Blueberry Cultivar Development at The University of Georgia
A Progress Report for 2010

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The UGA Blueberry Cultivar Development Program generates and evaluates numerous selections of southern highbush and rabbiteye blueberries each year. The UGA Blueberry Research Farm near Alapaha is the primary field evaluation site for new selections and advanced selections. Griffin is the primary site for high density seedling nurseries and it is a duplicate test site for growing selections for initial testing. Additionally, some on-farm sites have been enlisted as advanced selection testing sites. Having these multiple sites provides considerable climatic and edaphic variability which enhances the cultivar development process.

General Overview of 2010

The 2010 growing season at Alapaha was generally characterized by a good crop across most cultivars and selections. The blueberry crop in Griffin overall was also very good in 2010. Chill hours (calculated from Oct. 1 thru Feb. 15) were 968 for Alapaha and 1457 for Griffin, which were well above average for the two locations. With the extended cold period of 2010 we saw later-than-normal flowering and ripening times for both southern highbush and rabbiteye blueberries across much of the Southeast. Comprehensive flowering notes, cropping notes and fruit characteristic evaluations were taken for more than 400 selections of rabbiteye and southern highbush blueberries, as well as numerous cultivar standards at the test sites. Ratings were also made for some selections at on-farm test sites in 2010.

Performance of Field Grown Southern Highbush Selections at Alapaha

The UGA Blueberry Breeding Program continues to aggressively generate and evaluate southern highbush plant material. Most southern highbush selections that existed at Alapaha prior to 1998 had very low vigor due to the lack of suitable highbush soil at the site, poor drainage, and absence of irrigation. Since 1998, southern highbush selections have been planted in raised beds, with irrigation and pine bark mulch. Performance ratings of several of these new selections grown at Alapaha under field conditions, along with some standard cultivars, are depicted in Table 1. These selections are all less than 8 years old.

Much of our effort with southern highbush has been aimed at developing selections that have suitable berry quality and have a high degree of plant vigor. We continue to make considerable advances toward these goals. In 2010, several selections had a plant vigor rating of 9.0 or higher (on a 1 to 10 scale). Notable selections with regards to

plant vigor were 02-69, TH-906, TH-923, TH-940, TH-953, TH-1007, TH-1008, and TH-1010. While some of these selections may not become cultivars, they will be used in our breeding program to enhance overall plant vigor of our southern highbush germplasm.

Early ripening fruit continues to appeal to many Georgia blueberry growers. The Florida release 'Star' is currently a prominent standard cultivar, and it had 50% ripe fruit by May 15 at Alapaha in 2010 under field conditions. 'Rebel' reached 50% ripe fruit by May 14. Although there were no damaging freezes during 2010, as mentioned previously the prolonged cold in the spring caused later-than-normal ripening times for all varieties and selections. The earliest ripening selection was TH-819, having 50% ripe fruit on May 4. This selection has been the earliest ripening for the past 3 to 4 years; however it tends to flower early as well, which would require spring frost protection for successful production. We have advanced this selection to final stages of testing. Other notable early ripeing selections in 2010 were TH-944, TH-948, and TH-953. These selections ripened 4 to 9 days ahead of Star at the Alapaha test site.

The fruit development period (FDP) of blueberries, defined as the days from flowering to ripening, can be very important. A short FDP can result in later flowering, which helps to avoid pressure from spring freezing temperatures, while achieving early ripening dates which can bring higher market prices. Notable selections with late flowering and early ripening were TH-828B, TH-923, and TH-948. These selections flowered 5 to 15 days after Star and Rebel, and ripened as early or earlier than the standard varieties. We continue to try and develop southern highbush varieties with short FDP, and these and other selections will be used in our breeding effort to improve this trait.

Berry size is important, and is especially attractive for improving efficiency of hand harvesting. Currently, 'Emerald' is the standard cultivar grown in Georgia with the largest berry size, although the recent UGA release 'Camellia' also has impressive berry size. Several selections grown under field conditions at Alapaha during 2010 had berry size as large or larger than 'Emerald'. These included TH-895, TH-898, TH-920, TH-931, TH-940, TH-948, TH-953, TH-1008, and TH-1010. Many of these large fruited selections also had other desirable traits such as good firmness and/or flavor. We have propagated several of these selections for advanced testing, and we will continue to evaluate these over the next few years for yield consistency and overall long term plant health.

