VIRGINIA
STRAWBERRY
ASSOCIATION
NEWS

Summer, 2020 Vol. 5, No. 2

IN THIS ISSUE:

Join us for a Virginia Virtual Strawberry Preplant Meeting

Monday, August 10, 2020 at 5:30pm

weblink: https://bit.ly/strawberrypreplant

To join by phone: 1-312-626-6799

Meeting ID: 958 9233 5963

One tap mobile +13126266799, ,95892335963#

SPEAKERS INCLUDE

Dr. Hannah Burrack - Professor and Extension Specialist (Berry, Tobacco, and Specialty Crops), North Carolina State University, studying the biology and management of insect pests and pollinators in berry crops

Dr. Katie Jennings - Associate Professor of Vegetable and Small Fruit Weed Science, North Carolina State University. Research responsibilities for weed management in small fruit and vegetables, including herbicide efficacy and carryover, weed/crop competition, weed biology, and field residue studies

Dr. Chuck Johnson - Professor and Extension Pathologist – Southern Piedmont Agricultural Research and Extension Center (AREC), School of Plant and Environmental Sciences, Virginia Tech

Dr. Jayesh Samtani - Assistant Professor and Small Fruit Production Specialist – Hampton Roads AREC, School of Plant and Environmental Sciences, Virginia Tech

For program questions please contact Roy D. Flanagan at royf@vt .edu or (757)-385-4769

VIRGINIA STRAWBERRY ASSOCIATION

Virginia Cooperative Extension
Virginia Tech • Virginia State University

Virginia Department of Agriculture and Consumer Services

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Note from VSA's President

The 2020 strawberry season will not likely be forgotten by most of us for the rest of our lives. It was a game changer in so many ways. COVID-19 forced the change. Cold weather and late freezes/frost also challenged a lot of us. What started out early in the spring as a major worry about even being able to be open to the public... then turned into a worry about being able to manage the demand for strawberries. In our area, our farm became the hottest ticket in town. Picking strawberries was basically one of the only things people could do and feel safe, and it seemed liked everyone wanted to get out of the house and pick strawberries! For us, implementing a reservation system saved our season and changed the future of how we will do things going forward. If it were not for the online reservation system, our farm would have been overrun and we would not have been able to safely operate. All our processes and procedures were revamped because we were forced to. For instance, we stopped weighing the berries and just charged by the bucket. This meant less contact. It also meant that all customers picked a bucket, not smaller amounts.

It was tough to change things we had always been doing. Change is hard sometimes. However, it ended up to be a blessing because it forced us to make our farm better. I am guilty of resisting change many times because I think the current way of doing it is the best way. I think probably all of us resist change to some degree. I hope that you experienced positive changes in some way as well. Now that we all have experienced strawberry harvest in a pandemic, we are ready for anything! Here's hoping everyone's preparation for the 2021 crop is a safe one!

Best,
Tyler Wegmeyer

Virginia Commissioner of Agriculture Jewel Bronaugh visited with Tyler Wegmeyer, current VSA president, and his wife Harriet at Wegmeyer Farms to tape a video promoting strawberries and U-pick strawberry farms.

VSA's two Honorary Members, Bob Rouse (2020 honoree) and Cal Schiemann, right. Pictured with them on the left are Ben Miller and Russ Shlagel.

Two great minds in the strawberry business, Bob Rouse, left, and Allen Straw.

Virginia Tech Small Fruit Horticulture Program is now on Social Media

The Virginia Tech Small Fruit Horticulture Program at the Hampton Roads AREC is now on Facebook and Twitter. The program's username is @VTBerryBITES, which highlights the intent to share and update followers on Business, Innovation, Technology, Environment, and Science news as it pertains to berry production including strawberry production. Once you 'like' the page on Facebook, or 'follow' on Twitter, you will automatically get updates of contents.

