with other mulches.

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How Much Mulch Can a Gardener Mulch?

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Leaves will break down rather quickly and help to build your soil. Many people find them unattractive as a mulch. If that includes you, then consider applying leaves 1-2 inches deep and then covering them with something more attractive. That strategy also reduces leaves blowing around all winter. Mulching with leaves is more environmentally acceptable than burning them. They improve the soil. In fact, if you don’t want to use them as mulch, they are an excellent source of compost. Use some wire fencing to enclose them and fill it up. Wait till next year, and you’ll have an excellent soil amendment!

Depth: Mulch applications should not exceed 3-4 inches deep. (Pine needles can go 4-6 inches as they allow better aeration.) And the mulch should be applied over the roots, not over the trunks of trees! Trees already have bark; we do not need to pile more bark around them. The crown or root flare of trees and shrubs should remain exposed. Regardless of what you see done along roadsides, those trees are not benefiting from having the trunk mulched. The bark of trees should be exposed to air.

Retaining moisture around the base of the trunk is not good for the tree. The value of mulch is in retaining moisture in the soil, around the roots. Used well it can benefit the plant. Do not imitate poor practices.

Another reason to reduce the depth of mulch close to stems is to facilitate observation of vole problems. Voles are small rodents that may feed on the bark or shallow roots of plants. They like to tunnel beneath mulch. By thinning the mulch close to the stems, you make it easier to see if they come to the surface. And think about it: if you’re trying to keep moisture available for the roots, put the mulch out over the roots, not around the trunk.

Weeds: While mulch may help to suppress weeds, mulch can also be a source of weeds. Think about where your mulch comes from. You might even want to pay a visit to where it comes from. Because if there are weeds growing near the source of your mulch, there is a good chance that there are seeds of those weeds in the mulch. If those weeds are no different from the weeds you already have, that’s not much of a problem. You can use the same strategies to control them. But you may want to avoid introducing new weeds. Often they can be the greatest challenges to weed management.

Mulch has a lot of advantages. We just need to use it in advantageous ways to avoid creating problems.

Fall is for Planting

Although many people miss this excellent opportunity to get new plantings into the ground, fall is actually the optimal time for planting most trees and shrubs. You can start with the human advantages: it’s cooler outside now and much more pleasant for working outdoors than it was in the summer. As you warm up this time of year, you can take off outer layers of clothing without risking having your neighbors thoroughly disgusted.

But there are also advantages for the plants in what my colleague Gary Pierce (Extension Agent, Harnett County) calls the “2 for 1 deal.” Gary explains that by this time of year plants are experiencing shorter days (less sunlight) and cooler temperatures, both of which stimulate increased root growth and decreased shoot growth. This combination is exactly what we need for a new planting. If we have done a reasonable job of preparing the soil and get the plant settled in not too deeply, then the next thing we want is for roots to grow out into the surrounding soil. These roots will be able to forage for water and nutrients to support the plant’s life processes.

Gradually as winter closes in, the soil continues cooling and root growth will also slow or stop completely. But with spring’s arrival, the ground begins to warm again. Since days are still short, root growth begins before new shoot growth. So as Gary points out, you get two seasons of root growth before any new shoot growth – the “2 for 1 deal”!

Why is that a good thing? You can’t even see the roots. The shoots are what we can see and appreciate. We watch for new leaves to emerge in the spring, knowing that they are the energy converters. But they are also the water users. In fact leaves are very well adapted to transferring water into the atmosphere. It’s one of the ways they cool themselves and prevent internal combustion on hot summer days.

Roots on the other hand are the water harvesters. They actually absorb water into the plant. Leaves are the spendthrifts with water; roots do the hard work of providing water to keep the plant turgid and the leaves satisfied.

So imagine a plant that is put in the ground about the end of April.

