The Gardener's Journal

Reynolda Gardens of Wake Forest University

Fall 2011

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What a Difference a Year Makes

by **John Kiger**, *RGWFU assistant manager*

What a year for gardening! The 2011 gardening season was quite excellent this year. Generally when we plant our usual vegetables, such as tomatoes, squash, and green beans, there seem to be circumstances that cause the demise of the plants, which, in turn, requires us to replant them as the season progresses. Damage or destruction of plantings range anywhere from rabbits eating the beans to squash borers destroying the squash plants. Other crops in the garden, such as okra, watermelons, and peppers, seem to go unharmed by wildlife or environmental conditions.

Through my years of experience, I have found some ways to help control a few of our plants' natural enemies. I'll start with the wildlife aspect. In past years rabbits have been a huge problem, eating most leafy green vegetables and green beans as they emerge from the ground. A few years ago we came across a product called Liquid Fence. This product, a foul-smelling liquid, contains paprika, potassium sorbate, water, xanthan gum, sodium lauryl sulfate, garlic powder, thyme oil, cinnamon oil, and putrescent egg solids. Being a concentrate, one gallon will make nearly thirteen gallons, at a rate of eight to ten ounces per gallon. There is a ready-to-use mixture if

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Growing Stevia in the Herb Garden

by **Michelle Hawks** *RGWFU horticulturist*

When I was working in the herb garden one day last summer, I looked over at a pitiful, little, green, leafy plant and wondered what the big deal is about stevia. So I went over and pinched a leaf and tasted it. WOW! is all I can say. It's not the prettiest plant, but its flavor makes up for its appearance. The taste is beautiful.

The leaves of the stevia or sweetleaf plant, *Stevia rebaudiana* have been used to sweeten drinks and as a sugar substitute in Central and South America for centuries. It was described in the late nineteenth century by Dr. Moises Santiago Bertoni, a Swiss botanist, who had learned that the Guarani Indians used it to sweeten bitter teas, as a sweet treat, and in traditional medicines. Given samples of the plant, he reported that one small piece of the leaf will keep the mouth sweet for an hour. He named the plant in honor of Spanish botanist Petrus Jacobus Stevus, who first researched it, and Paraguayan chemist Ovidio Rebaudi, who published the first chemical analysis.

Stevia is a member of Asteraceae. For those of you who prefer plain English, this is the aster family. The marigold and dandelion are of the same family but don't taste so sweet. Stevia extract can be three hundred times sweeter than cane sugar, compared to

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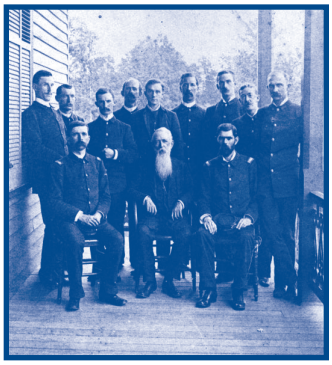
The Engineers of Reynolda, Part 4: John Ambler

by **Camilla Wilcox**, *RGWFU curator of education*

In the summer of 1909, Mrs. Reynolds was exploring the idea of integrating a golf course into a working farm, with the help of the P. J. Berckmans Company, of Augusta, Georgia. The firm's landscape architects had begun their association with Mrs. Reynolds by studying a site on a 104 acre farm she purchased in 1906. In a letter to her dated September 13, 1909, they noted that more land had been purchased since they had begun their study, and they suggested looking elsewhere on the property for a better location for the golf course and other recreational facilities and landscape views the owners desired. For the initial site, which is now the location of Graylyn Conference Center, they suggested maintaining and enhancing the existing farm. They recommended that the "...character should be kept strictly rural, the materials of construction local in character, and the buildings painted some neutral color, not white." The company completed surveys of the newly purchased property and determined the placement and general layout of the golf course, but there is no known further record of their association with the project.

Within a few months, the firm of Buckenham and Miller, with offices in New York and New Jersey, was engaged to help carve an estate out of the 609 acres now assembled. Mr. Miller hired local civil engineer John Ambler to assist with the placement and construction of a large lake and other infrastructure. In the first eight months of 1910, Mr. Ambler's firm completed topographical maps; gauged the flow of Silas Creek and its tributaries; examined several possible locations for the lake; and recommended road placement. In October of 1910, he drew "A Map Showing Golf-links, Roads, and Water-works," the most important document known for this area and for the design of the water system.



Professor John Ambler, third from right in the back row, with his colleagues at Davis Military School, c. 1890-1892. Photo courtesy Old Salem Museums and Gardens.

