

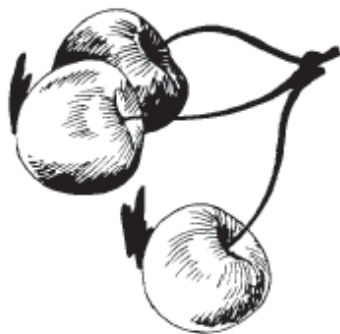
PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

JULY 8, 2003

Bacterial Canker of Sweet Cherry

Win Cowgill, Agricultural Agent



INSIDE

Bacterial Canker of Sweet Cherry	1
Profile of a British Columbia Apple Orchard	2
Japanese Beetles are Back	3
Intrepid 2F: A New Tool to Manage Grape Berry Moth Populations	3
Admire 2F & Provado 1.6F: Approved for use on Strawberries	4
Calendar of Events	4
Fruit IPM	4
USDA Farm Service Agency - Crop Disaster Program	6

Bacterial Canker is a serious bacterial disease of sweet cherry in New Jersey, New England, the Mid-Atlantic States; and anywhere the climate is humid. I have observed canker this season in sweet cherry orchards throughout New Jersey and in Massachusetts.

Bacterial canker or **bacterial gummosis** of sweet cherry is caused by several *Pseudomonas* bacterium. This disease infects flower buds and spurs. It can completely kill new spurs and leaves and then move into the trunk on cherry. This is especially problematic with our new Geslia Dwarf cherries as losing a scaffold or getting infection into the trunk will limit production as the tree rapidly declines.

In our humid climate in New Jersey the cankers can continue to develop in lateral branches and the central leader. In some cases the cankers have grown to girdle and kill two-year wood. I have observed central leader dieback as a result. In older wood the canker looks very much like a fire blight canker in apple. In most cases the canker begins to ooze a brown to amber exudate. It appears that under our humid conditions this disease is very hard to control and can be devastating if control measures and the proper horticultural practices are not followed. This bacterial disease is most troublesome in young plantings where it can cause losses of up to ten percent of the trees. On mature trees it can reduce yields from 10–50%.

The source of inoculum may come from wild cherry trees in our hedgerows. Dr. Dave Rosenberger, Extension Plant Pathologist from Cornell, toured our research plots at the Rutgers Snyder farm recently. He observed *Prunus serotina*, Black Cherry in adjacent hedgerows that had dieback, probably from *Pseudomonas*. Since Black Cherry can reach heights of 60 feet it may be one source of inoculum for the *Pseudomonas* during wind and rainstorms.

Overall, the best information on this disease is from a fact sheet from Ontario, Canada written by W.R. Allen "Bacterial Canker of Sweet Cherry" NO. 88-0886. It has good color plates and lists control measures. You can find it online at:

<http://www.gov.on.ca/OMAFRA/english/crops/facts/88-086.htm>.

Control

Cankers get started mainly in the fall after most of the leaves have fallen and the trees are beginning to go dormant. The only effective way to control this disease is to reduce the number of bacteria before the

SEE BACTERIAL CANKER ON PAGE 2

BACTERIAL CANKER FROM PAGE 1

trees enter their susceptible period; avoid large, dormant pruning cuts; and use summer pruning to minimize the impact of the disease. The bacteria that starts these cankers are found on the surfaces of mature leaves and other green tissues, and *do not* come from existing cankers.

First, only prune in the summer immediately following harvest. Avoiding dormant pruning lessens the chance of infection in the pruning wounds. On infected branches, *leave stubs* of 6-8", this will prevent the canker from entering the trunk and scaffolds. The canker will not move down the stub.

Second, the only successful control we have found is repeated applications of the old Bordeaux mixture in September, October, and November and repeated again in the spring. Bordeaux Mix consists of Hydrated lime and Copper Sulphate. The rates and methods of mixing are important. We began our sprays the first week in September. Note, however that sprays of Bordeaux applied to green leaves must be *siftened* with vegetable oil to avoid burning the foliage. Four additional sprays 14 days apart will be applied. Bordeaux mix will also be applied in the spring with several applications before bud break.