Fungicide Resistance Program UGA

The University of Georgia is now running a fungicide resistance assay program (similar to what Dr. Guido Schnabel at Clemson offered), and while the charges for this service are high, a grant from the Southern Region Small Fruits Consortium, SRSFC, (Virginia Tech is a member) will cover those costs on a first-come, first-served basis until the grant is used up. Once the funds are depleted from the SRSFC, it will go to a pay basis. Current commodities that might benefit would be blueberry, blackberry, muscadine, and bunch grapes. The lab has been closed, so unfortunately, the time for testing strawberries has passed.

https://site.extension.uga.edu/viticulture

VIRGINIA STRAWBERRY ASSOCIATION MEMBERSHIP FORM

rev. 03/18

Name(s)	Farm/Business Name	$$$ Received
		Date Received
Street Address		Check no.
City State Zip		circle one: Renewal New Member
County	Strawberry Acres, Plasticulture	Strawberry Acres, Matted Row / Organic? circle: Yes No
Home or Business Phone (circle which)	Cell Phone	Fax
E-Mail	Website	

2020 Dues (check one):

____ $ 50 for growers
____ $ 100 for allied industry (business supporters)
____ $ 20 for non-grower Extension and government employees

Please make check payable to "**VSA**" and mail to:
Virginia Strawberry Association / Lowell Yoder, Treasurer / 1202 Brown Mills Road / Rustburg, VA 24588

Please make a copy for your records. Thank you for your support!

Reflections on the 2020 Strawberry Season

By Carter Parr, Seamans' Orchard, Roseland, VA:

It certainly has been an unusual year. We did a few things that worked pretty well for us. First, we made everyone wash their hands before going into the strawberry patch. We had no one object to this. We used a hand-washing station that we use when we are picking apples. It had spigots that are 18 inches apart, so we had to plug those off and space them out to 6 feet. It is on a trailer so when we picked at our second patch we could easily move the hand washing station. Five people could wash their hands at one time. The wastewater was carried away with garden hoses to an area downhill away from the patches. This worked very well.

We roped off our patch into seven different blocks to try and keep people separated. In prior years, we would designate rows for people to pick in by putting different colored flags at the end of the rows. This year we actually put up rope to differentiate the different blocks. I think this worked so well we will probably continue to do this in the future.

We asked that people wear a mask; not all did. Many people would come and pick up their busket and pay with a mask on, but once they got in the patch they would take off the mask.

By Charlie Mayes, Mayes Quail Hill Orchard, Mechanicsville, VA:

This was quite a season. In hindsight, if I had known what I know now, I would have increased my planting instead of downsizing. Although the Roccos were disappointing

Signs at Wegmeyer Farms.

Cars lined up to come pick berries at Shlagel Farms.

in size of berries at midpoint, my selling season was long. Our sales were much more than last year. The Sweet Charlies had a good crop of large berries. Most weeks we were only open two days a week for about two hours and sold out of berries each time.

We did go heavier toward selling wholesale to a local market. Our experience was that hired professional pickers do a much more complete job of harvesting the crop versus those that come to U-pick.

By Russell Shlagel, Shlagel Farms, Waldorf, MD:

In our pre-opening meetings, we came up with firm rules for the customers' and the staff's safety and decided on things that we were going to do to promote everyone's safety. Our firm rules were: Masks must be worn in the sales building, no group activities, no picnics and no playground. We knew that social distancing in the sales barn would be a challenge as it was currently laid out. We went to the barn and walked through it as a customer would and then made the changes as we were walking it. We laid it out to accommodate one-directional movement and used chalk and tape on the floor to help with that. We used vegetable display tables to create a pathway that customers would walk that took them past every sales opportunity like the meat freezers, etc. We physically separated the cash registers with a barrier, so even when kids were with a parent they would still be appropriately distanced.

