What’s Wrong with Our Water?

There is a popular concern that I hear fairly often, and it revolves around people spraying pesticides and those pesticides getting into our water. Those are legitimate concerns. Whether there is a real threat to water from pesticides depends on the specific pesticide in question, the soil where that pesticide is applied, the climatic conditions around that application, practices used by the applicator, and probably many other factors.

Intensive studies have been undertaken to evaluate local water quality, specifically in Jordan Lake and in Robeson Creek. Robeson Creek rises above Pittsboro, runs through town, and empties into the Haw River. Jordan Lake is a water source for a growing number of Chatham County residents. The Haw River is a water source for the Town of Pittsboro and the Rocky River for Siler City.

The surface waters already mentioned – Jordan Lake and Robeson Creek – are considered impaired, the term used by EPA when a body of water does not meet quality standards for its designated uses. Both of these waters are designated for recreational uses. Jordan Lake is also designated for use as a water supply. And it is actually the water source for many communities surrounding the lake, both in Chatham County and beyond. As a water source for many of our communities, Jordan Lake is substandard.

So why or how are these waters impaired? And is it because of “all those pesticides” being used? No, it has nothing to do with pesticides and everything to do with a couple of things that gardeners refer to as fertilizer or nutrients, specifically nitrogen and phosphorous.

The term water quality experts use to describe what is happening in Jordan Lake is eutrophication. With an abundance of nutrients entering the lake, plant growth accelerates out of control (algal bloom) and reduces the survival of aquatic organisms such as fish and shellfish. The water may also become cloudy, off color, and unappealing. And if the water is to be used as a source of drinking water, then the cost of bringing it up to acceptable standards increases. Consequently, the cost of water to consumers and taxpayers goes up.

This seems a fairly straightforward problem. If the water is impaired, and if we can pinpoint the causes of that impairment, then we can intercept the input of those materials into the water and eliminate the problem. And thereby lies a tale, because when we meet the enemy, we find that he is us.

Since it was first impounded in 1983, Jordan Lake has shown excess inputs of nutrients, a problem that was predicted when the reservoir was first proposed in
What’s Wrong with Our Water?

(Continued from page 1)

1945. The sources of these nutrient inputs include natural sources such as atmospheric deposition or forests; construction activities especially those involving clearing of land for highways, homes, offices, shopping areas, and parking lots; sewage releases from marinas and recreational boating; residential septic systems; urban waste treatment plants; development of previously forested areas for urban uses; established urban areas (even those in small towns); and agricultural activities.

It quickly becomes clear that if humans were removed from the equation, then many nutrient source problems would disappear. But humans are part of the problem. And being human, most of us tend to point the finger at someone else rather than accept that we are part of the problem. When North Carolina’s Division of Water Quality proposed strategies for reducing nutrient input into Jordan Lake nearly every interest group you can imagine showed up at public hearings to plead their cause and explain why they were a minimal part of the problem and how expensive it would be for them to change their procedures.

I think we can legitimately point a finger at almost anyone we meet within the area where water drains to the Lake. We are all part of the problem. While not absolving any of us from responsibility, I do want to concentrate on what gardeners can do to contribute to improving water quality. After all, most of the readers of this newsletter are gardeners or at least participate in some gardening or grounds managing activities.

So let’s start with a quick look at recent history. If you can look back 100 years, what activities were occurring then on the property that you now use for gardens or landscapes? Chances are good that the property was wooded and perhaps even un-managed. It was probably clear-cut about a hundred years ago and has been growing back since then. If it reverted to forest land, it probably received no inputs other than an occasional thinning or harvest and replanting. If it was put into agricultural production, it probably had a single manager who controlled fertility with a limited budget.

But eventually land changes owners. That often means dividing into smaller tracts and an increased number of managers. It often means more homes and driveways. It may mean more roadways. And every time we add another home, another driveway or walk, another road, we increase the amount of impervious surface into which water does not flow. And we decrease the amount of land capable of accepting water infiltration into the soil. Water runs off. So we naturally increase the amount of water runoff (increased flood risk?) simply by increasing the number of houses.