My thanks to Evan Milburn, cherry grower in Elkton, MD for tracking down the solution to this destructive disease. He indicated that without discovering the use of multiple applications of Bordeaux Mix he would likely have lost his cherry orchard.

It is my recommendation that in all young and newly planted sweet cherry blocks a program of Bordeaux Mix applications should be made this September. Careful observation and scouting of older blocks should be done now to determine if this bacterial disease is present and control warranted. My observation to date is that if any Bacterial Canker is observed in sweet cherry I would plan a spray program of Bordeaux mixture.

For additional information please do not hesitate to contact me at RCE of Hunterdon County at 908-788-1339 or Cowgill@aesop.rutgers.edu.

Fact sheets on Bacterial Canker

There are numerous fact sheets online for Bacterial Canker; many include color photographs for reference. Below are the listings for several:

Ontario, Canada written by W.R. Allen "Bacterial Canker of Sweet Cherry" NO. 88-0886.

<http://www.gov.on.ca/OMAFRA/english/crops/facts/88-086.htm>

West Virginia University

http://www.caf.wvu.edu/kearneysville/disease_descriptions/bactcank.html

Comparison of healthy trees vs. diseased trees:

http://www.caf.wvu.edu/kearneysville/disease_descriptions/disease_images/fig129c.jpg

University of California

<http://www.ipm.ucdavis.edu/PMG/r105101511.html>. □

Profile of a British Columbia Apple Orchard

Jon Clements, Tree Fruit Specialist, UMASS and Win Cowgill, County Agricultural Agent

Bruce Currie's 30 acre apple orchard lies on a high bluff overlooking the southern arm of Lake Okanagan in British Columbia, Canada. Currie, along with his father-in-law, produce Gala, Spartan, Honeycrisp, Fuji, Braeburn, Ambrosia, McIntosh, Granny Smith, Silken, and Mutsu, all of which are marketed at a single, grower-owned BC Fruit co-op in the Okanagan Valley. Here are some other facts that complete the profile of Currie's 'BC-303' orchard:

- Training systems: trellis, slender spindle, and super-spindle
- Spacings: 6 ft x 14 ft to 1 ft x 11 ft, the majority at 1.5 ft x 9 ft
- Density: 515 trees/acre to 4,000 trees/acre, the majority at 3,226 trees/acre
- Soil type: Mostly sandy-loam to gravel (i.e., fairly weak, Currie likes to use a compost made from sewage sludge and wood chips to boost growth Note:-not legal in NJ to use)
- Irrigation/Fertigation: Trickle and constant fertigation throughout, electronically controlled complete with Atmometer (measures evapotranspiration) and data-logger. 50 ppm Nitrogen supplied daily through May and June.
- Grades: Gala, Spartan, and Fuji, 80-90% fancy & better; Braeburn, 75-85% extra-fancy; Ambrosia, 90% extra-fancy; Honeycrisp, 80-80% fancy and better; McIntosh, 70-80% fancy and better
- BC provincial government provides replant payment incentives to growers to stitch from low-density plantings to high density, which covered a significant part of the tree costs.
- Yields: Production ranges from 40 to 50 bin/A (25 bushel bins) annually (i.e., 1,000 plus bushels/acre)

Note: Jon Clements, Tree Fruit Specialist, UMASS and Win Cowgill, Rutgers Cooperative Extension, are currently in British Columbia attending the International Dwarf Fruit Tree Association (IDFTA) Summer Tour and submitted this report. □

Japanese Beetles are Back

Peter W. Shearer, Ph.D., Specialist in Tree Fruit Entomology

The **Japanese beetle** has started to emerge in the southern part of New Jersey. I saw my first adult beetle of the season Monday. This pest was first introduced into New Jersey on nursery stock from Japan in 1913. Since its introduction, it has spread to most states east of the Mississippi River. It is now a seasonal pest and can cause extensive damage to many crops. The larvae feed on roots of plants and are especially damaging to turf and pasture. The adults feed on over 275 species of plants such as fruit trees, flowers, and vegetables.