Table 1. Ratings of some fruit and plant characteristics of field grown southern highbush blueberry cultivars and selections from Alapaha during 2010.

Selection or Variety	Date of 50% Flowering	Date of 50% Ripening	Berry Size	Berry Scar	Berry Color	Berry Firmness	Berry Flavor	Crop Load	Plant vigor
Camellia	19-Mar	17-May	9.0	7.0	9.3	7.0	8.0	6.0	10.0
Emerald	5-Mar	19-May	8.8	7.3	7.0	7.3	6.8	8.0	6.8
Palmetto	15-Mar	10-May	7.0	7.0	7.0	8.0	8.5	6.0	7.0
Rebel	12-Mar	14-May	7.8	7.0	7.3	7.5	6.5	10.0	9.0
Star	16-Mar	15-May	7.5	6.8	7.3	7.0	6.8	9.3	6.0
Suziblue	15-Mar	11-May	8.5	7.5	7.3	7.5	7.3	8.0	8.5
02-69	30-Mar	23-May	8.2	8.0	8.0	8.0	8.0	6.0	9.0
TH-819	5-Mar	4-May	7.5	7.5	7.3	7.3	7.8	6.5	7.5
TH-828B	20-Mar	15-May	8.3	7.3	8.5	8.0	8.0	7.0	7.5
TH-888	6-Apr	19-May	7.3	6.5	9.0	6.5	8.8	5.0	5.0
TH-889	31-Mar	23-May	7.5	8.0	9.5	8.5	7.8	8.0	8.0
TH-895	29-Mar	23-May	8.5	7.0	7.8	7.0	7.0	7.5	8.0
TH-898	20-Mar	19-May	8.5	7.8	9.0	7.5	8.0	5.5	6.8
TH-905	18-Mar	16-May	8.0	7.5	8.0	8.0	8.3	8.0	8.5
TH-906	11-Mar	19-May	7.5	7.5	8.0	7.5	7.5	7.5	9.5
TH-917	19-Mar	19-May	8.3	8.0	8.0	8.0	7.5	6.5	8.5
TH-919	17-Mar	13-May	7.3	7.0	7.3	7.5	7.8	7.0	8.0
TH-920	24-Mar	16-May	9.0	7.5	9.3	7.3	8.0	6.0	8.5
TH-921	20-Mar	14-May	7.0	7.5	7.5	7.8	7.8	9.5	8.5
TH-923	1-Apr	15-May	8.0	7.8	7.8	6.8	8.5	4.5	10.0
TH-931	25-Mar	22-May	8.5	8.0	7.5	7.0	7.5	6.0	7.0
TH-934	30-Mar	29-May	7.0	8.0	8.0	8.8	8.0	7.0	7.5
TH-940	20-Mar	24-May	8.8	7.3	8.5	7.5	8.0	8.0	10.0
TH-944	8-Mar	6-May	7.5	6.5	7.0	6.5	7.5	6.0	6.5
TH-948	29-Mar	11-May	9.2	7.0	8.0	8.3	8.3	6.0	6.0
TH-953	11-Mar	11-May	8.8	7.5	8.5	8.0	8.5	6.0	10.0
TH-1007	10-Mar	15-May	8.3	7.8	7.5	7.5	8.0	6.0	10.0
TH-1008	14-Mar	19-May	9.2	7.5	8.5	8.0	7.5	5.5	9.0
TH-1010	20-Mar	17-May	9.2	7.5	8.5	7.5	7.0	7.0	9.5

Performance of Field Grown Southern Highbush Selections at Griffin

All of the southern highbush plants growing in Griffin are 7 years old or less. While the test site is not considered very suitable for southern highbush production, we have been able to successfully grow many of our selections in the red Piedmont soil with pine bark mulch and irrigation. Table 2 lists data for several of the highbush selections in Griffin. Most of these were evaluated at Alapaha as well. Selections that demonstrated outstanding plant vigor at the Griffin site included TH-828B, TH-888, TH-923, TH-931, TH-948, TH-953, TH-1007, and TH-1010. Four of these selections also had very good plant vigor at Alapaha, suggesting a wide range of soil adaptation. 'Camellia', a recent UGA release, also had very good plant vigor in Griffin as it did at Alapaha.