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You’ve been cooped up inside all winter and it feels like a great time for you to do some gardening. The soil is warming and days are getting longer. The leaves emerge and begin to grow and use water. Because they are growing (more stems, more foliage), they will need more water than they did last year. But things are changing for the roots also. As the soil warms, root growth slows or stops completely. So while you have all the leaves using water, and more leaves all the time, the plant has about the same amount of roots it had last year. By growing more leaves we have increased the water demand, but we haven’t increased the supply. This is beginning to sound like a government plot to “save” water. On a practical basis, spring planting pretty much guarantees that you will need to pay more attention to the plant’s water needs during its first summer to ensure survival. More time, more water, more risk.

If you’re going to plant trees or shrubs, fall is a much better time than spring – 2 for 1 better. If you don’t get around to it this fall, then do it during the winter. At least then you get 1 for 1 – that is one season of root growth. If you wait until the leaves are growing, you’ll do better to delay your planting until the next fall.

Chatham County Center of North Carolina Cooperative Extension will again offer its Complete Gardener Series of classes in 2009 beginning on January 21.

What: This popular series includes 13 classes beginning with Botany for Gardeners; The Soils We Dig; and Soils, Fertilizer, and Water Quality. This introduction will be followed by classes on Vegetables; Fruits; Trees & Shrubs; Lawns & Ground Covers; and Flowers & Herbs. Then we’ll move into the pest issues with classes on Insects, Plant Diseases, and Weeds. The series will end with a session on Organic Gardening.

Classes will be taught by Extension Agent Al Cooke and are tailored to beginning to intermediate gardeners and those who are new to the Chatham County area.

When: Classes will be conducted on Wednesdays from January 21 through May 6. This year you may choose either an afternoon session from 2:30 to 5:00 p.m. or the traditional evening session from 6:00 to 8:30 p.m. Classes will not meet on the 2nd Wednesday of each month.

Where: Classes will be held in the Auditorium, lower level of the Agriculture Building, 45 South Street, Pittsboro, NC. Local maps are available on the county website at http://www.chathamnc.org/Index.aspx?page=796

How: Pre-registration is required. Total cost of all classes is $20 per individual or $30 for couples sharing a single notebook. Cost will cover materials and light refreshments.

I get frequent requests for lists of plants. Screening plants. Drought tolerant plants. Native plants. I often feel compelled to remind people that just because a plant is on a list doesn’t guarantee that it will thrive in your garden. The list doesn’t absolve us of the responsibility to be good gardeners. There are many drought tolerant plants, for instance that don’t do well when they get more than 40 inches of rain per year, especially if they get a fourth of that rain within a two-week period as we did earlier this year.

Following is a list of plants that I personally find interesting or attractive. Perhaps you will also. Some of them may not be easy to grow. One of my professors used to suggest, “if you’re not killing plants, you’re not stretching yourself as a gardener.” On the other hand, some of these are naturals. If you would like to get an idea of what they look like, you can visit NC State Plant Fact Sheets at http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/ or try Google Images at http://images.google.com/
Ten Underused Trees

that might do quite well for you

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that they are also not easy to find. Supply is approximately equal to demand. Nurseries and landscapers may hate me for publishing a list like this. But they will appreciate knowing what strikes your interest. And some who read this may let me know what they have on hand. They can provide most of them within a few years but will only do it if demand is there. Meanwhile, if you keep looking you may find rewards either in these plants or something else.

Bald cypress, Taxodium distichum:
Just because this plant grows in swamps doesn’t mean it requires a lot of water. It just happens to tolerate a lot of water or, more accurately, poor aeration. It also tolerates drought and compacted soils pretty well. And that combination makes it a good choice for many of us. Narrow pyramidal form reaching 50 to 100 feet. Really nice red-orange fall color and exfoliating bark. And the fine textured needles mean you rarely need to consider clean up when they drop. An eastern North Carolina native that tolerates full sun or light shade.