We increased our sales staff by several people this year. We added a permanent greeter outside of the sales barn to greet and answer questions and hand out picking containers. It was helpful to have someone there to answer questions about bedding plants or bathrooms and not have those people entering the building. We added a field greeter as well during high volume days to hand out picking containers at the field as well as weigh berries and take credit card customers. On the busiest of days, a customer could stay outside for the entire experience. We struggled a bit with that one, because it meant lost sales opportunities inside the barn. However, we had overwhelming volumes of people on weekend days and there

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Home-made handwashing stations at Critzer Family Farm.

Reflections on the 2020 Season

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was no other way to safely handle the crowd.

A car greeter was added as well to determine if the customer needed to go straight to the building for pre-picks or were there to pick their own. The car greeter then sent the car on to the car-parking attendants.

We had the Covid safety rules posted in multiple places as well as on our website and we gave daily reminders on Facebook. It became tedious having to remind people about safety rules. We had many, many new customers this year, many who had never picked berries before, and some who were just anxious to be out of their house and have their kids out of the house. It was challenging at times to rein people in and make sure they were staying in designated areas and maintaining distance from fellow customers.

Our biggest change and challenge was the creation of online stores for all of the farmers markets we attend. Customers could order strawberries, which we picked in one lb. clamshells, as well as vegetables, herbs, and flowers, and pay for them online. On the market day, we took no extra berries or produce; just the prefilled boxes or bags of what the customer had already paid for. This increased the number of employees that we would typically need because we had to fill all of the orders for multiple markets on Fridays for the Saturday markets and again on Saturdays for the Sunday markets. However, the increased revenue through the stores offset the increase in payroll.

By Tyler and Harriett Wegmeyer, Wegmeyer Farms, Hamilton, VA:

Implementing a new reservation system was a game changer for us. With increased demand, it enabled us to control crowds; space families out throughout the day and manage supply. This new model of doing things will likely be in our farm's future for years to come.

By Hanri Kaya, Critzer Family Farm, Afton Mt. VA:

Over the winter in preparation for the 2020 strawberry season, we were both excited about the season ahead, and nervous about the volume of strawberries we would potentially have, since we expanded our patches to a total of six acres of two varieties of berries, 70% Chandler/30% Camarosa. We eagerly worked on getting GAP certified, and lining up wholesale customers. Then COVID-19 happened. Not knowing what the season would bring, we investigated all options for processing and preserving our harvest, while waiting to hear if we would be allowed to open. Not to mention having to protect all crops against the late May frost.

Once news came that we would be able to open, attention shifted to how we could provide an environment that allows people to enjoy the outdoors, be distant from each other and still have their annual tradition of picking berries. We quickly developed a patch and row assignment system that allowed us to know (fairly accurately) how many people were in different parts of patches at any given time. The system evolved over the season, and word spread like wildfire on social media that we were allowing entire families a safe place to get out of the house. Quickly families began meeting their friends on the farm for picnics and picking six feet apart. Not only did we have an amazing berry crop, for nine weeks, but we also had MANY customers that came out on rainy and sunny days. We had families that came back 6-8 times and picked hundreds

Handwashing station made by Tyler Wegmeyer.

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Reflections on the 2020 Season

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of pounds of berries for their annual preserves, and we had many first-time pickers who needed some instruction on finding good berries. Any berry that we picked ourselves and did not sell was processed for ice cream. By the end of the first weekend our old soft serve machine literally went up in flames as we pushed it beyond capacity, but thankfully we already had a new one on order and have been making fresh fruit ice cream all season long.

For COVID-19 we implemented row assignments, we encouraged people to bring their own containers to pick in, and then we made every effort to not touch their containers or their berries from the moment they received a sanitized container (if they used ours) until they left. We built a farm-style handwashing station for customers to use, and instructed them to pick anything that they touched. Our farm stall had lines drawn to keep people apart and flow people through quickly. For the most part, it worked well, and I know many memories were made at our farm. We were glad we could provide a bit of "normal" that helped relieve some stress for families. In that way, this season was a true example of the mission of Critzer Family Farm, which is to provide families a fun and safe place to enjoy the simple farm life.