As we get more runoff the momentum of that increased water volume increases and the capacity for soil erosion increases. Hold that thought, because soil erosion is a significant part of nutrient transport to Jordan Lake. But let’s consider the nutrient inputs for a moment.

When the land had a single manager, that person’s inputs were limited by his or her ability to extract from the land materials that could be used for survival or profit. Typically that was a few animals for butchering and plants to lay-by for hard times. Perhaps some of those were sold for profit or for purchasing fertilizer. But the point is that in the past this person was usually an experienced hand with fertilizer (whatever the type) having grown up working on that land. There was little capacity for waste. Today that farmer must comply with complex regulations regarding application of certain fertilizer sources.

Now subdivide that farm or forest and put it under the stewardship of 50 people most of whom have no extensive experience or training with managing fertilizer and who are not encumbered by regulations. Remember I am not setting out to lay blame – I’ve already suggested that all of us are to blame. I’m simply addressing the audience that I have. And many of us do not know how to determine fertilizer need, select a product to meet that need, measure an appropriate amount, and apply it at a time when plants can use it.

If you answered the phone at my office, you would perceive that people have different levels of understanding of what fertilizer is and how it works. Let me briefly summarize that fertilizer is neither food nor medicine for plants. It is not a tool for treating insect or disease problems. Fertilizer is simply raw material that plants need to do their job. For plants to be able to absorb fertilizer, it needs to be dissolved in water. You see the connection. If plants don’t use the fertilizer applied, any excess goes wherever excess water runoff goes.

Nitrogen is especially soluble in water and goes with water whether it runs off to surface water or moves down through the soil to ground water. Phosphorous does not dissolve readily in water and is typically found attached to soil particles. This is where I want to resurrect that thought on erosion from about four paragraphs back. In our region the soil to which phosphorous attaches tends to have a reddish tint. Next time we get a good rain, look at your favorite stream and notice how closely its color resembles that of our soils. If there is phosphorous attached to that soil, that phosphorous is on its way to the nearest stream.

Nitrogen and phosphorous are T-H-E two biggest contributors to diminished water quality in North Carolina. And all of us are part of the problem. For gardeners another article in this issue of Green Thumb Prints deals with fertilizer management. It should be of interest to anyone who gardens and who uses water.
How to Fertilize

In another article in this issue of *Green Thumb Prints* we suggested that fertilizer is neither food nor medicine for plants. It is not a tool for treating insect or disease problems. Fertilizer is simply raw material that plants need to do their job.

Actually there are at least 17 chemical elements that are known to be essential to plant life. Most of them (such as chlorine) are needed in such microscopic quantities that we would never need to apply them. In natural systems, before the days of agriculture and gardeners, all nutrients were available in finite quantities and were recycled as plants or plant parts died. As a plant grew and used nutrients, typically one nutrient within range of the plant’s roots might be used up or nearly so. The lack of that nutrient would limit the plant’s capacity for further growth.

The age of agriculture changed the natural dynamic in cultivation. Primitive people found that use of manures and other strategies could improve the growth response of plants. Over centuries and millennia, humans developed sufficient knowledge to identify specific nutrients, anticipate plant needs, and to apply nutrients in a scientific manner to achieve realistic yields for their crops. The principles of this idea of crop management are fairly simple: determine which nutrients are missing or available in low quantities and supplement them at times that the plants can use them in amounts that will benefit plants but not so much as to cause problems.

In addition to that approach is the question of the ability of the soil to store or hold nutrients and the expectations of the grower. The soil is a complex environment where certain plant nutrients can be held to move in and out of solution in soilborne water. A soil analysis helps us understand which nutrients are present or absent and the likelihood that the soil can store them or make them available for plant use. If the grower expects rapid growth or productivity, then the grower may manipulate what is available.