Berry size of 'Emerald' and 'Camellia' were largest among the standard cultivars in Griffin during 2010. Several newer selections also had very large berry size. These included 02-69, TH-895, TH-898, TH-920, TH-931, TH-940, TH-949, TH-953, TH-1008, and TH-1010. Interestingly, all of these selections also had large berry size at the Alapaha test site, suggesting the selections have a good tendency for sizing of fruit across environments. These large fruited selections will be used in the breeding program for improving overall berry size and quality of the germplasm.

In Griffin during 2010, berry firmness was measured for several southern highbush selections using a FirmTech II firmness tester. This instrument basically records the force (g) required to deflect or compress berries a certain amount (measured in mm). The higher the units (g/mm), the more firm berries are. The standard instrument settings were 50 g minimum and 250 g maximum force. Table 3 depicts firmness values at harvest (first 25% of ripe fruit) for several cultivars and selections, along with average berry weights of samples. The selections TH-828B, TH-896, TH-921, TH-934, TH-977, and TH-1003 all had firmness values of 200 or greater which is considered very firm. Again, berry size measurements indicate some very large fruited selections, with TH-895, TH-931, TH-948, and TH-953 all exceeding a 3.0 g per berry average fruit weight.

While flavor is subjective, we are trying to consider this more in our evaluations. 'Palmetto' has become the flavor standard in our program. The selections TH-888, TH-905, TH-919, and TH-953 were all rated to have very good flavor in Griffin. This added benefit could make these selections desirable as cultivars if they hold up to continued testing.

Table 2. Ratings of some fruit and plant characteristics of field grown southern highbush blueberry cultivars and selections from Griffin during 2010.

Selection or Variety	Date of 50% Flowering	Date of 50% Ripening	Berry Size	Berry Scar	Berry Color	Berry Firmness	Berry Flavor	Crop Load	Plant vigor
Camellia	5-Apr	31-May	9.0	7.0	8.5	7.0	8.0	7.0	10.0
Emerald	22-Mar	30-May	8.8	7.0	8.0	7.8	6.8	5.0	6.0
Palmetto	30-Mar	23-May	7.0	6.8	6.5	7.5	8.8	7.5	9.0
Rebel	30-Mar	20-May	7.3	7.3	7.3	7.3	6.0	8.0	6.5
Star	2-Apr	24-May	7.5	7.0	7.5	7.0	7.0	8.5	9.5
Suziblue	31-Mar	19-May	8.0	7.3	7.0	7.0	7.5	9.0	8.0
02-69	6-Apr	28-May	8.8	8.0	8.0	8.0	7.3	6.0	8.0
TH-819	27-Mar	16-May	7.0	7.5	7.5	7.0	7.0	7.0	6.0
TH-828B	2-Apr	26-May	8.5	7.3	8.5	8.0	7.5	7.0	9.0
TH-888	6-Apr	23-May	8.0	6.5	8.0	7.0	9.3	6.0	8.5
TH-889	2-Apr	30-May	8.3	8.5	9.5	7.5	8.0	7.0	8.0
TH-895	6-Apr	6-Jun	9.0	8.0	8.0	7.0	7.5	5.0	8.0
TH-898	3-Apr	9-Jun	9.0	7.3	8.5	8.3	8.3	5.5	8.0
TH-905	30-Mar	26-May	8.0	7.5	8.5	8.8	8.5	5.5	8.0
TH-906	30-Mar	28-May	7.5	7.0	8.0	7.0	8.0	6.5	8.0
TH-917	3-Apr	2-Jun	8.0	7.0	8.0	8.3	8.0	6.0	8.0
TH-919	3-Apr	25-May	7.5	6.8	7.8	7.3	8.5	5.0	8.0
TH-920	4-Apr	29-May	9.0	7.0	9.0	7.0	7.3	6.0	7.0
TH-921	2-Apr	27-May	8.0	7.5	8.5	7.0	8.0	5.0	8.0
TH-923	7-Apr	27-May	8.5	7.3	7.5	6.5	8.0	6.0	9.0
TH-931	4-Apr	5-Jun	9.0	8.0	9.5	7.3	8.0	6.5	8.5
TH-934	6-Apr	5-Jun	8.0	8.0	8.5	7.8	7.5	5.0	7.8
TH-940	3-Apr	1-Jun	8.8	7.3	8.5	8.3	7.5	7.0	8.0
TH-944	27-Mar	15-May	8.3	7.0	6.8	6.8	7.5	5.5	7.0
TH-948	4-Apr	23-May	9.3	7.5	8.0	8.0	8.0	6.0	10.0
TH-953	29-Mar	24-May	9.3	6.8	7.0	7.5	8.5	6.0	8.5
TH-1007	30-Mar	25-May	8.5	7.3	7.0	7.5	7.5	5.0	8.5
TH-1008	28-Mar	27-May	9.0	8.3	8.5	7.5	7.3	5.0	7.5
TH-1010	2-Apr	21-May	9.0	8.0	8.5	7.5	6.5	7.0	9.0

