

step of informing buyers of the proper description of cultivars (which should include variation recognized as acceptable in the authoritative description of the cultivar) and describe deviations that may occur in the plants they supply. The buyer is then in a better position to assess the risk of purchasing the listed plants. For cultivars in groups that sport promiscuously, this approach is welcome—though short of what is desired by the buyer (whether landscape architect, collector, or knowledgeable home gardener).

The problems of maintaining stock true-to-name and dealing with variability in azaleas are especially difficult for the nurseryman serving a mass market. For example, most large nurseries cannot handle variability. They expect a 'Hinode giri' to have the common decency to remain a 'Hinode giri' and produce respectable Hino progeny. In the past thirty years only relatively genetically stable hybrids have been mass-produced commercially.

In the mass-production environment, much of what has been suggested above as ways of keeping output true-to-name cannot be implemented economically. The bread and butter of the azalea industry is the trade gallon container. Typically, these are potted in the early spring and sold the following spring. Cuttings are taken during the first summer for the following year's crop. The propagation cycle involves only vegetative stages. *From cutting to finished product, the nurseryman may never see the plant in bloom.* The blooming period, moreover, coincides with the shipping season. In the spring this can mean as many as twenty to thirty thousand azaleas per employee must be graded, pulled, tagged, and shipped in a three- to four-week period. No one has the requisite skilled labor to excise, rogue, or tag sports at that time.

Nonetheless, when plants are sold as cultivars, the buyer deserves

true-to-name plants. This calls for the grower to rogue—eliminating misidentified stock plants, liners (sometimes foliage or growth habit may indicate errors), and container or field-grown stock at the flowering stage.

The message to readers is:

**Buyers**—you must recognize that price and quality are often positively correlated.

**Sellers**—you must recognize that buyers (who are becoming more knowledgeable and selective) expect that plants tagged with cultivar names should be true-to-name.

#### REFERENCES

- (1) Webster's *New International Dictionary of the English Language*. Second ed., unabridged. Springfield, MA: G. & C. Merriam Co., 1934.
- (2) Brickell, C. D. et al., eds. *International code of nomenclature for cultivated plants*—1980. Utrecht: Bohn, Scheltema & Holkema, 1980.
- (3) Morrison, B. Y. *The Glenn Dale Azaleas*. Agriculture Monograph No. 20. U.S. Department of Agriculture, Washington, D.C., 1953.

#### CULTURAL NOTE

##### Ovulinia Petal Blight

It is frequently mentioned that *Ovulinia* might not spread outside the milder winter areas of the USA; i.e., north of, say, New Jersey. Let's put that to rest. The Gartrells, Robin Hills, and *nakaharae* and its hybrids along with a few other hybrids, especially 'Polar Bear', *R. camtschaticum* are plagued here [Halifax, Nova Scotia]. With no signs of it this year (due to an attempt at control) the sclerotia still appeared on a few plants. The problem starts after June 12. Let's get it straight—*Ovulinia* is perfectly cold hardy.

*Contributed by John Weagle*

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## Help Wanted: Participate in Azalea-Sporting Research

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Here is an opportunity for you to be involved in important azalea research. We don't know of previous participatory research of this kind by Azalea Society members. But if it works, it might lead to other studies and expand our knowledge of azaleas. Specifically, we seek a better understanding of sporting in azaleas. (A sport is mutant growth that has characteristics outside the range recognized as defining a cultivar or a botanical taxon.) In this study we propose to concentrate on flower sports.

What, exactly, is an azalea flower sport, and how do sports occur? Questions frequently arise about sports and sporting, such as how does one know if an odd flower is a sport, and what is known about year-to-year variation in flower color patterning. We have found little published information about azalea sports, but a few experienced individuals have provided anecdotal data that seem to match the rather large amount of mostly undocumented common knowledge. We also have heard what might be myths about sporting; one example is the belief that sports, if not removed, will "take over" an azalea and become the dominant flower (we have thus far not found this to be true). These bits and pieces of data are all interesting, but not very useful in answering with confidence the questions posed.

