

Testing the Possibilities - A Preliminary Report on the Performance of Ruby June in Maryland

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Will the new short-day strawberry variety, Ruby June (Figure 1), work in more northern growing areas like Maryland? To my knowledge, this may be the first official report on the performance of this newer variety from the Lassen Canyon Breeding program in the state of Maryland. Ruby June has been tested widely in the Carolinas and Virginia, and Table 1 provides some data on its performance in Eastern North Carolina in the 2020-2021 growing season. In this particular North Carolina trial planted on 10/15/19, we harvested 19 different varieties as well as 59 Advanced Selections from the Lassen Canyon Breeding program. In addition, we evaluated how different varieties, including Chandler and Ruby June, performed as a plug or cut-off (Figure 2). You can hear a full discussion about the this trial by linking to <https://www.flavorfirst.com/2020-field-day>.

Table 1. Harvest Data from North Carolina (Cottle Farms, Faison) Spring 2020 (17 Harvests)

Treatment	Market	Market	Ave.	Brix	Flavor rating (1-4) ²
	Wt./plant (grams)	Wt./plant (lbs)	Berry Size (grams)		
Chandler plug	840	1.85	14.5	7.2	2.8
Chandler cut-off	717	1.58	13.0	8.0	2.8
Ruby June plug	955	2.10	20.8	8.1	3.3
Ruby June cut-off	989	2.18	20.9	9.0	3.5

² Flavor rating (subjective): 4=Excellent; 3=Good; 2=Fair; 1=Poor



Fig. 1. Ruby June is a newer short day variety that is proving to be popular with growers in the Carolinas and Virginia.



Fig. 2. Plug plants (left) are the standard plant type in the Mid-Atlantic region. A cut-off plant is shown on the right.

Of course, in the Middle Atlantic region of the United States, plug plants are the dominant plant type. And, Maryland grower Russell Shlagel has never grown anything but plug plants on his farm in Maryland for the last 20 years. His main variety is Chandler. The only other strawberry variety he grows in any quantity besides Chandler is Sweet Charlie – he regularly plants 5,000 plants of ‘Charlies’ each year for his early market. Sweet Charlie can be, “10 to 20 days ahead of Chandler,” in ripening, according to Shlagel.

Over the last few seasons he has also been ‘experimenting’ with a limited number of Ruby June plants grown by a plug propagator in Virginia. As everyone knows, plugs are the favored transplant type in Maryland and throughout the Northeast and Midwest. Personally, I am not aware of any Mid-Atlantic grower who is using cut-off plants at this time. The main reason cut-offs are not used in areas like Maryland has to do with their limited availability. Cut-off plants are generally not available until early to mid-October. In contrast, plug plants can be available to more northern growers in Pennsylvania, for example, as early as the first week in August. But, at Shlagel’s farm location in Waldorf, Maryland, which is located about 20 miles south-southeast of the Capitol Dome in Washington, DC, strawberry transplanting is done in the 2nd and 3rd weeks in September. It has been this grower’s experience that later plantings than this can really hurt fruit production. With this understanding in mind, it was our thinking that for cut-offs to be successful in this location, they would need to be planted in the same window as plug plants.

As it turned out, the folks at Lassen Canyon Nursery felt that it might be worth a try to see if cut-offs dug in the final week of September could possibly produce a marketable yield that would be equivalent to plugs in the Mid-Atlantic region. And, to support a research trial, Lassen Canyon Nursery agreed to furnish 1,000 Ruby June cut-off plants. These plants were dug from Lassen’s Macdoel nursery in Northern California September 24th. After digging, the test plants were trimmed, packed and cooled before shipping to Shlagel’s farm by Fedex. The plants arrived in excellent condition, and in Figure 3 you can see a photo of the cut-off used in the trial.



Fig. 3. Cut-off plants were dug on 9/24/19 by Lassen Canyon Nursery, and shipped via Fedex to Shlagel Farms in Waldorf, MD, for transplanting on 9/27/19. To see the harvesting of cut-offs at Lassen:in <https://www.youtube.com/watch?v=WiJkbRTOXeM>

Following transplanting on 9/27/19, the cut-offs were immediately irrigated-in for one hour (Figure 4) at the rate of 1/10th inch per hour. For Days 1-3, the sprinklers were run 3x per day for one hour. Irrigation on Days 4 and 5 was for just one hour. The grower saw new growth on the cut-offs in less than one week.