Table 3. Berry weight and firmness at harvest for several southern highbush blueberry cultivars and selections grown in Griffin, GA during 2010. Firmness was measured using a FirmTech II device.

Selection or cultivar	Berry weight (g)	Berry firmness (g/mm)
Camellia	2.93	150
Emerald	2.41	165
Legacy	1.85	176
Rebel	2.33	187
Star	1.60	198
Suziblue	2.13	197
02-69	2.92	180
TH-780	2.27	195
TH-828B	2.25	210
TH-889	2.24	190
TH-895	3.04	142
TH-896	3.00	205
TH-905	2.12	180
TH-906	2.00	156
TH-919	1.60	185
TH-920	2.35	169
TH-921	2.05	200
TH-931	3.36	198
TH-934	2.97	200
TH-948	3.15	165
TH-953	3.67	163
TH-977	2.40	205
TH-1003	1.76	200
TH-1007	2.12	162
TH-1008	2.07	164
TH-1010	2.36	141

Performance of Rabbiteye Selections at Alapaha

Detailed data on plant and berry attributes were collected for various rabbiteye selections grown under field conditions in 2010 at Alapaha. Table 4 depicts data for some of the more promising selections along with observations for some cultivar standards. We continue to be interested in early ripening rabbiteye selections in the 'Climax' and 'Premier' ripening window (or earlier). 'Climax' and 'Premier' had 50% ripening June 9 to 11 this year. 'Alapaha' (UGA 2001 release) ripened June 7. 'Alapaha' fruit tend to be smaller than we would like, but ripening is concentrated, and yields continue to be good. 'Vernon' (UGA 2004 release) was also 50% ripe by June 7, which was earlier than 'Climax' and 'Premier'. 'Vernon' also has good berry size. As with southern highbush, the prolonged cold period in the early spring caused later ripening for all rabbiteye varieties and selections. However, there were several selections that still had early 50% ripe dates rabbiteyes. These included 02-63 (June 6), 03-04 (June 3), T-743 (June 1), T-957 (May 29), T-959 (June 7), T-961 (June 4), and T-965 (June 5). Some of these had light crops, but most had large to very large berry size which would be very favorable for hand-harvesting. Most notable was T-959, which continues to have the largest berries we have seen on a rabbiteye. Figures 1 and 2 show yields and berry size for two of the selections from plants at the Alapaha Research Farm for 2010 along with variety standards. These plants were only 4 years old (established Fall 2006). T-959 particularly had high yield (exceeding 23 lbs per plant), and had impressive berry size over most of the season. We submitted T-959 for release this year and it was approved. This new variety should be available for distribution to licensees in 2011.

Performance of Rabbiteye Selections at Griffin

Many of the rabbiteye selections listed above for the Alapaha location also performed well at the Griffin test site in 2010 (Table 5). All plants at the Griffin test site are young (7 years old or less), and all plants are irrigated and mulched with bark. In Griffin, 'Climax' and 'Premier' ripened June 19 during 2010. Again, the UGA release 'Alapaha' performed well in comparison, as did 'Vernon'. Several selections that ripened before 'Climax' in Griffin (similar list as from Alapaha site) were 02-63, 03-04, T-743, T-957, T-961, and T-965. T-959 ripened at a similar time as Climax and Premier in Griffin. Most of the early selections had larger berry size than 'Climax'. We will continue to evaluate these selections at both Griffin and Alapaha, as well as at other locations.