By Tom Baker, Virginia Beach, VA:

COVID-19 brought many questions and new challenges this year. We approached picking season with numerous mandates, guidelines, and suggestions from state officials and university Extension personnel. Some were practical; others seemed ridiculously unfeasible. We had to pick and choose what we felt would work best on our farms, for our customers, and for our staff.

New policies were written. New signs were ordered, plus gallons of hand sanitizer and spray disinfectant and boxes of latex gloves. To reduce staff-customer contact, we decided to forego weighing this year and to sell by volume, thus thousands of extra four-quart "buskets" were ordered.

We put folding tables in front of our counters for more distancing, just like we saw in Home Depot, our Napa store, and other businesses. We urged customers to pay by credit card to minimize handling of "dirty" money and mounted our Square chip readers on long sticks to keep our clerks further from our customers.

With harvest season just days away and a Coronavirus lock-down in place, growers in our area wondered, "Will customers come?" Thankfully, U-pick farms were included in the "essential" business category, along with grocery

Credit card payment extender at Brookdale Farm. It's about 31 inches long.

stores and pharmacies, but might our customers be afraid to leave home and mix with others on our farms?

Along with new procedures to enforce "social distancing," through Facebook we "strongly encouraged" customers to join our staff in wearing face masks in order to keep everyone, customers and staff alike, as safe as possible. On our opening harvest day, April 14, most customers wore masks. Each day following we saw fewer and fewer masks. By April 17, we were so concerned that we did a Facebook survey to gauge customer acceptance of a possible face masks-only policy on our farms. The response was large and overwhelmingly in favor making face mask-wearing a requirement so the following day we put that policy in place. From then on, at our farms, no face mask meant no picking!

I should add that I tried to get other area growers to join us in implementing a face mask-required policy. I felt that all farms could benefit from the "press" that would surely follow but, despite initial interest, no other farms joined us.

When Brookdale Farm (our name is singular even though we have two farms) became a safe haven for mask wearers, our business absolutely exploded, with a huge surge of long-time customers plus hundreds of new customers, folks we had never seen before. They all wanted to be "safe" while picking fresh strawberries and they chose to come to us, the only area farms that required everyone to wear a face mask.

Many customers thanked us for our face masks-required policy, in person; and, more importantly, many praised our policy on Facebook and shared it with their Facebook

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Reflections on the 2020 Season

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friends. The Facebook shares alone proved to be great advertising.

This year our daily Facebook posts were our only advertising. We used no newspaper ads. We had no paid Facebook boosts. Our face masks-required policy resonated with and was shared by so many folks that our advertising budget ended up being a big, fat zero!

More than a few customers said they had not planned to pick strawberries this year but, with our face mask policy in place, they felt they could come out and be safe after all.

We saw customers who had not picked strawberries on our farm or any farm yet this year. We saw customers who did not pick strawberries on our farm or any farm last year. We saw customers who had not picked strawberries in many years, and we had a surprising number of customers who had never picked strawberries before! Many folks left the safety of their house in order to pick strawberries. However, even more came to pick strawberries in order to GET OUT OF THE HOUSE!

We can only hope that many of those in these later categories will become regular customers in future years, Coronavirus or no Coronavirus!

Perhaps the craziest day of our 2020 harvest season was Sunday, May 17. That morning, facing a mid-season glut of ripe strawberries and four days of rain forecast Monday through Thursday, we headlined our daily Facebook post with "BIG PROBLEM! PLEASE HELP!" We asked customers to "PLEASE HELP us get these strawberries HARVESTED TODAY" so they would not go to waste, explaining that the fruit would not keep through four days of rain.

That post was shared 418 times! It reached an unbelievable 73,569 people! We learned later that it was picked up by a local television station's website for even more publicity.

By mid-morning, both of our farms were completely mobbed. And all that peak flood of ripe strawberries was picked – to be eaten fresh, made into strawberry pies and cakes, made into jam and preserves, frozen, or otherwise enjoyed by happy customers. We did not really care, since fields full of "red" turned into "green" that day. The rains did come… and come… and come, but our strawberry crop was saved, thanks to all who answered our Facebook plea.