A soil analysis will tell us if our plants might benefit from supplemental applications of fertilizer. In most cases we can tell from our analysis how much fertilizer will be useful for an area of a given size. Then we can purchase and measure out that amount (usually by weight) and distribute it over the soil surface. Usually we can wait for rainfall or irrigation to dissolve the fertilizer and move it into the soil. Once the fertilizer is in the soil, chemistry happens. The nutrient may bind to soil particles and move in and out of solution in the soil water.

**Phosphorous is an exception** to using water to move it into the soil. Phosphorous doesn’t dissolve well in water. But it will bind to soil particles. To get phosphorous into the root zone where plants can benefit from it, we need to till it in. That’s why it’s so valuable to have that analysis before we plant permanent crops like trees or lawns. Another reason why it’s important to till the phosphorous in is water quality. (See “What’s Wrong with Our Water?” elsewhere in this issue.) If we leave on the soil surface enough phosphorous to benefit plant roots several inches down, and if we get a heavy rainfall, then we don’t just lose the benefit of that phosphorous. We also contribute to diminished water quality when the water gets to a nearby stream. We need to till phosphorous into the soil in order to benefit both plants and surface water quality. And the real kicker is that many of our soils already have an adequate supply of phosphorous, and the application was not even necessary.

**Nitrogen also is an exception** in that it exists in multiple forms. Some of them are available for plant use, but some are not. Approximately 70% of our atmosphere consists of nitrogen, but most plants can’t extract it. A few plants extract nitrogen and make deposits in the soil. Animals leave wastes or die, and nitrogen in their bodies is deposited in the form of proteins. Bacteria in the soil transform these nitrogen sources into nitrates and ammonium. Plants may use these nitrogen forms and recycle them. Or other organisms in the soil continue the transformation, and the nitrogen may make its way back to the atmosphere. Or it may get dissolved in water and be taken away from the site.

Both nitrogen and phosphorous are much more complex than that simple paragraphs above can encompass. But the point is that if we expect plants to do more than survive, if we want them to thrive or produce, then we may benefit by supplementing those nutrients or others at times when plants can use them and in a manner to get them close to the roots of the soil. It’s a bit more complex than simply throwing it on the ground and hoping for the best.

**There is one more monkey wrench** to throw into this complicated mix. The presence of a nutrient in the soil is not equal to that nutrient being available to the plant. You may have heard of a thing called pH that is used to measure the acidity or alkalinity of soil (and other things). If the soil is very acid or even slightly alkaline, then nutrients may not readily dissolve in water and will not be available for plant use. If the pH is not in an appropriate range, fertilizer is of little benefit to plants. That’s another value of having a soil analysis to determine if lime will be needed to change the pH. Lime also needs to be tilled in prior to planting.

Once you’ve got the pH right, and added other nutrients as recommended by a soil analysis, there are only two things left to do. One is to have another analysis done in a year to see how you’re doing, then about every 3-4 years after that. The other is to supplement that complex nitrogen on a schedule consistent with plant needs.

(Continued on page 4)
How to Fertilize

When and how much to add varies with the plant. Plant roots are most ready to absorb fertilizer nutrients when those roots are actively growing. Sometimes root growth and top growth do not occur at the same time. So following is a simple guideline for when to fertilize specific types of plants.