Adults are about 3/8-1/2 inch long and metallic green to greenish bronze in color. They have white tufts of hair along the bronze forewing. Larvae inhabit the soil and are C-shaped white-to-cream-colored grubs with brown heads and are about 3/4-1 inch when full grown.

The Japanese beetle overwinters as a grub in the soil. In the spring, they move up towards the soil surface and feed on roots. Adults begin to emerge in late June and are active until September. Females can lay about 50 eggs apiece 2-6 inches deep in the soil. It takes about 2 weeks for the eggs to hatch and newly emerging larvae feed on decaying matter and plant roots.

Adult feeding damages both leaves and fruit. Leaf damage usually takes the form of skeletonizing. Fruit feeding results in large holes in the fruit. Ripening fruit is often attacked, making control necessary yet sometimes difficult because of pre-harvest interval (PHI) limitations of several effective materials. Early peach and apple varieties are most susceptible to adult attack because their time of ripening occurs during Japanese beetle emergence.

Occasional scouting is required to determine if this pest is causing damage. There are several insecticides that can control this insect when adult populations are high and damage can be seen. The newest insecticide in the stone fruit arsenal is Provado 1.6 F. Provado can be applied at 6-8 oz per acre with a 12-hour re-entry interval (REI) and 0-day PHI. Carbaryl (Sevin) can be used on peaches and nectarines and has a 3 day PHI on these crops. On apple, Imidan is effective and not considered disruptive to IPM programs. Imidan has a 7-day PHI for apple; 14 days for peaches and nectarine. Under high pressure, control measures should be applied more frequently. Be aware that some of these materials do not provide quick knockdown and that new beetles may invade the orchard from outside. This often gives the appearance that control measures are ineffective but the above materials should provide control when applied correctly. As always, read and follow the label. □

Intrepid 2F: A New Tool to Manage Grape Berry Moth Populations

Sridhar Polavarapu, Ph.D., Specialist in Entomology

Intrepid 2F (methoxyfenozide) is a recently registered insecticide with activity only against **caterpillar pests**. This insecticide causes premature lethal molt upon ingestion in the larval stage of target pests. This insecticide has no contact activity.

Intrepid 2F is an ideal insecticide for inclusion in IPM programs because it has no toxicity to insect natural enemies, other beneficials, and mites. The unique mode of action of Intrepid 2F precludes resistance development, thereby making it a good rotational candidate for resistance management. Intrepid 2F has low toxicity to mammals, birds, and fish, but is toxic to aquatic invertebrates. The residual toxicity of Intrepid 2F to neonate larvae is comparable or better than many organophosphate insecticides registered for use on grapes. **Grape berry moth** larval populations in New York and Pennsylvania have now been conclusively shown to be resistant to Sevin (carbaryl) and are potentially cross-resistant to other organophosphate and carbamate insecticides. This may be a good time to switch to Intrepid 2F for managing grape berry moth populations in New Jersey.

For optimal efficacy against grape berry moth, Intrepid 2F should be applied 7-10 days after bloom at the beginning of egg hatch or shortly thereafter. Subsequent insecticide applications are necessary only when more than 5% of the bunches show berry webbing. To determine grape berry moth infestation level, examine 10 bunches on each of five vines in four locations for a total of 200 bunches. Make sure that at least one-half of these 200 bunches are examined on vines close to the wooded edge. Intrepid 2F should be used at 4-8 fl oz/acre. The Pre-harvest Interval (PHI) is 30 days and the Re-entry Interval (REI) is 4 hours.