Cornelian cherry dogwood, Cornus mas:
Abundant small yellow flowers create quite a show, usually in February well ahead of the Forsythia bloom period. Excellent display in front of an evergreen background. The small deciduous tree may reach 20 feet high and almost as wide. Will take full sun and benefits from some afternoon shade in the south. Seldom has pest problems.

Smoketree, Cotinus coggygria:
Want a 10 to 15 foot tree with red foliage displays all summer and that can take full sun and poor soil with no complaints? Want to add smoky pink, dandelion-like flower clusters with a 5-inch diameter in early to mid summer? If you want red foliage, this one is far more dependable in our heat than the popular Japanese maples and with fewer problems. Specify one of the ‘red’ or ‘purple’ cultivars.

Silky camellia, Stewartia malocodendron:
This one is only for true gardeners who are willing to find the right place for this plant and provide even moisture but good drainage, light shade with perhaps a little early morning sun. It’s native to eastern N.C. but also found in a few mountain areas. Native habitat tends to be well drained soil near stream banks – ample moisture but good drainage. For your effort you could get a 10-15 foot deciduous shrub or small tree that may reward you with white flowers reflexed with purple and blue stamens in midsummer. If you’re successful with this one, pat yourself on the back and try S. ovata or S. pseudocamellia.

Ginkgo, maidenhair tree, Ginkgo biloba:
The fact that this is one of the oldest living species on our planet makes this plant noteworthy. It’s actually a conifer but with broad fan-shaped leaves rather than needles, quite an oddity but a survivor from ancient times. Reaches 50 to 70 feet and may resemble an awkward, gangly teen in its youth; I’ve actually seen it espaliered effectively on the side of a building. But the brilliant yellow fall foliage makes it worthwhile. Most people regard the fruits as “messy” and “malodorous.” For this reason you may prefer to select a named male cultivar that will not produce fruit.

Sparkleberry, farkleberry, Vaccinium arboreum
Native to North Carolina and to Chatham County, this small deciduous tree may reach 15-20 feet and produces edible fruit. (The genus includes blueberry and cranberry.) Generally found in dry rocky soil, it can be a spreading shrub; or it may develop an interesting reddish, crooked trunk with exfoliating bark. Best in partial shade. If you don’t care for the somewhat dry, gritty fruits, the birds will. It’s also a good nectar source for butterflies. Great red foliage in autumn.

Linden, basswood, Tilia americana, T. cordata, T. tomentosa
The American linden is probably the best suited of this group to southern climates. But at 60 – 100 feet high and 50 – 60 feet wide, it is really large for modern property sizes. All three of these are good street trees and good shade trees casting dense shade. The two European species are somewhat smaller in the 60-70 foot range. All of them have a silvery appearance to the underside of the leaf that shows effectively when ruffled by the wind. Flowers are noted for their unusual 3″ x ½” bracts. They all have good resistance to drought, wind, and air pollution. They are good honey plants for beekeepers, and birds and squirrels will eat the seeds. If you really want a challenge, try to locate T. americana var. caroliniana.

Pawpaw, Asimina triloba
A small native tree with a native fruit that seems to have lost its place in contemporary culture. The tree has limited potential as a landscape

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Ten Underused Trees That Might Do Quite Well for You

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plant, but the fruit is high in vitamins, minerals, protein, unsaturated fat, and carbohydrates. Apparently the problem is in the flavor, often compared to banana, pear, or custard, but perhaps rather bland. But then so is banana, the most popular American fruit. Maroon flowers about 2” diameter in early spring followed by 3-5” yellow-green fruits ripening to dark brown. The small tree grows to about 20 – 25 feet and will probably attract swallowtail butterflies whose children will feed on the foliage.

Yellowwood, Cladrastis kentukea (C. lutea)
This 30-50 foot tree is native to the North Carolina mountains and points farther west and north. In late spring the flowers emerge in foot long panicles of individual white flowers comparable to a white wisteria. Can be inconsistent about blooming every year but the good years make it worth considering. Foliage matures to a dark green through summer and ages to yellow in fall. Attracts both birds and bees and is tolerant of dry conditions. Smooth gray bark remains attractive through the winter.

