of pine bark. Soils of landscapes vary greatly from location to location, and those soils can contain naturally occurring pathogens that are detrimental to the larval stages of the rootworm. The rootworms causing damage in production nurseries are probably more adapted to the soil-less media and can’t adjust quickly enough to the surrounding soils after the azalea has been planted.

Control of the Strawberry Rootworm

Many growers find that control of the rootworm is difficult. This beetle feeds at night (nocturnal); however, we have found them on the foliage during all parts of the day. Some growers claim that spraying pesticides at night (after sundown) provides better control than during the day. Research conducted in the greenhouse has found no difference whether the pesticide was applied in the morning (9:00 am) or in the evening (9:00 pm). The adult rootworm can be controlled with foliar sprays. We have found that chlorpyrifos (e.g., Duraguard) and carbaryl (e.g., Sevin) provide good control two days after treatment. Surprisingly in our greenhouse trials, acephate (e.g., Orthene) did not control the adult beetles.

Larvae in container media should be controllable with pesticide drenches. Preliminary data show that acephate (e.g, Orthene) and bifenthrin (e.g., Talstar) provide good control for 2nd-3rd instar larvae. These results are still preliminary, and further studies are underway to determine which pesticides and biological control organisms provide the best control.

Conclusions

The strawberry rootworm is, in some areas, a major pest of azaleas in production nurseries. Our research is focusing on the biology and control of this insect in production nurseries. We don’t believe it will become a threat to azaleas in the landscape. Our goal is to provide growers with methods for monitoring and controlling the strawberry rootworm so that they can to continue to provide high quality, reasonably priced plant material to the nursery trade.

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New Azaleas with a Cumberland History

Joseph E. Schild, Jr. — Hixson, Tennessee

Living near the Cumberland Mountains has a definite benefit. Our home here in Hixson, Tennessee, is just minutes from the first rolling plateau better known as Waldens Ridge or, as some call it, Signal Mountain. If you look at a topographic map of the region, the Cumberland Mountains stretch from Kentucky through eastern Tennessee to their most southern point in Alabama very near Birmingham.

This mountain range is not one vast, continuous plateau. It looks very much like the fingers on my hand with each extended ridge separated by valleys and gorges with rivers and creeks coursing toward the Tennessee River basin. One such valley, the Great Sequatchie Valley, is one of the longest linear rift valleys in the United States.

It was in 1969, in the company of Clifton Gann, that I first discovered the interspecific swarm of native azaleas flowering along State Route 8 in Sequatchie County. The colors can only be described as close to sherbet. Pastels in orange, pink, pinkish red, pinkish orange, and even some near-yellows were eye-popping.

A few years later, Clifton and I made the long hike up to Gregory Bald, and again I saw the color range there, but at a higher elevation. It always fascinated me as to how one might produce the same colors in hybridization rather than digging plants from the wild. The National Park System and other owners do frown on that practice, and it is illegal.

By 1986, I had some years under my belt breeding deciduous azaleas and felt confident enough to give my long-sought prize a try. If Rhododendron cumberlandense and R. arborescens may cross-breed in the wild, then in my mind, the same could occur with my help to produce the beautiful array of colors. No wild digging would be necessary.
In 1973, I rooted cuttings in my Nearing frame of two excellent species I found on the Cumberland Plateau in Van Buren County, Tennessee. The dark red form of *R. cumberlandense* and a well-shaped *R. arborescens* with large flowers gave me the necessary azaleas to make the crosses. In 1985, I collected pollen from both species and made reciprocal crosses in 1986.

Patience is definitely a virtue in plant breeding, though mine was often sorely tested. To give you some idea of the time effort, the crosses were made in 1986; the seed stored in my refrigerator until 1989 when I sowed the seed; and here it is 2005, and I am still evaluating, selecting, and naming the plants. Unless my math fails me, that is 19 years from the date of the crosses.

Like a proud papa, I stroll slowly through the beautiful azaleas and look at each, trying to single out something special about each one. Last year, I saw a wonderful dark pink flower cluster on a shrub and thought it to be worth keeping, but then rejected it because the foliage was terrible and spotted with brown spots of fungus. That one was a prime candidate for the shredder and compost bin. In 2004, all of the azaleas in the crosses flowered fully, so evaluation was critical, and many plants are now plant food.

If you think me a ruthless papa, do not forget we need great azaleas, not lots of ho hum types with problems. Also, I may feel like a papa, but these plants are not children. With a keen eye, I selected out plants I wanted to keep and tossed many more. In 2005, I culled out more, and now the number of keepers is a lot smaller, though some are superior ones.

What characteristics was I looking for? Too often, we Americans give too much weight to flower color, and I admit it may be the flowers that first attract me, and if I’m not careful I may overlook some more important factors. In this collection of plants, I have had 16 years of evaluation time to cull out rangy or leggy plants. Those with obvious disease problems went to the compost pile first. My breeding goals I set for this project were:

1. Compact to tall shrub habit, well branched, and dense.
2. Dark green and glossy foliage.
3. Late-blooming period to fill in between *R. cumberlandense* and *R. prunifolium*.
4. Flower colors to run the spectrum from white to all shades of pink, yellow, orange, and red. Pastels would be nice, but so would vibrant, bright colors.
5. Fragrance, even in some of the red or orange flowers.
6. Heat- and cold-hardiness, with some measure of drought-tolerance.
7. If, in the process, some low-growing or dwarf forms popped out, then all the better.