What is needed is a large amount of systematically gathered information about sports and sporting, and what better way to do it than to invite you, members of the Azalea Society, to participate in a program of research. As you will see in the following paragraphs, **what is involved is not difficult**. You can choose what to do, and your contributions will provide valuable information. The more who join in the research, the more data will be available for consideration, and we may finally be able to develop some consensus about sporting.

## Definitions and Discussion

For this presentation, we are taking our examples from the Glenn Dale azaleas with which we are especially familiar, but the issues relate to any cultivar. B. Y. Morrison, who directed the development of the Glenn Dales, gave some directives about sports in the descriptions of the individual cultivars in U.S.D.A. Monograph 20, *The Glenn Dale Azaleas* (1). In general, Morrison directed that sporting branches should be removed, and we think he probably did so to assure only the correct flower was propagated. Morrison appears to have believed, as most do, that you get what you cut: that what is cut and propagated remains stable, so if one propagates from a branch bearing a solid-color flower, only solid-color flowers will be produced regardless of the parent plant. However, it may also (or perhaps only) be because he wanted sports removed to maintain a certain plant appearance; that is, too much sporting of solid-red flowers might change the effect from a distance for an azalea such as 'Festive' which is stated as appearing flesh white when so viewed.

Morrison summarized some of his experience from the Glenn Dale work in a brief statement and drawing entitled "Pattern of Sporting". He concluded that most (or all?) sporting came from an azalea flower that was a white with colored stripes, and

from it came the solid white, solid color, color-bordered, and white-bordered flower sports (2). He suggested that some sport forms did not produce further sports, or were comparatively stable.

A sporting flower is one which differs from that described in the authoritative publication of the cultivar name. For example, a sport would be a solid-color flower appearing on an azalea that is described as having white flowers with red stripes. The flower identified in the description may not eventually be the dominant flower of the azalea. It would indeed be desirable if those naming cultivars were to test them thoroughly to assure that there is a genetic basis for the described flower being the most typical. We are, however, bound by the rules of the Cultivated Code that tie use of a cultivar name to the published description.

For this research we define bud sports as terminal bud clusters that have produced variant as well a "normal" flowers, and branch sports as branches on which *all* of the flowers vary from the normal. Our experience suggests there may be four categories of azaleas with regard to sports: (1) a stable cultivar which never sports, (2) a cultivar which has occasional or infrequent sports, (3) a variable cultivar which usually produces three or four different flower patterns, and (4) a changeable cultivar that may completely change flower appearance year to year. Examples of a stable cultivar are 'Treasure' (white) and 'Aphrodite' (pink); of an occasional-sporting cultivar, 'Cocktail' (white with red stripes and some sports); of a variable cultivar, 'Shimmer' (white with rose sanding, flakes and stripes, and solid-color sports); and of a changeable cultivar, 'Welcome' which, in our experience, has been an all pink-bordered flower one year and a solid-pink flower the next year.

The point of categorizing 'Shimmer' as variable is to test

whether the "normal" flower of this cultivar (and some others like it) is really three or four different flower appearances, including solid colors, and, therefore, there is really no sport flower despite the description. For bordered flowers like 'Welcome' (and maybe others), the wholesale change of flower is probably not any form of sporting and is likely caused by environmental factors not yet understood. We recognize that these four categories may not be the most appropriate, or there may be other categories; the research results will tell us.

By the way, we would like to hear from anyone who knows of published studies of azalea sporting, or who has already compiled information. It also seems likely that there have been some studies on plant genetics that would be relevant, and we would like to know about them as well. We would like also to hear from experienced azalea growers who might care to express their opinions.

## Research Designs

We propose three studies: two of which are essentially observation, and one which involves propagation of cuttings. To participate, you will need to have access to azaleas such that you can observe their flowering over two or more years and be able to tag them as needed. (If needed, we direct your attention to the various advertisers in **THE AZALEAN** as a possible source of larger Glenn Dales and other azaleas that can be used in this research.)