A surprising challenge this year was getting enough harvest containers, in our case "buskets." It turned out many farms in Virginia and elsewhere decided to sell by the container rather than by the pound this year, and a busket shortage soon resulted. We used the same four-quart buskets we have used for years, either new or brought back by customers to reuse. We encouraged customers to bring clean buskets they got from other farms, since a busket is a busket is a busket. We ordered way more buskets than last year, but we ran out. We could not order more because our supplier ran out. We begged to purchase buskets from other growers and got 3,600 more that way, but we soon ran out again. When three-quart mini buskets became available from our supplier, we bought their last pallet-full (2,560). Nevertheless, even that was still not enough. We finally secured one more box of four-quart buskets and barely squeaked through the end of the year.

Rain was another constant this year. It rained and rained! I know our customers got tired of our reminding them to bring boots in order to safely navigate standing water.

Through the entire picking season, our customers faithfully complied with our face mask requirement, for which we, our staff, and other customers were all grateful.

This 2020 strawberry season turned out to be our best ever, by a large margin. I heard much the same sentiment from a number of other growers across Virginia and in other states. The Coronavirus has caused a tremendous amount of suffering for many folks and huge losses for many businesses, but for many U-pick strawberry operations, it seems to have been a godsend.

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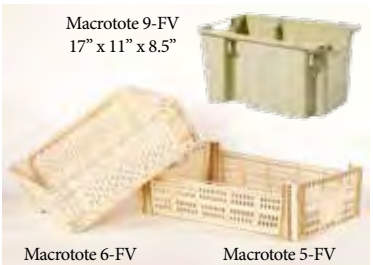

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1.8 Bushel
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Master Tray

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Anaerobic Soil Disinfestation for the Mid-Atlantic Region

By Jayesh B. Samtani, Assistant Professor and Small Fruit Production Specialist, and Danyang Liu, Ph.D. Candidate, Hampton Roads Agricultural Research and Extension Center, Virginia Tech

We are now about done with our strawberry season for 2019-2020 growing season and like me, most of you are already beginning to think about the next strawberry crop cycle. Those growers who are looking for alternative strategies to custom fumigation treatments, may be interested to learn more about anaerobic soil disinfestation (ASD).

Anaerobic soil disinfestation (ASD) was independently developed in Japan and in the Netherlands as alternatives to chemical soil disinfestation. The method involves using a large number of decomposable organic materials (or carbon source), applying irrigation to field capacity, and use of an impermeable mulch film to limit off-gassing and create anaerobic condition. Under anaerobic conditions, the carbon source is also decomposed by microorganisms which produce organic acids, aldehydes, alcohols, ammonia, metal ions, and volatile organic compounds that are suppressive or toxic to several soil-borne pests and diseases. Although ASD has been evaluated for strawberry in some geographic sites in the U.S., there are no recommendations source types and rates, application protocol, and treatment duration for strawberry growers in Virginia and the Mid-Atlantic region.

Figure 1. Applying C source to the field.
Figure 2. Mixing C source with soil and setting up beds.
Figure 3. Setting up viewing windows on beds.
Figure 4. Weed count and hand weeding post weed count.

To this effort, we began ASD work in April 2017 by compiling a list of carbon sources we could evaluate for ASD in the Mid-Atlantic region. These C sources included sorghum-sundangrass residue, cowpea residue, buckwheat residue, brewer`s spent grain, used coffee grounds, and peanut shell. These C sources were chosen as they could be locally available during the preplant period in the month of August to initiate ASD in open-field conditions. Dry rice bran was also included as a positive control as it is commonly used C source by California growers and works well for ASD. The cover crops were planted in a separate field outside of the strawberry field on April 2017. Eight weeks following cover crop seeding, the cover crop was harvested, dried, and chopped to use as C source. Due to the large number of C sources that we wanted to evaluate, these ASD studies were done in a greenhouse container environment. Weed seeds were inoculated in containers and ASD was carried out for a three-week period. A non-treated control was used to compare the ASD treatments. As far as C sources are concerned, we found were no significant differences among C sources for the control of common annual weeds chickweed and redroot pigweed, as well as yellow nutsedge, which indicated that for further trials and applications, the consideration of C sources could focus primarily on local availability and cost. Weed viability was reduced 50 to 100% over the non-treated control. These findings were published recently in the *International Journal of Fruit Science*. (https://doi.org/10.1080/15538362.2020.1774472)