If you have additional pests such as **Japanese beetles** to contend with in addition to grape berry moth larvae, then you may have to use broad-spectrum insecticides such as Danitol 2.4EC or Imidan 70W. Both these products will also control grape berry moth larvae. □

Admire 2F & Provado 1.6F: Approved for use on Strawberries

Sridhar Polavarapu, Ph.D., Specialist in Entomology

EPA has recently approved Admire 2F and Provado 1.6F for use on annual and perennial strawberries. Imidacloprid is the active ingredient in both these insecticides. Admire 2F is used as a soil insecticide for managing **whiteflies**, **aphids**, and the white grub complex including **oriental beetle**, **Japanese beetle**, **Asiatic garden beetle**, and **European chafer**. Provado 1.6F is strictly a foliar insecticide with activity against **aphids**, **whiteflies** and **spittle bugs**. Regardless of formulation or type of application (soil or foliar), no more than 0.5 lb active ingredient of Admire or Provado per acre per season can be used. Furthermore, no more than 11.25 fl oz of Provado 1.6F can be used per acre per season.

For additional information on use directions, pre-harvest intervals, and re-entry intervals, please consult the supplemental labels at www.rce.rutgers.edu/ labels. Remember that you should have a copy of the supplemental label in your possession at the time of use of these products. □

Calendar of Events

July 24, 25, 26, 27, 2003, Thursday – Sunday – New Jersey Peach Festival and Gloucester County 4-H Fair will be held at the 4-H Fairgrounds, Rte 77, Mullica Hill, NJ. The complete program for the Fair is now on the website at <http://gloucester.rce.rutgers.edu>.

August 20 – August 22, 2003 – North American Strawberry Growers Association Summer Tour, Park Inn & Suites, Brandywine Valley, PA and tours S. Jersey and S. PA. Contact: NASGA Business Office at 526 Brittany Drive, State College, PA 16803, phone: 814-238-3364, fax: 814-238-7051 or email: info@NASGA.org or www.NASGA.org.

September 3, 2003 – Fruit Variety Showcase, Gloucester County. Contact: Jerome L. Frecon at Rutgers Cooperative Extension of Gloucester County at 856-307-6450 ext 1.

Fruit IPM

Dean Polk, Fruit IPM Agent

Peach

✓ **Oriental Fruit Moth (OFM)**: The second treatments for 2nd generation OFM are due now in southern and central counties. The second spray for this generation will be due in northern counties by the weekend to the first part of next week. The following are timings for standard OP, carbamate and pyrethroid insecticides. We are at about 1,550 DD since biofix in southern counties, about 1,450 DD in central counties, and about 1,300 DD in northern counties. Second generation treatments are due at degree day accumulations of 1100–1200 DD, and again at 1450-1500 DD. Insect pressure from the second generation varies greatly. Insect pressure and trap counts are generally very low in southern counties, but higher in some northern locations. Some farms in northern counties have trap counts exceeding 50 moths per trap. Farms with high insect pressure also have terminal flagging from the first generation. Experience has shown that when flagging is present this early in the season (from first brood larvae), there is a strong possibility for fruit infestation to show up from second generation feeding in mid to late July.

✓ **Tarnished Plant Bug (TPB), Fruit Bleeding and Bacterial Spot**: I am lumping all this together this week because symptoms at this time of year can be confusing. On the average, pressure from catfacing insects is low. Populations do exist, especially in orchards with abundant clover and other broadleaf weeds, and in the border areas near woods and hedgerows. However, the level of catfacing injury is light at the present time, but injured fruit are present. Fruit injury is from 3 main sources: 1) Split pits and other physiological injury that occurred earlier in fruit development, 2) Recent catfacing injury, and 3) Bacterial spot infections. Physiological injury will often take the form of bleeding near the suture, or near a crease or indentation near the end of the fruit. Cutting the fruit will reveal bleeding from the pit to the exit point. Early bacterial spot can look very similar to recent catfacing injury. There may be several marks on the fruit with open bleeding spots. However, catfacing injury will heal over with scar tissue, while bacterial spot lesions will not. Bacterial spot lesions will usually increase in number over time, and most of the time be accompanied by some foliage that also has bacterial spot injury. We have seen an increased incidence of bacterial spot fruit infections over the last couple of weeks. In most cases there has been very little foliar injury. Infections are ongoing, and fresh inoculum continues to be available for fruit infection. Marked fruit that is found deep within the foliage where drying conditions are poor are more likely from bacterial spot rather than catfacing insects. New foliar injury was seen as recently as Monday 7/7.