I will not go into the mechanics of making the closed cross-pollinations and growing on of the seedlings. All of the seedlings are container grown with some now in ten-gallon tubs, but most in three- and seven-gallon sizes. All of the plants were grown in full sun, but under irrigation and given slow release fertilizers through the years.

There is one factor you must know about using *R. cumberlandense* in a cross or in your landscape. The flower colors will shift up or down, depending upon light conditions. Four seasons ago, I was starting the process of writing the descriptions of several of the plants, and we ended up having a very overcast month of May that lasted well into June. All the colors shifted down in shade to the pastels, even though they were sitting out there in full exposure. Very nice reds from the previous year changed to oranges, and oranges changed to pale yellow. The rich rose pinks shifted down to pale pink. You get the idea. Planting them in various shade conditions will result in something similar.

In 2003, I saw the colors as they were meant to be, vibrant, intense, and stunning, most rivaling the blooms on Copper and Gregory Balds. I had to admit they were even better than those I first saw on the mountain along the road in 1969. This is the big advantage to growing them in full sun. The shrubs set bud heavily and also seem to burst into full bloom overnight.

The photograph below shows the preferred or ideal growth habit I desired. It is dense and compact, and that particular plant is four feet by four feet, in 16 years. It has a problem, though. The flowers are just not good enough; but instead of composting it, I will use it to breed the growth habit into future crosses I may make.

In the next few pages, I list the names and descriptions of azaleas I am introducing from these crosses; they will be in a branded collection, known as the “Schild Cumberland Collection.” The US registration is pending. All of the named hybrids are in production, and hopefully a few will be available in 2006 as small liners.

(continued on page 34)
New Azaleas — continued

All of my future introductions will be under the umbrella of the brand and will include some very nice selected cultivars of species and hybrids between some Exbury, Ilam, Knap Hill, and the species. This collection should contain azaleas that will be welcome in the landscape.

As a matter of reference, all color names and numbers are from the RHS color fans (1), and hopefully adhere to the standards of color name nomenclature (2). Also, some terms used were found in Fred C. Galle’s book on azaleas (3). Keep in mind that the low winter temperatures listed are the lows tested on my Cumberland Mountain property, which is in Zones 6b to 6a where winter temperatures have gone down to -30°F. These hybrids may be even more cold-hardy, depending upon location.

Joe Schild has been an avid grower, propagator and breeder of azaleas for nearly 36 years. He has owned and operated a niche nursery specializing in the species for over 14 years. Joe is the founding president of the Tennessee Valley Chapter-ARS and past president of the ASA. He says he is better known as an azalea nut and chases the natives’ bloom each year with many fellow enthusiasts. He is a frequent contributor to The Azalean.

References

[Editor’s Note on Color Names in the Azalea Descriptions
Joe Schild provided the RHS color chart numbers for each element in the flower and foliage descriptions that follow. These RHS chart numbers are shown in parentheses. Editorial board reviewer Don Voss provided the Inter-Society Color Council-National Bureau of Standards color names for these RHS color references. These ISCC names precede the parenthetical RHS numbers.]

Azalea Mastery Series

Part 5. Raised Bed Method

Joseph E. Schild, Jr. — Hixson, Tennessee

If you recall a previous article on planting azaleas where the soil is heavy clay and the problems I encountered, this article will discuss an alternative method, growing azaleas in raised beds. Several important things to remember about this method are: use whatever organic material you have readily available in your area, make sure it drains well, has a low pH (4.5-6.0), and add some nutrients.

Now, we will look at the methods of building raised beds in a fashion that will give your shrubs a good environment and will have some aesthetic qualities. In my case, I had to first determine what materials I would use and came to the conclusion that I had an abundance of wood chips available from the local tree service companies. They were always looking for some place to dump or dispose of this valuable material free, and I had the room to store large loads over a long time while it composted.

Another source for organic materials is the local or city composting yards where they dump all the collected leaves in the city, chipped up tree limbs, and other stuff. For those of us living in the county, there is small fee per truck-load, but for city residents it is free.

To wall or contain the beds, I also had access to mountains of stone, timbers and in a few cases, logs, though the latter will decay over time and must be replaced. In a pinch, I once used about two ricks of firewood, but do not recommend it, for I ran out of firewood to heat our house and had to buy more.

The other key ingredients for the soil mix in the beds are: pine bark, both small nuggets and fines; compost; and good soil. All of this combined with the bulky composted wood chips will provide the basic soil for the beds. Through years of experimenting, the use of some soil in the mix will encourage the azaleas to send out adventurous roots for faster establishment. The more compost you have the less soil is needed.

What I did was to determine where I wanted a new bed and marked off the boundaries. Since nature seems to avoid straight lines, most of my beds were marked off using a garden hose or with lime. Keep in mind that my native soil is about 4“ to 12" of sticky yellow clay over limestone rock, so drainage is very important.

I killed out the existing vegetation within the bed area with a non-selective herbicide. To get rid of vegetation,