Studies on ASD in open field conditions have been ongoing since fall 2018 at the Hampton Roads AREC, Virginia Beach and we are using brewers' spent grain as our carbon source. We were able to procure the spent grain from a local brewery and we found it easier to transport to our site than starting our own cover crops, especially for use as the C source in ASD. Our second-season field trial will be coming to an end as I write this. ASD in our trial was done for a 3-week period. We are looking forward to analyzing data and comparing the ASD treated plots with non-treated and fumigated controls. We hope to present some of these findings at the preplant strawberry meeting in July.

Particularly, we are looking at weed control ability and im-

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Anaerobic Soil Disinfestation for the Mid-Atlantic Region *continued from previous page*

pact on crop yield with ASD in strawberry production. You will see in the photo at left that there is no black plastic over the window. The idea was to separate out the effect of black plastic from that of ASD or fumigation. This makes more sense from the scientific perspective but not so much from the grower end. Next time I do this, I'll just punch additional holes and leave them without strawberry plants to see what weeds come out of the hole. It's more realistic from the grower stand point and less work for my team as well.

For growers who would like to experiment with ASD at their field site, the following publications will be useful to read through:

Implementation of ASD in Florida tomato production: http://edis.ifas.ufl.edu/pdffiles/HS/HS134500.pdf This publication walks the readers through the steps involved in ASD and how to calculate C and irrigation applications for a given area.

Carbon to nitrogen ratios in cropping systems: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd331820.pdf This publication is useful for growers to remember ideal C:N ratio to allow for proper decomposition of C source and to support soil microbes that are critical for ASD.

To get an idea of the C:N ratio of compostable materials and size of the C source material to put in the field: http://www.carryoncomposting.com/416920203

To get a hint of the how much water you need during ASD: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_051845.pdf This article introduces "feel and appearance" method. It gives you a way to monitor soil moisture and to determine how much water to apply. The Soil Moisture Deficit (SMD) is how much water your need to bring to field capacity for ASD.

We recommend a treatment period of ASD for 3 to 4 weeks in open-field conditions. Paying attention to the C:N ratio in the soil is also important to allow for proper treatment. After the ASD treatment is done, you will have to punch holes in the strawberry bed ahead of transplanting time. At the time of punching holes, you will notice a pungent odor from the beds which is indicative that anaerobicity in the soil is achieved. The strawberries can be transplanted 10 to 14 days after punching holes. Planting earlier than 10 to 14-day period could result in plant toxicity. It is wise to try ASD on small-scale the first season to get familiar with the process and evaluate its effectiveness in controlling soil-borne pests at your site. Be sure to compare this to non-treated or fumigated row beds.

It's time to order Ruby June!

Ruby June is quickly becoming a "high consumer demand" strawberry variety for southeastern strawberry growers because of its large, attractive, easy-to-pick berries and unbeatable flavor.

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An up-to-date list of suppliers and our 2020 Virtual Field Day can be found at www.Flavorfirst.com

Testing the Possibilities

A Preliminary Report on the Performance of Ruby June in Maryland

By E. Barclay Poling, Professor Emeritus, NC State University & Master Licensee for Lassen Canyon Strawberry Breeding Program

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 report on the performance of this newer variety from the Lassen Canyon Strawberry Breeding Program in the state of Maryland. Ruby June has been tested widely in the Carolinas and Virginia; 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 at https://www.flavorfirst.com/2020-field-day.