For later season berries, Brightwell ripened in Griffin (50% ripe) on June 30, Powderblue on June 30, and Ochlockonee on July 12. Some selections of interest in the later ripening time frame include T-968, T-1016, and T-1019. These selections, along with other later selections were propagated for advanced trials this year. Also, some of our up and coming young selections have several that are later ripening. Our

emphasis has been geared toward earlier varieties, but we need some later ripening varieties as well to replace Brightwell and Powderblue.

As with the southern highbush in Griffin, we also measured berry firmness and size for several rabbiteye selections and cultivar standards in 2010 (Table 6). Berry data were taken from random samples when at least 25% of fruit were ripe for each selection. The results show most rabbiteye are firm (180-200 g/mm), with the major exception being Premier (165 g/mm), which is considered among the softer commercial varieties. Past research has suggested that a firmness value of 170-175 g/mm is the minimum for a berry to be successfully mechanically harvested, and Premier is on that threshold. Grower experience has shown indeed Premier can become too soft to harvest with a machine. We have several selections that are very firm (> 200 g/mm). Notables for firmness were T-959 (260 g/mm) and T-968 (258 g/mm). In addition to firmness improvements, we are also are making considerable progress in developing larger size in the rabbiteye berries, with many selections exceeding 2 g/berry in weight. T-957 and T-959 have exceptional berry size, with both of these exceeding 3 g/berry. This large berry size can improve hand harvesting efficiency, and may have increased consumer appeal in select markets. We are continuing trials with these selections, and are incorporating the larger fruited germplasm into our breeding efforts.

Similar to past years, several rabbiteye cultivars and selections in Griffin were evaluated for fruit cracking in response to rainfall by using a protocol that involved soaking berries overnight in distilled water (Table 6). We categorized cracking for individual berries as slight, moderate, and severe. Those berries with none or only slight cracking were considered commercially useful, whereas berries that had moderate to severe cracking were considered commercially unacceptable. As in the past, the early season cultivars ‘Alapaha’ and ‘Premier’ showed minimal fruit cracking problems, and the large fruited selection T-957 showed a similar response. Some of the selections we tested did not perform well in the fruit-cracking test, including T-743, T-959 and T-961. Each of these selections had a very nice berry with regards to size and firmness; however, the cracking response could present problems. T-959 has the largest rabbiteye berry size we have observed, and as mentioned earlier was approved for release for 2011. We expect the large berry size and early ripening time will still stir interest in this new variety, even with it being susceptible to cracking.

Table 4. Ratings of some fruit and plant characteristics of field grown rabbiteye blueberry cultivars and selections from Alapaha during 2010.

Selection or Variety	Date of 50% Flowering	Date of 50% Ripening	Berry Size	Berry Scar	Berry Color	Berry Firmness	Berry Flavor	Crop Load	Plant vigor
Alapaha	28-Mar	7-Jun	6.5	7.5	7.0	7.0	8.0	7.0	8.0
Brightwell	1-Apr	24-Jun	6.8	7.5	7.0	7.5	6.8	9.0	10.0
Climax	29-Mar	11-Jun	6.5	7.0	7.0	7.8	6.8	6.0	7.0
Ochlockonee	7-Apr	7-Jul	7.5	8.0	7.8	8.0	8.0	9.0	9.0
Powderblue	1-Apr	27-Jun	6.8	8.0	8.0	7.0	7.2	6.0	9.0
Premier	3-Apr	9-Jun	8.0	7.5	7.0	7.0	7.5	2.0	10.0
Vernon	31-Mar	7-Jun	8.0	8.0	7.5	8.0	8.0	5.0	9.0
02-63	2-Apr	6-Jun	8.5	8.5	7.5	8.0	8.5	6.0	9.0
03-04	1-Apr	3-Jun	7.5	7.2	7.5	7.0	7.8	5.0	10.0
T-743	28-Mar	1-Jun	8.5	8.0	8.5	8.5	9.0	2.0	10.0
T-957	28-Mar	29-May	8.2	8.5	7.5	8.5	8.0	6.0	9.5
T-959	30-Mar	7-Jun	9.2	8.0	7.0	8.5	7.0	6.0	10.0
T-961	29-Mar	4-Jun	8.0	7.5	7.5	7.5	7.3	6.0	7.5
T-965	22-Mar	5-Jun	8.0	8.0	6.8	8.0	8.0	9.0	10.0
T-968	31-Mar	16-Jun	8.5	8.0	7.5	7.3	7.0	4.0	8.0
T-1015	28-Mar	7-Jun	8.5	9.0	7.5	9.5	8.5	1.5	10.0
T-1016	28-Mar	14-Jun	8.0	8.5	7.0	9.0	8.0	3.0	9.5
T-1017	4-Apr	20-Jun	8.0	6.8	6.8	10.0	7.0	3.5	8.5
T-1019	31-Mar	17-Jun	8.0	8.8	6.8	8.5	7.5	5.0	8.0