Fig. 4. Irrigating the cut-offs after transplanting

Trial details. The plugs used in this trial were propagated by the Virginia Berry Farm, Ruther Glenn, and there were 2 sources of runner tips (Balamore Farm Ltd, Nova Scotia; and Westech Ltd, Prince Edward Island). As mentioned, the cut-offs came from Lassen Canyon's high elevation nursery in Macdoel, CA. Thus, the 3 treatments in this trial were:

- 1) RJ Plug NS = Ruby June plugs with runner tips from Nova Scotia
- 2) RJ Plug PEI = Ruby June plugs with runner tips from Prince Edward Island
- 3) RJ Cut-off CA = Ruby June cut-offs from Lassen Canyon (Macdoel)

Each plot consisted of 20 plants, and there were 2 replications per treatment. The individual plots were about 12.5 ft in length. The plots were not randomized, and the individual plots used for harvest data came from within longer rows of that particular plant type and source. As you can tell in Figure 2, the grower had double rows and the plant spacing in the row was 15 inches – with a 5 ft bed center, and double row beds, the grower is using about 14,000 plants per acre.

Harvest. The crop was harvested from April 22 – June 14, 2020, and there were 13 harvests. The data for the 2 plots of each treatment were averaged together. With the exception of a “slight incident” on one harvest date with a U-pick customer wandering into the testing area, everything else went very well. Only berries of marketable quality were harvested and weighed; culls were simply discarded in the row aisles. The grower was also able to furnish complete data on the number of berries picked in each plot for each harvest, and by dividing the total weight of fruit picked per plot by the number of berries from the plot, a precise average berry weight can be calculated.

Table 2 presents the harvest data for the entire season. The plug plants produced the highest marketable yields. The RJ Plug NS treatment produced 1.39 lbs/plant, or 19,516 lbs/acre (assuming 14,000 plants/acre). The RJ Plug PEI treatment produced about 1/10th lb less per plant, or 1.38 lbs.

It was also interesting to see that the average berry size for Ruby June in this on-farm-test for both the plugs and cut-offs were in a very high range -- from 23.2 grams to 26.2 grams (Table 1). These results for berry size in the MD trial were better than the berry sizes we achieved in a North Carolina Variety Trial (Table 1).

Table 2. Harvest Data from Shlagel Farms, Waldorf, MD Spring 2020 (13 Harvests)

Treatment	Market Wt./plot Per	Market Wt./plant (grams)	Market Wt./plant (lbs)	Market Wt./acre (thou. lbs)	Ave. Berry Size (grams)
RJ Plug NS	27.9	633	1.39	19,516	23.2
RJ Plug PEI	24.2	627	1.38	19,327	26.2
RJ Cut-off CA	23.5	585	1.29	18,050	25.1

Table 3 provides more detailed information on the individual harvest yields for each of the 3 treatments. I have placed in boldface the time during the season when each treatment exceeded the equivalent of 1 lb/plant (454 grams = 1 lb).

Table 3. Marketable yield (grams) by treatment and harvest date, Shlagel Farms, 2019-2020.

	22-Apr	28-Apr	3-May	7-May	12-May	18-May	23-May	27-May	30-May	4-Jun	9-Jun	11-Jun	14-Jun
Ruby June Plug (NS)													
Harvest Yield	11	38	76	66	76	85	78	39	30	39	41	29	26
Cumulative to Date	11	49	125	190	266	351	429	468	498	537	578	607	633
Ruby June Plug (PEI)													
Harvest Yield	9	22	69	75	72	42	76	52	52	30	52	40	36
Cumulative to Date	9	31	100	175	247	289	365	417	469	499	551	591	627
Ruby June Cut-off (Lassen)													
Harvest Yield	15	42	72	58	49	61	59	40	31	58	51	28	25
Cumulative to Date	15	57	129	187	236	297	356	396	427	485	536	564	589

Summary. The highest marketable yields recorded from this 2019-2020 Ruby June test were for the plugs, with the plugs yielding about 1.4 lbs/plant (Table 2). The cut-offs were only about 1/10th lb lower in per plant productivity than the plugs, or about 1,400 lbs less production on a per acre basis.

In terms of Ruby June ripening, I thought it was helpful to learn from Mr. Shlagel that Ruby June is conservatively 5 days ahead of Chandler. The spring 2020 strawberry season was also Mr. Shlagel's his longest season ever. He started picking a 'scattering' of Sweet Charlie's on April 5th, and his final day of strawberry harvest was June 22nd.

At the end of June, Mr. Shlagel informed me that the Spring 2020 strawberry season was his best season in 20 years. The large majority of Mr. Shlagel's plants are Chandler, and he mentioned that the overall average marketable yield for the farm was 1.53 lbs/plant this season.