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

Maryland grower Russell Shlagel, whose farm was the site for this study, has never grown anything but plug plants on his farm 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 most people know, 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 as early as the first week in August, to more northern growers in Pennsylvania, for example. 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 second and third weeks in September. It has been this grower's experience that planting later than this can really hurt fruit production. With this in mind, it was our

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

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

Treatment	Market Wt./plant (grams)	Market Wt./plant (lbs)	Ave. Berry Size (grams)	Brix	Flavor rating (1-4)[z]
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

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

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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. 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 on September 24. 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 below you can see a photo of the cut-offs used in the trial.

Following transplanting on September 27, the cut-offs were immediately irrigated-in for one hour (Figure 4) at the rate of one-tenth inch per hour. For Days 1-3, the sprinklers were run three times 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.

Trial details. The Ruby June plugs used in this trial were propagated by the Virginia Berry Farm, Ruther Glenn, with two 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 three treatments in this trial were:

- Ruby June (RJ) Plug NS = Ruby June plugs with runner tips from Nova Scotia

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: https://www.youtube.com/watch?v=WiJkbRTOXeM

Fig. 4. Irrigating the cut-offs after transplanting

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

Each plot consisted of 20 plants, and there were two 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 4 above, the grower had double rows; the plant spacing in the row was 15 inches. With a 5-foot bed center and double-row beds, the grower is using about 14,000 plants per acre.

Harvest. The crop was harvested 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 (next page) presents the harvest data for the entire season. The plug plants produced the highest marketable yields. The RJ Plug NS treatment produced 1.39

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lbs/plant, or 19,516 lbs/acre (assuming 14,000 plants/acre). The RJ Plug PEI treatment produced about the same amount per plant, at 1.38 lbs, and the cut-offs produced 1.29 lbs per plant, about 0.1 lb less.

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 was in a very high range – from 23.2 grams to 26.2 grams (Table 2). These results for berry size in the MD trial were better than the berry sizes we achieved in the North Carolina Variety Trial (Table 1).

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

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 one-tenth 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 longest season ever. He started picking a "scattering" of Sweet Charlies on April 5, and his final day of strawberry harvest was June 22.

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 11, (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 three 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.

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. 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

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Strawberry Chores: July, August, and September

By R. Allen Straw & Jayesh Samtani, Virginia Cooperative Extension, Virginia Tech. This is reprinted from a previous summer issue of VSA News. Timing of tasks will vary year to year and region to region.

JULY

- ❍ If you haven't done so already, take a good soil sample and send to a reputable lab.
- ❍ Reflect on last year's crop and make appropriate changes. Do you need to increase acreage, decrease acreage, change varieties, change marketing strategies, etc.?
- ❍ Order tips or plants.
- ❍ Remove or reuse old strawberry plastic.
- ❍ Check availability of fumigant.
- ❍ Conduct maintenance on bedding and plastic laying equipment.
- ❍ Apply lime, based on soil test recommendations.

AUGUST

- ❍ Attend the Pre-Plant meeting in your area (see page 1).
- ❍ Begin soil preparation.
- ❍ Apply fertilizer according to soil test recommendations.
- ❍ Form beds, fumigate, and lay plastic.
- ❍ Seed annual ryegrass in the row middles.
- ❍ Install drip irrigation system.
- ❍ In colder climates, planting may begin around August 15.

SEPTEMBER

- ❍ In warmer regions, if you haven't done so already, begin soil preparation.
- ❍ In warmer regions, if you haven't done so already, apply fertilizer according to soil test recommendations.
- ❍ In warmer regions, if you haven't done so already, form beds, fumigate, and lay plastic.
- ❍ Seed annual ryegrass in the row middles.
- ❍ Install drip irrigation system.
- ❍ Plant. Planting in Virginia and much of Maryland, West Virginia, and Kentucky occurs throughout September, depending on the local climate.