✓ **Tufted Apple Budmoth (TABM)**: We are between generations and no treatments are needed on most farms. However, where trap counts are still in excess of 50 to 100 moths per trap, insect pressure is still high, and continued insecticide applications are justified. **Do Not** use standard OP insecticides for this pest if TABM is a problem on your farm.

Apple

✓ **Tufted Apple Budmoth (TABM)**: Please see peach section above.
✓ **Codling Moth (CM)**: All applications for the first flight should have already been applied, unless trap counts indicate continued population pressure above threshold levels (5 males per trap). Several orchards do have counts that merit additional treatments.

✓ **European Red Mite (ERM) and other mites**: Mites are starting to build, although in most cases they average at less than 1 mite per leaf. With the hot days of summer, mites will increase rapidly. Predators are

SEE IPM ON PAGE 5

also increasing on some farms, so before you decide on a miticide or make a treatment decision, know what predators are in your orchard. We have had one case already where the small black lady beetle, *Stethorus punctum*, population was at a 3:1 ratio (predators per 3 min. count compared to mites per leaf). This is sufficient for control, and in cases like this miticides are usually not needed. Rust mites are also present on some farms. These can be tolerated up to a few hundred per leaf and serve as a good food source for predator mites.

✓ **Spotted Tentiform Leafminer (STLM) and aphids:**

The second STLM flight has peaked in southern counties and is peaking in northern counties. In a few cases the larval stage or the number of mines per leaf has exceeded our treatment level. Insecticides are most effective on the young sapfeeding larval stage, and not on the older tissue feeding stage. The best time to evaluate mine density and make treatment decisions has been near or just after the peak flight, when the proportion of sapfeeding larvae is the highest. Please see accompanying graph for southern averages. Aphids are also reaching treatment levels on many farms. Where appropriate, a treatment can be combined to target both pests. Where growers wish to treat for spirea and green aphids, many materials used for leafminer will also control aphids. These include Vydate and the nicotinoid compounds, Provado, Actara, and Assail. Assail is also labeled for codling moth control.

✓ **Summer Diseases (Sooty Blotch and Fly Speck):**

If your orchard is free (or virtually free) of scab, then you should be concentrating on summer rots and sooty blotch and fly speck control. The spring rains have helped set up ideal disease conditions. Controls for these diseases should be included in all cover sprays for the remainder of the season. The addition of Topsin to a half rate of Captan remains the standard for summer disease control. An alternative (although more costly) would be to use Flint or Sovran. Sovran is rated a little better than Flint for black and white rot control, Flint is rated a little better on bitter rot. Using these materials in repeated applications is strongly discouraged. The Flint label states: "...do not apply more than 3 sequential applications of Flint or other strobilurin fungicides."

Blueberry

✓ **Aphids:** Aphid levels are close to what they were last week (present in about 70% of samples). However, the population density has decreased on average. We are seeing infestation levels exceed 10% infested terminals at just over half the rate seen last week.

✓ **Redbanded Leafroller and Other Leps.:**

Second generation redbanded leafroller flight is still close to a peak, although slightly less than last week. While only 3% of samples showed any larvae present, growers should check their crop if trap counts are high, and especially if organophosphates and carbamates (Guthion, Imidan, Lannate) have not been used for several weeks.

✓ **Anthracnose:** Anthracnose is starting to show up in the field samples. Incidence is low, but with the wet spring additional infected fruit is likely to become visible in the near future.

Who's Scouting Your Crop??