Thirty-nine year old John Ambler was eminently qualified for this work. At the time, he was the City Engineer and Superintendent of Water Works for Winston, a position he had held since early 1907. By then, he had—in this order—graduated with highest honors in mathematics from Hampden-Sydney College; attended the University of Virginia; taught at Pantops Academy, a school for boys near Charlottesville, Virginia; earned a master's degree at Hampden-Sydney; taught mathematics and engineering at Davis Military School*; attended Harvard University Summer Session; taught mathematics and astronomy at Roanoke College; and served as consulting engineer for Salem, Virginia. The first two of many papers he would present or publish for state and national engineering organizations appeared in 1907, one concerning waterworks in Salem, Virginia, and the other on waterworks for an iron mine in Ogden, Virginia. Even while he was employed by the City of Winston and later, when he was Winston's Consulting Engineer, he maintained a private business under his own name. The scope of work he and his employees could provide is listed on the invoice provided to Mrs. Reynolds: Civil and Hydraulic Engineer; Surveys, Plans and Estimates for Hydraulic Power Development, Public Water Supplies, Sewerage and Sewage Disposal, Steam Heating and Power Plants, Steam and Electric Railway Location, City Surveys of All Kinds.

A descendent of the prominent Ambler family of Virginia, Mr. Ambler and his wife, Anna, lived with their four children on

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Something for the Birds: Meadow Grasses

by **Preston Stockton**, *RGWFU manager*

Last summer I was walking around my garden in Pfafftown with hose in hand when I heard the call of a bird that I had not heard in years. It was a Bobwhite. I grew up hearing the distinctive call of the Northern Bobwhite, a chubby little bird that runs around the ground, often with its brood following right behind. According to the National Audubon Society, the population of this bird has declined a whopping eighty-two percent in the United States. No wonder I rarely hear them today.

North Carolina is losing farmland to urban development at an alarming rate, estimated at 100,000 acres per year. This loss of grassland habitat has not only hurt the Bobwhite but also the population of other birds, including the Grasshopper Sparrow, down sixty-five percent; the Loggerhead Shrike, seventy-one percent; and the Eastern Meadowlark, seventy-two percent. North Carolina now has the second lowest population of Meadowlark among southern states.

Grassland birds like this type habitat for many reasons. It provides seed and insects for food, as well as a quality area for nests that are built directly on the ground. The earthtone colors of the grasses also provide overhead cover for the adult birds. In addition, the grasslands serve as a resting area and food source for birds that migrate through North Carolina.

Experts from government agencies, universities, and private organizations evaluating the existing meadow grasses during a Roundtable on April 1. Scientific studies and soil preparation will be underway throughout 2012, with planting beginning spring 2013.

Big Bluestem, Indian Grass, Little Bluestem, and Switchgrass were the most important species that once dominated the tall-grass prairies of North America, forming waves of amber from the Rocky Mountains to the eastern forests. Only one to two percent of the original prairies survive today. These grasses are very adaptable and create a very thick sod with deep roots. This makes them useful in drought prone areas and for erosion control. The dust bowl in the 1930's was a result of settlers plowing under these prairies to plant agricultural crops, which were no match for the strong prairie winds.

These four warm season grasses, all native to North Carolina, will be planted by the Reynolda Gardens' staff in the Golf Links Meadow when it is seeded in the spring of 2013*. We hope that by providing these grasses and others that we can do some small part in providing habitat for these disappearing species.

Andropogon gerardii, Big Bluestem

Depending on soil and moisture, grows four to seven feet tall. Seed head is three sections that looks like a bird's foot, hence the common name, "Turkeyfoot." Blue-green foliage; narrow to medium leaf blade. Larval host for the butterflies Delaware Skipper, Dusted Skipper, and others. State grass of Illinois and Missouri.

Sorghastrum nutans, Indian Grass

Three to eight feet tall. A bunching sod-former, with broad blue-green blades. Large, plume-like, soft, golden brown seed heads. Fall color is deep orange to purple. Its beauty lies in the many reddish-brown flowers, which are highlighted by brilliant yellow anthers. Several species of grasshoppers feed on the foliage; they, in turn, are an important source of food to many insectivorous birds. Larval host for the Pepper-and-Salt Skipper. State grass of Oklahoma and South Carolina.