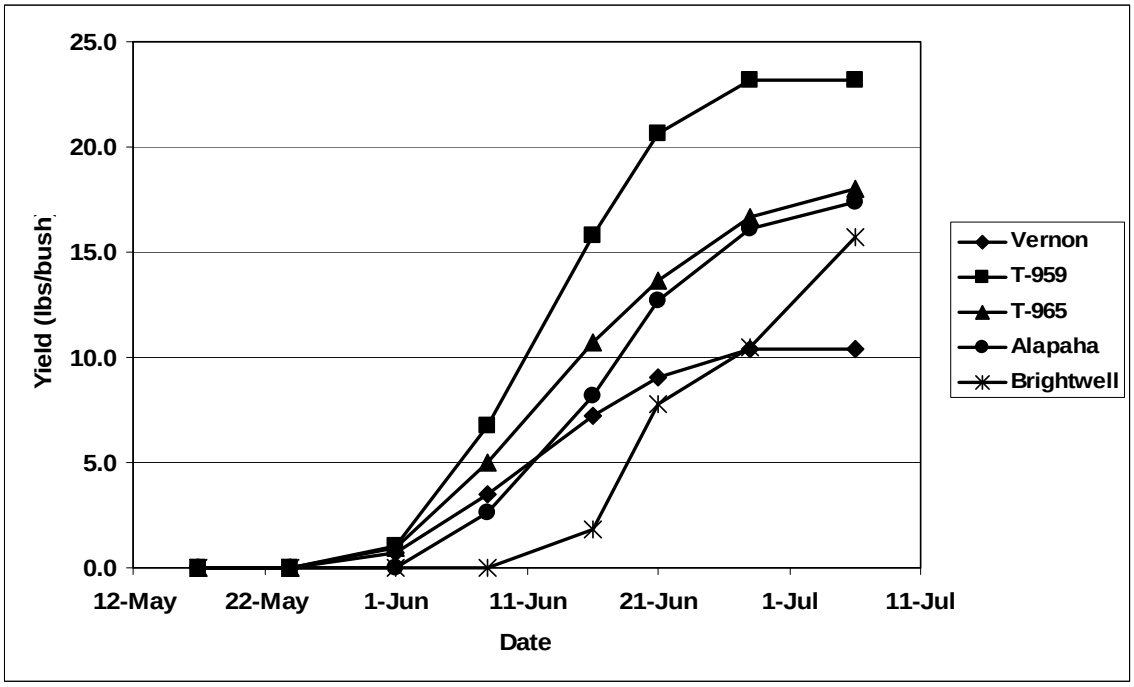

Figure 1. Yield of two rabbiteye selections and three standard varieties at Alapaha for 2010.