Herbaceous plants –
- Flowering bedding plants such as impatiens, begonias, pansies, etc. (annuals) are high feeders and can be kept growing and flowering with regular nitrogen applications during the growing season. You can evaluate need to some extent by watching leaf color – dark green = doing fine. Pale green may need more. Broadcast a granular fertilizer about every 4 to 8 weeks or apply a liquid feed about a month after planting. After that, fertilize twice per year, after harvest and again in August. Keep fertilizer in spring to coincide with bud break. Repeat every 6 weeks until August. Keep applications 18 inches away from stems. Repeat every 6 weeks until August. Keep applications 18 inches away from stems. Reduce frequency for mature plants based on annual growth.
- Vegetable plants will need nitrogen to get early growth started; many will need a side-dressing again in about 4 to 6 weeks. In most cases after that you can stop fertilizing especially for plants that produce fruits or seeds.
- Perennial flowers seldom need a regular fertilizer program in our area. They may benefit from a light application at planting to get them off to a good start. But annual fertilizing tends to make the plants tall and leggy as well as more susceptible to disease.
- Strawberries should be fertilized about a month after planting. After that, fertilize twice per year, after harvest and again in August.
- Blackberry fertilizing should coincide with new growth in the spring. Repeat after harvest. Keep fertilizer well away from stems.
- Figs get fertilizer once per year in spring to coincide with bud break. Increase or decrease amounts based on annual growth.
- Lawns should be fertilized to coincide with growing season. Fertilizer applications for lawns should be based on the expectations of the gardener and the predictable response of the lawn grass. Fescue applications should occur in September, November, and February. Bermuda in May, June, and early September. Centipede very lightly in late May to June. Zoysia in May and July. Do not make spring applications to warm season grasses until after green-up is complete. Fescue fertilized in spring or summer is more susceptible to diseases.

Woody plants –
- Fruit trees should be evaluated annually for growth. Start with about ¾ to 1 pound of nitrogen for every year of the tree’s age and adjust according to growth. If new growth last year was less than about 10 inches, a little heavier application may be useful. If new growth last year was more than about 18 inches, you can probably cut back a little. Apply in late winter.
- Blueberry fertilizer should be measured by the spoonful. Make the first application in spring after leaves are fully emerged. Repeat every 4 to 6 weeks until August. Keep applications 18 inches away from stems. Reduce frequency for mature plants based on annual growth.
- Grapes can be fertilized about March and June of each year. Adjust amount for vine vigor at about 3 to 4 feet of new growth per year.
- Ornamental trees and shrubs can be fertilized in late fall to encourage rapid growth. Once established (when rapid growth is no longer needed) very little fertilizer should be applied. Monitor annual growth and fertilize in late fall once every 3 to 4 years if needed. Ornamentals near regularly fertilized lawns may get all they need from the lawn applications.

You may notice that there are an abundance of generalities here and a number of estimations such as every 4 to 8 weeks! We’re not trying to be intentionally vague. There are just a lot of variables among soils and plants, and no formula can be used exclusive of thought by the gardener. There is no absolute that allows you to use fertilizer without thinking. There are, however, more specific guidelines available online to help you in deciding how and when to fertilize specific types of plants at http://www.ces.ncsu.edu/chatham/ag/homehort/homehort.html.

A good rule of thumb is to apply nitrogen, at a time consistent with plant need, at a rate of one pound of actual nitrogen per 1,000 square feet of soil (or one tenth pound per 100). To determine the amount of fertilizer to deliver a pound of actual nitrogen look at the numbers on the bag (such as 10-10-10, 34-0-0, or 15-0-14). Divide the first number (the percent of nitrogen) into 100. The result is the number of pounds of that product required to deliver a pound of nitrogen. For instance, 34 goes into 100 2.94 times. 2.94 pounds of a 34-o-o fertilizer will deliver 1 pound of actual nitrogen. To check your arithmetic, use your calculator to figure 34% of 2.94 pounds. We usually round that off to 3 pounds.

Other than nitrogen, we usually do not need to apply any of the other nutrients without a soil analysis. Excess can create problems for plants as well as for water quality.

What kind of fertilizer? Let’s simplify it to synthetic and organic. Synthetic (manmade) fertilizers may be granules to be broadcast on the soil surface or a liquid to be poured over a plant’s root zone. They are generally water soluble and readily available for plant use. When you determine that a plant needs fertilizer right now, these products can be applied right now and you can observe results, often within days. Because they are water soluble, a small amount of irrigation or rainfall after application is useful to move the fertilizer into the root zone. It is not good to make these applications before heavy rainfall that may result in
How to Fertilize

(Continued from page 4)

runoff to surface waters.