To begin, create a record for each azalea under study that includes the name, approximate age, the authoritative description of the flowers (which may or may not include sporting), and its location. If possible, select azaleas with different kinds of flowers: stripes, borders, etc. Then choose one or more of the following studies, and remember you don't have to do everything suggested to participate:

## **Study 1 - Observation to determine the behavior of sports**

Observe and record appearance and location of bud and branch sports; tag some to assure precision of location. Also, tag some branches that have all normal flowers. (Avoid using yarn or other material that is likely to end up in a bird's nest.) Note if one or more bud sports subsequently appear on a branch that previously had only normal flowers, or if the opposite is true. Determine and record the location of sporting from year to year. Have bud sports produced further sports or has flowering reverted to the "normal" pattern? See if the tagged normal-flower branch is still all normal flowers.

The kinds of questions to be answered with this study: what kinds of sports occur on what kinds of azalea; what is the proportion of sports to normal flowers, and does it change; do new shoots growing from the locations that produce sports also produce sport flowers; or do bud sports come and go at random? A benefit from this knowledge would be that normal branches, if they don't change, need to be marked only once to assure proper cuttings for many years in the future.

## **Study 2 - Observation of the persistence of sporting after the removal of sports**

Observe and record the appearance and location of bud and branch sports; tag some locations. Note the overall ratio of sports to normal flowers. Remove (cut-out) all shoots bearing bud sports, or all sport branches, or both. The following year, determine the return, if any, of bud sports, branch sports, or both, and whether the return is in the same locations. (For experimental purposes if one would be willing to risk it, it would be interesting to reverse the removal by cutting-out all of the normal flowers and seeing if they return—and in what manner—the following year.)

The kinds of questions to be answered with this study: will the removal of sports decrease or even stop sporting; what happens if one kind of sport is removed; does the ratio of normal to sport flowers persist regardless of removals? One benefit from this study would be to know if, following removal of sports elsewhere, a normal branch then produces sports which, if it does, has negative implications for assuring cuttings of normal flowers.

## **Study 3 - Propagation to determine the stability and vitality of cuttings**

Tag normal flowers and all kinds of sports for taking cuttings and propagation. If possible, cut highly variable azaleas such as 'Shimmer' and those with bordered flowers, such as 'Welcome' and 'Martha Hitchcock'. If possible, cut both infrequent sports and the normal flower as on an azalea like 'Vespers'. Carefully label cuttings as to what they are. Upon flowering, determine if the propagation flower is the same as what was cut, and, upon second flowering, see if it is still the same. (A variation of this study is to propagate sports that show petaloid stamens; such as 'Vestal' and 'Carrara', to see if semi-double or double flowers are produced and are stable.)

The kinds of questions to be answered with this study: is the "what you cut is what you get" rule of thumb an absolute truth for all azaleas, or do some kinds—say, highly variable—give variable-flowering propagations from any cutting; do propagations of bordered flowers always begin as solid flowers as suggested for some Glenn Dales borders such as 'Martha Hitchcock'; are infrequent sports stable and do normals always eventually produce the infrequent sports?. The obvious benefit of this study is to confirm the stability of various kinds of propagations.

Participants should carefully document and perhaps photograph for the record any very unusual sporting. We have heard those exceptional stories of solid white flowers suddenly appearing on 'Surprise' or some other fantastic flowering event, but there is little permanent evidence available for these stories.

## **Conclusion**

We recognize the results from this research will take waiting for a year or two (perhaps that's why not much has been done on sporting), but it is the only way to gather the needed data. Everyone who participates by undertaking a study or studies and reporting results will receive credit in a future article about the results. When reporting, document what kind of study was done as well as the results. We are curious about how many of you might participate. Could you drop us a brief note if you are planning to do a study? Any questions and all correspondence should be addressed to Dick West, and thanks for your help (3).

## **References**

- (1) Morrison, B. Y. *The Glenn Dale Azaleas* Agriculture Monograph No. 20. U.S. Department of Agriculture, Washington, D.C., October 1953.
- (2) Evans, C. and Miller III, W. C. "Pattern of sporting". **THE AZALEAN**, 7(1), March 1985, 1-2.
- (3) Dick's address is: Richard T. West, 5042 Ten Mills Road, Columbia, MD 21044.

**Richard T. West and Donald H. Voss** are long-time members of the Azalea Society of America and are frequent contributors to **THE AZALEAN**. West is especially interested in the Glenn Dale azaleas. Voss has written about the Robin Hill azaleas and matters relating to description of azaleas.