As was discussed on June 11th, (<https://www.flavorfirst.com/2020-field-day>), we know that this past growing season was quite exceptional. Many growers, including Mr. Shlagel, achieved their highest yields in many years. For strawberry growers to get a better picture of Ruby June's general performance characteristics in the Mid-Atlantic region, more years of testing will definitely be very important. Going forward, it is Mr. Shlagel's plan to repeat this study in the 2020-2021 season. I would recommend that he also include Chandler plugs and cut-offs in the trial for next season, and to also try to increase replications to perhaps 3 reps/treatment, if possible. In my view, it takes several years of "testing, testing and more testing," to really figure out whether a new variety like Ruby June is going to be, in the words of Mr. Shlagel, "a real keeper." For now, I would say Ruby June as a plug plant is off to a very promising start! And, given that Ruby June berries are quite a bit larger than Chandler, and that it produces a very steady yield from one harvest to the next, this variety may be especially well suited to pre-pick marketing. It also has good holding characteristics compared to Chandler, and in our testing in North Carolina, Ruby June has consistently scored very well on flavor.

On the next page you can see the summary data for the variety and advanced selection trial we conducted at Cottle Farms this past spring. We tested over a dozen different varieties, including the 4 new releases from the University of California (Royal Royce, Valiant, Victor, and Warrior). We plan to continue testing Royal Royce. We harvested 17 times from March 26 – June 8, and for nearly every harvest we experienced some type of rain event. For rain tolerance, we were very pleased with the performance of the Advanced Selection from the Lassen Breeding Program, 146T54. Other than Ruby June, no other variety scored above a 3.0 on the FLAVOR (4=Excellent, 3= Good, 2=Fair, and 1=Poor). Chandler scored 2.8 on flavor, regardless of plant type (plug or cut-off). Another Lassen selection, 143T35, achieved a near perfect score of 3.95 for flavor (in the table it was rounded up to 4.0).

Rank	CLONE/Plant	Mkt_lbs/plant	Tot_lbs/plant	Percent cull	Ave berry weight (g)	⁰ Brix	Flavor ^z
1	74X4 Cutoff	2.83	3.38	16%	24.8	6.8	2.2
2	73X41 Cutoff	2.62	3.23	19%	22.4	6.9	2.0
3	81X18 Cutoff	2.60	3.03	14%	20.7	8.3	1.8
4	89T2 Cutoff	2.48	2.90	14%	28.8	7.3	2.1
5	57U55 Cutoff	2.47	2.79	12%	24.7	6.3	2.0
6	86U59 Cutoff	2.45	2.88	15%	25.0	6.5	1.9
7	Camar Cut LCN	2.39	2.75	13%	18.4	6.6	2.3
8	Camila Cutoff	2.37	2.83	16%	24.5	7.4	2.2
9	Liz Plug	2.37	2.81	16%	16.9	7.8	2.3
10	12X40 Cutoff	2.30	2.89	20%	17.8	8.5	2.6
11	Camino plug	2.29	2.60	12%	21.1	7.5	1.9
12	UC Royce Cutoff	2.25	2.68	16%	27.9	6.7	1.5
13	152X15	2.23	2.56	13%	26.6	8.5	2.8
14	RJ Plug (PEI-1)	2.19	2.43	10%	20.0	8.4	3.3
15	RJ Cutoff (CA)	2.17	2.45	12%	20.2	9.2	3.6
16	146T54 Cutoff	2.16	2.36	9%	23.0	7.7	2.5
17	Camar Plug (PEI)	2.11	2.59	19%	18.5	7.8	1.9
18	85U40 Cutoff	2.08	2.62	21%	24.0	6.9	2.5
19	UC Valiant Cutoff	2.05	2.63	22%	28.6	6.0	1.7
20	84X27 Cutoff	1.96	2.35	17%	21.7	7.6	2.7
21	RJ Plug (PEI-2)	1.92	2.17	11%	21.3	8.2	3.2
22	UC Victor Cutoff	1.85	2.73	32%	24.2	5.7	1.8
23	Chand Plug (PEI)	1.85	2.15	14%	14.5	7.2	2.8
24	Camar Cutoff (PEI)	1.84	2.16	15%	17.8	7.5	2.2
25	122X8 Cutoff	1.84	2.26	18%	29.2	8.9	2.9
26	Rocco Plug	1.79	2.33	0.24	13.4	8.4	2.5
27	RJ Cutoff (PEI)	1.73	1.95	0.12	21.0	8.8	3.4
28	95X5 Cutoff	1.71	2.18	21%	24.0	8.3	2.7
29	53X53 Cutoff	1.63	1.98	18%	23.3	6.6	1.0
30	Merced Cutoff (LCN)	1.61	1.94	17%	23.2	6.0	2.2
31	Chand Cutoff (PEI)	1.58	1.91	17%	13.0	8	2.8
32	Merced Plug (PEI)	1.54	1.87	18%	19.7	6.9	2.6
33	143T35 Cutoff	1.53	1.83	17%	20.9	9.9	4.0
34	UC Warrior Cutoff	1.43	1.97	27%	23.0	6.2	1.7
35	San Andreas Plug	1.35	1.60	16%	18.3	5.9	2.0

^z Flavor rating: 4=excellent flavor; 3=good flavor; 2=fair flavor; and, 1=poor flavor