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It's a Papaya!

by **David Bare,** *RGWFU greenhouse manager*

"Really!" That's the typical response when I reply that the plant in the front flower bed is a papaya. It is not something you would think of seeing growing in Winston-Salem. And if you are a gardener, it is not something you are likely to ignore. Preston Stockton, Gardens manager, planted the papaya plant last spring after purchasing it from Shouse Nursery. Transplanted from a typical two gallon nursery liner, this plant has thrived in the rich soil and careful irrigation provided right outside our front door. Passersby are typically mystified.

The plant is sporting huge palmate leaves up to three feet across. Dozens of football-shaped fruit protrude from its trunk. Still green at this writing, the fruit will likely take a longer period to ripen than our climate is likely to afford us. Papayas are either male, female, or bisexual, as is the case with ours. Our flowers are strange and spiral-shaped. The typical female flower is borne close to the trunk, while the male is carried in small stemmed sprays.

Papaya, *Carica papaya* can grow to twenty feet in height and is a soft wooded, small tree. Little is known about its origins, as it has spread throughout the tropical regions of the globe. It is thought that the papaya originated in the lowlands of Central America and was widely cultivated in Mexico and Central America prior to 1492. Christopher Columbus reported in his journals that the natives "...are very strong and live largely on a tree melon called the fruit of the angels." In tropical America the fruit is second only to the banana in popularity.

In the tropics a tree can produce as many as a hundred fruit per year and will continue to do so for one and a half to two years before being replaced or pruned to form multiple trunks. Generally single trunked trees are valued for best fruit production.

The flavor of a papaya gets various reviews, ranging from insipid to muskmelon like. They are generally very sweet, often to a fault. It can be eaten both as a ripe yellow to orange fruit or baked green, as one might do a winter squash. Both the leaves and fruit contain an enzyme called papain that acts similar to pepsin, the element in gastric juices that aids digestion of proteins. Papain has the ability to tenderize meat. Wrapping and cooking a tough cut in a papaya leaf will quickly tenderize it.

All this interest in producing edible fruit, though, seems almost beside the point. The plant makes a deliciously tropical looking ornamental. This variety is TR Hovey, a plant originally developed to accommodate hydroponic culture. This also makes the plant a perfect subject for growing in pots. It had better be a good size pot, though. Our plant has more width than height. When mature, TR Hovey tops out at about four feet. Fruit can develop on this plant within months of planting and will mature within a year.

Papaya needs sunny conditions and warm temperatures. Cool wet soils will promote the chances of soil-borne diseases. They are in no way tolerant of cool temperatures and do their best where temperatures can be maintained above sixty degrees.

Papaya is typically propagated by seed. Seed sown in warm, sunny conditions should sprout in two weeks and begin to bear fruit within five to six months. I am told that ripe store-bought papaya can be used for this process, although I haven't given it a try (yet). The disadvantage of seed grown plants is that you never know what you are getting. If you are interested in producing fruit, which is ornamental even if it doesn't mature, then you will need to determine the plant's sex. Male plants, of course, do not produce fruit. In the tropics one

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What a Difference a Year Makes

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you don't wish to have a dedicated sprayer for this product. If you use the concentrate, I recommend the higher mixture rate of ten ounces per gallon. Once mixed, simply spray your tender plants. One thing to remember about repellants: the critters you are trying to control have to actually nibble the treated leaves in order to have a dislike for it.

One vegetable we seem to plant over and over in the garden each season, with this year being the exception, is squash. Squash borers are the larvae of a black moth that has distinguished orange to red markings. At first glance, it resembles a wasp. They generally appear beginning in June to early July. It was actually August of this year before I saw the signs of squash borers. As I was picking, I noticed what seemed to be sawdust-looking material around the base of the plant, accompanied by a gnarled hole. It had begun. The moth's eggs are deposited on the stem near the surface of the soil; the hatched larvae make their way into the stem, where they begin to feed on the tissue until it is destroyed.

I also found the eggs of the squash bug deposited on the leaves. These large, dark gray or dark brown bugs damage plants by sucking nutrients from the leaves. Damage will be seen as yellow and brown spots, followed by wilting. The eggs are very small, about half the size of a BB, and copper in color.

I have read many ways to protect your plants from pests, from covering the crop with a row cover—but this also stops pollinators—to using pesticides for control. Typically I use no pesticides in the gardens here at Reynolda. As a matter of fact, the strongest pesticide I have ever used here or at home is Sevin dust, and I use that lightly. One of the best and safest ways to control pests is to monitor daily for signs of damage and treat only as needed. Squash bugs and their eggs can be removed manually. If you know you have an infestation of borers, the only solution is to cut a small slit along the length of the stem where the entrance hole is and pull the larvae out, but be warned: the stem could harbor many larvae. Afterward, pull soil up around the cut area. The plant will heal itself and most likely produce new roots. If the plant is totally wilted, pull the entire plant out and dispose of it in the same manner as your trash. The point is to not let the larvae enter the soil, where they spin cocoons.