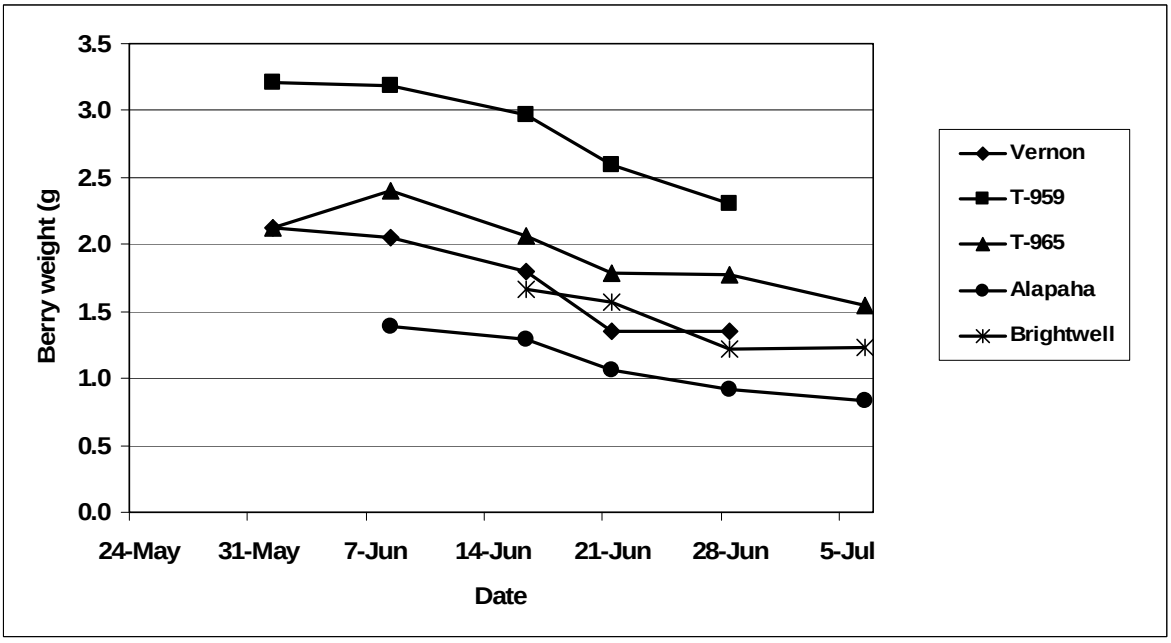

Figure 2. Average berry weight for two rabbiteye selections and three standard varieties over several harvests at Alapaha for 2010.

Table 5. Ratings of some fruit and plant characteristics of field grown rabbiteye blueberry cultivars and selections from Griffin during 2010.

Selection or Variety	Date of 50% Flowering	Date of 50% Ripening	Berry Size	Berry Scar	Berry Color	Berry Firmness	Berry Flavor	Crop Load	Plant vigor
Alapaha	8-Apr	17-Jun	7.0	8.0	6.8	7.0	8.0	7.5	8.5
Brightwell	9-Apr	30-Jun	6.5	7.5	7.3	8.3	6.8	10.0	8.5
Climax	6-Apr	19-Jun	7.0	7.0	7.0	7.5	7.0	7.0	7.5
Ochlockonee	12-Apr	12-Jul	7.0	7.5	7.0	7.5	7.5	9.5	10.0
Powderblue	8-Apr	30-Jun	6.5	8.0	8.3	7.5	6.8	8.0	8.0
Premier	6-Apr	19-Jun	7.5	7.5	7.5	7.0	7.5	4.5	7.5
Vernon	9-Apr	17-Jun	8.5	7.8	7.0	8.0	8.0	6.0	9.0
02-63	10-Apr	16-Jun	8.5	8.0	7.5	8.0	7.5	5.0	7.5
03-04	9-Apr	16-Jun	8.5	8.5	7.0	8.0	8.5	5.0	7.5
T-743	6-Apr	8-Jun	8.0	7.5	8.0	7.5	8.5	2.5	9.5
T-957	9-Apr	12-Jun	8.5	7.0	7.0	8.0	8.0	7.5	8.5
T-959	8-Apr	19-Jun	9.2	8.0	7.3	8.8	7.0	6.5	10.0
T-961	8-Apr	15-Jun	7.8	7.5	8.0	8.5	8.0	5.5	8.0
T-965	6-Apr	17-Jun	8.5	7.5	7.0	7.5	8.0	8.0	8.0
T-968	9-Apr	25-Jun	8.2	8.8	8.0	8.0	8.0	5.5	8.0
T-1015	7-Apr	25-Jun	8.5	8.8	7.0	9.3	8.0	3.0	9.0
T-1016	7-Apr	27-Jun	8.5	8.5	7.0	8.5	8.0	4.5	9.0
T-1017	8-Apr	24-Jun	7.5	6.8	6.8	8.8	7.5	6.0	9.0
T-1019	10-Apr	23-Jun	8.0	7.5	6.8	8.0	8.0	6.0	8.0

Table 6. Berry firmness, average berry weight, and percent fruit cracking of several rabbiteye blueberry selections from the Blueberry Cultivar Development Program at the Griffin, GA location during 2010.