Synthetics also come in slow release or controlled release products. These products tend to be more expensive because of the sophisticated coating on the fertilizer. These coatings allow water to diffuse through the coating to the fertilizer, dissolve the fertilizer, then slowly diffuse back out. There are different mechanisms that control the release. But regardless of the time indicated in the large print on the package, they are all affected by temperature. The fine print usually suggests a time of release at 70°F. The hotter it gets the more rapid the release. On the soil surface in full sun in the summer time, a month may be optimistic for many of these products. These products though more expensive, are generally considered more environmentally safe because of the slow release mechanism.

Organic fertilizers are the ultimate in controlled release products. They are the original fertilizers. Most organic products are very low in percentage of nutrients, and there is little risk of plant injury. Use of organic fertilizers requires more anticipation and expertise by the gardener. They must be applied in advance of need. The rate of release is somewhat predictable but difficult to estimate. Breakdown and release is affected by temperature and moisture. In cold weather there may be very little activity. A significant advantage to organic fertilizers is that they encourage biological activity in the soil and the improvement of soil quality.

Whatever kind of fertilizer you use, there are advantages and disadvantages. Use too much or at the wrong time and you may damage plants as well as contribute to poor water quality regardless of whether it’s organic or synthetic. Once the fertilizer is absorbed by plants, they can’t tell the difference. You can get good growth from either type. Like-wise, whichever kind it is, if it gets washed into surface waters, then algal blooms are encouraged. And with that comes a threat to aquatic life and water quality.

Use of fertilizer is a two-edged sword. Plants need it. But we need to keep it where desirable plants can use it and keep it out of our streams and ponds, lakes and rivers. Good gardeners are good stewards.

Starting Plants from Seed

One of the gardener’s biggest frustrations can be turned into one of the greatest satisfactions. When you’re ready to set out tomatoes or broccoli or purple coneflowers and can’t find the variety, acceptable quality, or just available plants, it can be frustrating. Yet when you actually grow those plants from seed and have them ready to put in the garden when the soil, the season, and the plants are all ready at once, it can be very satisfying.

And growing plants from seed is not difficult. Humans just like you have been doing it for thousands of years. But now we’re talking about starting plants indoors for later transplanting into the garden. Rather than putting seed directly in the soil, we’ll be planting seed in a soilless medium, in a container, and later transplanting it. It’s not hard but does take a little planning and some materials.

The planning part requires you to estimate when the plants should be set outside. Then you need to estimate how long it will take to grow the plant from seed to transplant size. Then count back to arrive at an approximate indoor planting time. For approximate outdoor planting times for a number of vegetable varieties see the Vegetable Gardening Quick Reference Guide at http://www.ces.ncsu.edu/depts/hort/hil/pdf/hil-8103.pdf. Most annual and perennial flowers should be transplanted after risk of frost is past. To get an estimate of how long in advance you should plant the seed see Starting Plants from Seeds at http://www.ces.ncsu.edu/depts/hort/hil/hil-8703.html.

You’ll need containers. You may have some old cell packs or 4-inch pots that you can reuse. Or you can use yogurt cups or the bottom of a milk carton. And you can plant many seeds in flats or trays. You’ll have to transplant them out after they start to grow. Just be sure the bottoms of your containers have holes adequate to ensure good drainage. Be sure they are clean and sterilized. Wash to remove debris and sterilize for five minutes in a solution of 1 part chlorine bleach to 9 parts water. (Wear gloves and goggles.) Disease pathogens do survive on these things.

You’ll need soil, or more accurately you’ll need a soilless medium. Do not bring in soil from the garden. It’s too heavy and poorly drained in a container. The medium that works best for you may require some experimentation. But most potting soils can be made to work. They typically include some mix of peat, pine bark, vermiculite, sand, and/or perlite; so you could make your own. It should have a fine, uniform consistency and be loose, well aerated, and well drained.