It is my goal not to destroy every organism or insect in the garden but to learn to live with them. There are and always should be acceptable levels that we live with every day. After all, even the bad insects are beneficial to the beneficial insects.

Something for the Birds: Meadow Grasses

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Shizachyrium scoparium, Little Bluestem

An ornamental bunchgrass, with fine-textured foliage, that forms very dense mounds. Slender, blue-green stems; grows to three feet. Attractive, clump-forming, useful for landscaping and wildlife habitat. Blue-green leaves during the growing season and attractive rusty color with white fluffy seed heads in the fall. Useful for erosion control. Larval host for Dusted Skipper, Leonard's Skipper, Cobweb Skipper, and others. State grass of Nebraska and Kansas.

Panicum virgatum, Switchgrass

Three to six foot, robust grass that can adapt to almost all conditions. Very drought tolerant once established. Produces a lot of seed; good source of food for grain-eating birds. Fall color is pale yellow. Switchgrass has the ability to produce moderate to high biomass yields on marginal lands. Because of these characteristics, it may prove to be a good bioenergy source for ethanol production. Larval host of Delaware Skipper, Indian Skipper, Hobomok Skipper, and the Northern Broken-Dash butterfly.

**More information on the development of the meadow will be in the 2012 winter* Gardener's Journal.

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In the AARS Rose Garden—One Era Ends as Another Begins

by **Diane Wise,** *RGWFU head horticulturist*

I'm sure you've seen her at Reynolda—that strange creature in white, sporting a respirator and busily spraying the roses in the upper garden. She appears early Tuesday mornings, between April 1 and October 31. If you look closely, you'll see Gardens manager, Preston Stockton, under all that gear. Since the garden is an All-America Rose Selections (AARS) Display Garden, one of only 130 in the nation, it has to look its best. And that means that Preston, with her applicator's license, has the unwelcome task of spraying the eight hundred bushes with the appropriate pesticides and fungicides. The application of these sprays has always made us uncomfortable. However, maintaining our AARS accreditation demands that the roses be kept as healthy as possible, and spraying is required. But that is about to change.

First, a little history. The AARS, founded in 1938, is a nonprofit association of rose growers and hybridizers charged with introducing exceptional, easy-to-grow roses to home gardeners across the country. They operate rigorous plant trials in twenty-three test sites, representing all climate zones. The trials consist of a two year testing process, during which the rose is evaluated on fifteen criteria including bloom and bud form, color, fragrance, foliage, vigor, and resistance to disease. The roses that score the highest are designated winners and are sent to the AARS Display Gardens for planting, providing the public an opportunity to view the winners before they become commercially available. AARS Display Gardens are evaluated each year. During the growing season, two anonymous evaluators visit the Garden three times each. They check for identifying labels; the overall condition of the roses, whether they are free of disease and insects; if dead canes have been removed; and numerous other things. A poor score will put the Display Garden on probation, and, if not corrected, will result in the loss of the AARS accreditation. Hence, Preston's Tuesday morning activities.

It seems that the appearance of the rose has always been the most heavily weighted part of the evaluation in the testing process. Here at Reynolda, we have found only a few of the AARS roses to be disease resistant; the vast majority of them must be sprayed in order to look good. But therein lies a problem. In the last couple of years, we have seen the public move away from the use of pesticides and fungicides. Many gardeners don't want them applied around their homes, and they don't want them used in public areas, either. In fact, a number of cities have enacted laws that prohibit the use of certain pesticides and fungicides on public property. New York City Local Law 37 prohibits the use of three groups of pesticides on city property. Consequently, in the one-acre Peggy Rockefeller Rose Garden, part of the New York Botanical Garden, the staff has replaced many of the high-maintenance roses with varieties that require little, if any, spraying. Some are old varieties, and some are new ones especially bred to be vigorous and resistant to disease. On the West Coast, the Huntington Rose Garden has been almost spray-free for over two decades, mostly due to stringent state laws that have banned the use of toxic chemicals in public places. Apparently the AARS is listening, as they recently voted to remove all fungicidal spraying from their test roses, to ensure that AARS winners are naturally top performers. They are also restructuring the entire organization and have decided to discontinue the AARS Display Gardens. The group believes that this will allow them to better serve home gardeners and the rose industry at large.