Fever tree, poinsettia tree, Pinckneya bracteata
Tiny yellow-green flowers with 2” pink poinsettia like sepals beginning in June and lasting for several weeks. A small tree at 10-15 feet, probably best used along a border or natural area. Requires ample moisture. Performs best in partial shade with a few hours of sun. Not a long lived plant.

The Fire Ant Problem
By the time you get this newsletter, it’s going to be late for successfully dealing with fire ants. Fire ants actively forage during weather that is not too hot, not too cold, but just right – typically not summer, not winter, but spring and fall. As the weather cools, they tend to move down into the nest and enjoy the warmth there. But there will likely be days when it’s warm enough that they venture out to see what else is available for stocking the larder for winter. These might be good times to apply fire ant baits, if you could have reasonable assurance that the ants would find it.

Here is a technique that you can try to determine if a mound is active (at least active today) and if the ants are actively foraging. On a warm afternoon drop a potato chip on the ground about one to two feet away from the mound. (I hear that a piece of hot dog works too.) Fire ant diet favors materials high in fats and oils. You can check the potato chip label, but don’t use the oven baked variety.

If the fire ant mound is active (not abandoned) and the ants are foraging, you should find them on the potato chip within an hour of placement. Sunny afternoons will be better in the fall when the mound has had time to warm up. If the ants are feeding on the potato chip, then it’s a good time to use a fire ant bait. If they won’t feed on a potato chip, you might as well find something else to do.

Fire ant baits are formulated by mixing a very small amount of insecticide with an oily material (typically soy oil). You should apply this material much as you did the potato chip; drop it on the ground a foot or two away from the mound. Occasionally fire ants will find this material if placed on top of the mound; but they’re much more likely to find it a short distance away. Things on top of the mound are more likely to be seen as a threat.

If you have confirmed that the fire ants are foraging and applied the bait, then the ants should start harvesting it and taking it back into the mound. It is important that you keep the bait fresh; store it in an airtight container. It’s also important to use it when the area around the mound is dry, when rainfall and irrigation are not expected, and when the humidity is lower. The bait will deteriorate if it gets moist, and it will spoil with age. You and I don’t eat old food that has spoiled or lost its flavor, and fire ants don’t either.

If the fire ants have taken the bait back into the mound, then they will start to distribute and store it. By implication the insecticide within the bait did not work quickly. If it were quick, then they would not get it back into the mound and we might have killed a dozen or a score of the thousands of ants in the mound.

Our objective in dealing with fire ants is to kill the queen. If the queen dies, then the mound dies. If the queen doesn’t die, it doesn’t matter how many more ants die; she just keeps laying eggs and raising more workers. So the bait must work slowly to allow time for it to be redistributed within the mound and eventually for the queen to get a taste. If that happens, your work here is done and you can ride off into the sunset. (Continued on page 8)
The Fire Ant Problem

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There are many bait products available (some organic) and they all contain very low amounts of insecticide – less than 1% for all bait products. Statistically they are much safer for your kids and pets than riding in the car.

Some concluding thoughts:
• A fire ant mound is seldom an emergency. To avoid stings, all you have to do is stay away from the mound. If the mound has been disturbed, there is no point in treating it now. The ants are skittish and prone to unpredictable behavior when disturbed. Wait till things settle down. Tomorrow you can try the potato chip to see if they are even still there.
• We will not eradicate fire ants. I figure people in Chatham County are just as smart as the 1,000’s of people in states further south who have learned to tolerate and deal with these critters who have been introduced into our world. We may not like them, but we’ll learn to accept them. We don’t have a strategy that will eliminate them.
• Choose the mounds you want to deal with. Approach them with a plan. Use their foraging habits to get an insecticide bait into the mound. Have some patience; control will not be quick. And be persistent; evaluate results and treat again if necessary.