You’ll need good quality seed. As seed ages, germination percentage declines. If you are storing seed from season to season, cool and dry are optimum. Keep them in airtight containers in the refrigerator or freezer. If you save seed from your own plants, remember that seeds from hybrids may not come true to type.

(Continued on page 6)
Starting Plants from Seed

(Continued from page 5)

OK, you’ve got containers, you’ve got media, you’ve got seed. Let’s get started! Fill your container with medium up to about ¾ inch below the top. Thoroughly moisten the media before planting, and allow it to drain. For very fine or small seeds, add about ¼ inch of finely screened medium on the top. Gently firm the surface with your hands or a block of wood to create a smooth surface.

Very small seeds can usually be left on the surface to be lightly covered with fine media. For seeds that need light to germinate a surface application will be best. For medium to large seeds, create shallow furrows for planting. Planting depth should be about 2 to 4 times the smallest diameter of the seed.

If you are direct seeding into pots or cell packs, use 2-3 seeds per cell to ensure a stand. Once they are up, select the strongest plants and use small scissors to eliminate competition. If you are seeding in trays or flats, plant the seeds in rows rather than scattering them. Sowing in rows improves light exposure and air movement and makes it easier to label and transplant seedlings later. Gently tap the seed packet to distribute seeds in the furrows, then cover. For extremely small seeds, broadcasting or dusting them on the surface may be the best approach.

Now you need to water them in. You can use a fine mist from a hand sprayer that works well for small seeds. Be careful not to splash or flood them out. With larger seeds place the container in a tray with about an inch of water. Allow it to sit until the surface is moist. Then set it aside to drain. The medium should be moist but not soggy.

Now you have the tricky period of keeping the surface moist. Once the seed absorbs water, it must remain moist. It has no roots yet. If the medium dries out, the seed dies. On the other hand, if the media is too wet, then conditions are set for damping off, a disease problem resulting in seedling death.

Cover the surface of containers with a plastic film, or place the entire container in a clear plastic bag to retain moisture. For most seeds a media temperature of 70°F will be just right. Avoid placing them in direct sunlight that may cause excessive heating. Keep an eye on the containers and remove the plastic when germination starts. Then you’ll have to start managing water so that there is enough for plant growth but not so much that you encourage growth of fungal diseases.

The young seedlings will do best in bright light. Low light can result in weak, spindly plants. Place them in a south facing window or use fluorescent lights hanging 6 inches above the plants. Plan to raise the lights as the plants grow. Optimal temperature for the seedlings will be upper 60s during the day and upper 50s at night.

If plants were seeded in flats or trays they will have to be transplanted into individual containers. Avoid the mistake of waiting too long. Very young small plants tolerate transplanting well, and it’s easier on you too. The ideal time is when the first true leaves appear. Gently hold the seedling by the leaves (not the stem), and use a tool such as a kitchen knife or pencil to push them up from beneath. If several plants come out together, gently pick out one at the time. Use the same tool to dibble a hole in the new container. Place the seedling root in the hole and gently firm the soil around it. Plant at the same depth it was growing previously. Water gently to settle them in.

For the next few days the transplants should be in a little less light. Move them out of direct light or raise the light fixture for a few days.

Continue to manage the moisture level. As the plants grow roots, you want them to forage into the growing medium. Allow the surface to dry but respond quickly if plants show any sign of wilt. As they grow they will use more water, and you may have to water more than once per day.

Commercial media have very low levels of fertility that will need to be supplemented for optimal plant growth. A dilute solution of liquid fertilizer is often your best choice. Mix it at ¼ to ½ recommended rate.

At least two weeks before you anticipate transplanting the plants into the garden, begin the transition from soft succulent growth to firmer harder growth that can tolerate the harsher outdoor environment. You’ll want to accumulate carbohydrates within the plants and thicken the cell walls by gradually decreasing temperature and humidity and by reducing water.