So, what does the elimination of the AARS Display Garden program mean for us? It means that we have some exciting work ahead. Before you get too excited, the roses are staying. Although they aren't original,

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Growing Stevia in the Herb Garden

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Splenda, which is six hundred times sweeter than sugar.

Growing Stevia

While it's not feasible for most of us to grow sugarcane or sorghum in our backyard, several stevia plants will fit nicely into a small garden. Here are a few tips: The amount of light your plant is exposed to determines the level of sweetness (the more sunlight, the sweeter the leaves will be), as well as its size; it grows to two feet tall in the full sun. It's best to improve our heavy clay soils with organic matter. I always add a little sand when I plant herbs, so they will have good drainage. Water frequently when you plant it in the spring, but don't overdo it. Excess water will cause the plant to rot. And finally, pinch back stems during the growing season to make it bushier.

Harvesting and Using Stevia

In about four months, your plant will be ready for harvest. Harvesting should be done only in the morning for highest sugar content, whether pinching tips or entire plants. For a full harvest, which can take place in late September or early October, cut the entire plant at the base. Fasten loose branches together with a rubber band and hang them upside down to dry.

The leaves are sometimes chewed by those wishing to reduce their sugar intake. Many who hesitate to consume artificial food additives may prefer stevia because it is all natural. It is calorie-free and does not impact blood sugar levels.*

The dried leaves can be ground and used as a sweetener or soaked in water and the liquid used in making preserves. They can be added to herb teas, a plus for those of us in the South who enjoy our herbal teas sweet. Because tea is quick and easy to make, it can be fun to experiment. Be mindful that if you don't boil your tea long enough, it will lack flavor, but boil it too long, and it will become bitter. When using stevia for your tea, tear the leaves before steeping them, so the sweet taste is released.

Each and every one of us deserves a bit of sweetness. Growing stevia is a great way to get it.

**Although questions about the safety of consuming stevia have come up in the past few years, studies seem to prove that it's safe for most people. More information on these studies is available on the internet.*

It's a Papaya!

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male plant is left to pollinate a dozen or so females.

I quickly recognized the papaya plant's role in continuing my Gauguin complex. It will make a great addition to the white gingers and bananas, palms and hibiscus that populate my Piedmont South Seas fantasy.

In the AARS Rose Garden

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we can't restore the garden to the 1917 landscape plan. We don't have the manpower to maintain the vegetables, fruits, and cut flowers that were originally there. But we are no longer restricted to only AARS roses; we can replace them with roses that are more vigorous, fragrant, and, perhaps, a little kinder to their surroundings. We've got lots of research to do, and we're looking forward to it! We'll keep you posted...

Honoraria

In honor of David Bare
- By Circle #7, Mt. Tabor United Methodist Church
- Evergreen Garden Club
- Flowers and Friends Garden Club
- Hillcrest Garden Club
- Little Greens Garden Club
- Philocalian Book Club
- Town and Country Garden Club

In honor of
- Mr. and Mrs. W. A. Bassett IV
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- Mr. and Mrs. Greg Bray and Family
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- Mr. and Mrs. Louis Wooten and Family
- By Ellen and Doug Bassett and Family

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Printed on paper made of 50% sugar cane pulp and 50% recycled fiber, including 30% post-consumer fiber. No new trees used and elemental-chlorine free.

In Memoriam

We are saddened to report that we have lost Millie, our beloved friend and mascot. Many of you know that she was suffering from lymphoma, and she had long outlived our expectations. She left us on March 15, and we still miss her. —*D.W.*

Donor List

Continued from page 7

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By Mr. and Mrs. David E. Baugess

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Wildflowers for Meadow
By Forest Garden Club

Young Naturalist Scholarships
By Book Club Anon
JoAnn and Bryan Yates

The Engineers of Reynolda, Part 4: John Nicholas Ambler

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West Fifth Street in Winston, across from the Reynolds family in the section dubbed Millionaire's Row. His office was in a prestigious location, upstairs in the Masonic Temple, at the corner of Fourth and Trade Streets.

The Amblers moved to Richmond, Virginia, in 1918, the same year he was elected the first president of the North Carolina Society of Civil Engineers. The business continued under the name Ambler Engineering, and he continued to publish articles on a range of engineering topics, including design and construction of sewers, obtaining a waterworks system, and design and construction of street railways. At the time of his death in Richmond in 1935, he was an estimator for the Virginia highway department.

**On September 21, 1909, it was announced that the old campus of Davis Military School would be redesigned by Buckenham and Miller for its new use as the Methodist Children's Home.*

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