Selection	Berry firmness (g/mm)	Average berry Weight (g)	Moderate to severe cracking (%)
Alapaha	210	1.57	3
Brightwell	245	1.01	2
Climax	206	1.56	9
Columbus	190	2.44	0
Premier	165	2.00	3
Powderblue	232	1.08	0
Ochlockonee	215	1.56	0
Vernon	200	2.20	8
03-06	230	1.60	10
T-743	215	2.08	20
T-957	183	3.10	0
T-959	260	3.15	26
T-961	205	2.44	21
T-965	215	2.70	9
T-968	258	2.24	6

Goals of The UGA Blueberry Cultivar Development Program for 2011

Plans for the year 2011 are to continue aggressively evaluating seedlings, selections, and advanced selections of both commercial and ornamental blueberries (which has become an additional focus of our effort in the past few years). More than 50 new crosses were made during 2010, and 2500 to 3500 seedlings will be generated from these crosses in 2011. These seedlings will be planted in a seedling nursery during the summer of 2011 to be grown for future evaluations. More than 2500 seedlings were planted in 2009, and more than 3500 new seedlings were planted in a seedling nursery during 2010. These seedlings will be screened after 3 years for fruit and plant characteristics suitable for both commercial and ornamental production. The most promising seedlings will be identified as selections for further evaluation (estimated to be 3 to 5% of total seedlings). In 2010, 200 new selections (a mixture of commercial and ornamental material) were made from seedlings of crosses made by the UGA program in the last 3 years. These were propagated, and multiple plants will be established at Alapaha and Griffin in 2011 for further evaluation. These new selections will be added to the several hundred selections currently growing at these locations that will be evaluated during 2011 for possible designation as advanced selections.

In 2009 and 2010, several selections were identified as advanced selections and were propagated. These will be further evaluated in 2011 for potential as cultivars, and some of the advanced selections will be distributed to both commercial and ornamental cooperators to assist in the final evaluation process. Several commercial and ornamental advanced selections were distributed to cooperators in 2010 to begin the final phase of testing for their potential as cultivar releases. Data from these trials will be collected beginning in 2011 and will continue through 2016. Evaluations of the commercial advanced selections will include fruit characteristics, plant growth characteristics, flowering times, and yields (when possible). For the ornamental selections evaluations will include plant growth habit, flowering times, ornamental appeal, and nursery container growth.

In 2008 we established southern highbush advanced selection plots at the Alapaha Farm to evaluate their potential to be mechanically harvested for the commercial production industry. An additional trial was established in 2010 as well. This is a great need for Georgia growers since hand-harvest labor issues are becoming more cumbersome for the industry. These specialty advanced selection trial blocks will begin to be evaluated in 2011 and will take up to 5 years to complete.

In 2005 we initiated a pilot effort for selecting blueberries for the edible ornamental/home garden consumer. The effort quickly gained momentum from the ornamental nursery industry, and is thus being expanded and becoming a second major effort of our UGA Blueberry Breeding Program. We are seeking a diversity of plant types for this new industry that are specifically ornamental in nature. Traits being sought include compact plant habits, colorful berries, novel plant characteristics, and

attractive foliage. Blueberry varieties for these markets do not need typical commercial production attributes such as concentrated ripening and fruit quality traits for long distant shipping. Therefore, this entire effort is substantially different than the commercial production evaluations we have done for years. To this end, we have begun to partner with some leading ornamental nurseries to provide us input and test our edible ornamental selections for their potential growing and marketing conditions. We have 2 released varieties that are being patented and licensed to ornamental nurseries. The first of these varieties will be part of a marketing campaign in 2011. We now have more than 80 ornamental blueberry selections we are evaluating. We have interest in this program from several large nurseries, some of which visited our program for the first time in 2010.