Move the plants into a protected outdoor area on warm days and gradually increase their time outdoors. Protect tender plants from wind and/or temperatures below 45°F. Growth should slow but not stop entirely. But, hey … you’re a gardener. You can do it!

And when you set those plants in the soil, you will continue doing what you know how to do.
Tree Topping Hurts

During winter, there’s a good chance that you will see some trees that are topped—hat-racked, tipped, rounded over, headed—there are a variety of terms. Sometimes people see this work being done and wonder if they should have their trees topped. You should not! Topping is the practice of cutting branches (usually all of them!) back to stubs. This practice is not consistent with professional tree management standards and is practiced only by those who have not kept up with professional standards. There are several reasons this practice is not good for the tree:

Shock/stress
Branches that have not been exposed to full summer sun are left without any protective shading. Bark and the vital cambium layer beneath may be subject to sunscald. Injury may lead to cankers, bark splitting, and stem dieback. The tree that was topped has lost 50 to 100% of its foliage or natural shoot buds. That means it will have to activate new buds beneath the bark by using stored reserves. If the tree does not have sufficient reserves, it will be seriously weakened. The stressed tree is more subject to disease and insect pressures. Plants in good health have their own natural resistance mechanisms that are less effective when the tree is using its resources to provide new growth. Severe pruning exposes heartwood and sapwood, and the tree may not be able to seal these wounds in its normal fashion. Some insects are attracted by chemical signals that the plant releases.

Rapid new growth
While many people view topping trees as a means of size reduction, the result is often a weaker tree of the same size. Typical response includes many new shoots (water sprouts) from points near the pruning cuts. These numerous shoots elongate so rapidly that they sometimes reach the original size of the tree prior to pruning.

Greater cost
These numerous shoots are poorly attached. As branches grow normally, they put on a new “ring” of growth every year. Where limbs are attached, the larger branch actually grows over the new limb. In time the limb is well anchored inside the branch from which it arose. New shoots form on the exterior of the branch and are not well attached. Because they grow rapidly, wind catching in the foliage can readily rip these new branches off leaving them littered on the ground. These weakened branches may also result in increased liability. Because these trees are prone to breakage the branches may be considered hazardous. Because topping is not considered a professional practice, damage may be considered the result of negligence. Because many people view the topped tree as less aesthetically pleasing there is often reduced property value as a result of topping. Increased sunlight below the canopy can result in loss of other plants not adapted to the new light levels.

Potential of death
All trees are destined to die of course. Some older trees are more or less tolerant of abusive pruning. A tree that already had problems may be on a steady decline merely hastened by the act of topping.

What can you do instead?
If you exercise the option to actually plant a tree, investigate its size potential before selection. Then make sure that you provide it sufficient space so that some future resident will not have to make hard decisions. If the tree must be reduced in size, consult a competent arborist who knows how to reduce the crown by making proper thinning cuts. These cuts remove a branch back to their point of origin where the lateral branch is large enough to serve as a terminal branch. In this case, there will be a natural point from which the tree begins to seal off the wounds. And sometimes the best option is to remove the tree and replace it with a smaller one. In selecting someone to work on trees there are a lot of issues to consider. The cheapest price may sometimes result in greater cost over the long term. For more information about how to select an arborist, see Selecting a Tree Care Company at http://www.ces.ncsu.edu/chatham/ag/homehort/GreenInd/treehire.html. Or contact the Chatham County Extension office for a copy.

Complete Gardener Series

If you are reading this before January 15, you may still be able to get into this series of 13 classes.

This popular series begins 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.

(Continued on page 8)
Complete Gardener Series

(Continued from page 7)

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 in Pittsboro on the 2nd Wednesday of each month.

Pre-registration is required. Call right now to see if there are any spaces left and request a registration form. 542.8202. Total cost of all classes is $20 per individual or $30 for couples sharing a single notebook. Cost will cover materials and light refreshments. Evening participants sometimes bring a sandwich and come straight from work. Contact the Extension Office at 542.8202 to see if there is any room left.