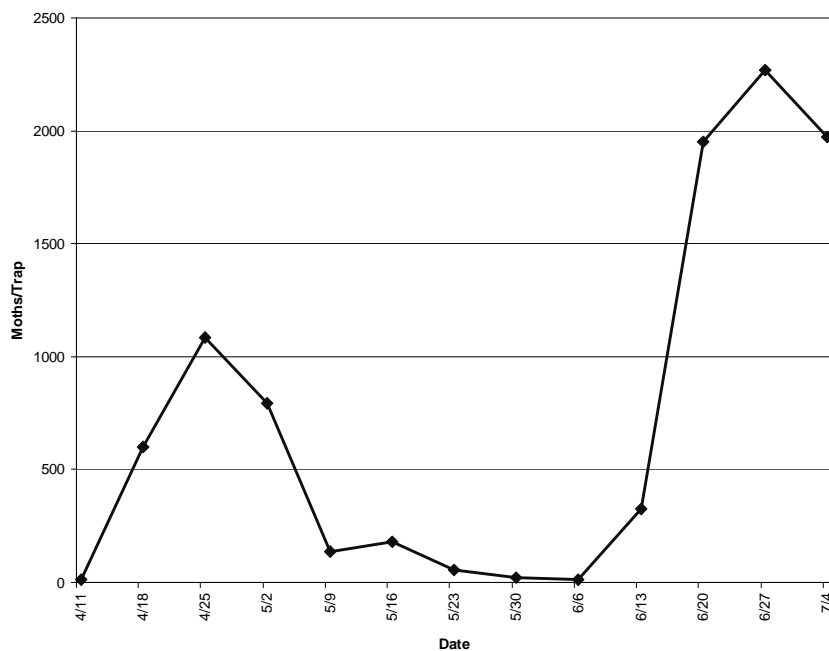
Those of you who are participating in the Rutgers Cooperative Extension Fruit IPM Program may have seen and talked to the summer field scouts working in your orchard or blueberry fields. This year we thought it might be informative to provide some brief information about those hardworking bug and disease hunters, courtesy of Kathleen Salber, who scouts tree fruit in southern counties:

Christine Petsch - Christine is a resident of Clayton, NJ. She graduated with an A.S. degree in Biology from Gloucester County College. She then attended John Jay University (CUNY) for one semester majoring in forensic science. She decided to forego school in New York City and in the fall will attend Rutgers University, Camden, continuing her studies in the biological sciences. This summer she is also employed part time as a ranger for Gloucester County Parks and Recreation. In her free time, she enjoys reading classical novels and spending time at her grandmother's beach house.

Kathleen Salber - Kathleen is a resident of Richwood, NJ. This is her third season working for Rutgers Tree Fruit IPM. She says that even though scouting is routine, it has been a progressive learning experience. To help enhance her horticultural knowledge, she recently completed the Master Gardener course offered by RCE, and is hoping to begin taking classes in the fall at Cumberland County College in one of their horticultural programs. She holds a M.S. degree in Biology from Rutgers University, Camden. When not employed by Rutgers IPM, she teaches Biology courses at Camden County College. In the past, Kathleen worked in basic and clinical research laboratories in the areas of cell biology, microbiology and immunology.

SEE INSECT TRAP COUNTS ON PAGE 6

STLM/Trap



USDA Farm Service Agency- Crop Disaster Program

Sign-up for the Crop Disaster Program (CDP) began June 6th, 2003. Qualifying producers will have a choice of receiving payments for crop losses due to weather for either the 2001 crop year or 2002, *but not both*. Producers must choose the same year for all crops for all farms. CDP will provide assistance for losses due to low yields, prevented planting, reduced quality and value loss crops.

To be eligible for a disaster payment, the producer's crop production must have been reduced by more than 35 percent from the "expected production". Disaster payments are issued on losses exceeding the 35% threshold. Quality loss payments are available when the loss in quality exceeds 20% of the production.

Payments will be lower than in the past as we can only pay 50% of the payment rate for producers with insurance or NAP and 45% of the payment rate if you didn't purchase some type of coverage.

NOTE: Producers receiving a disaster payment are required to purchase *Buy-Up Crop Insurance* for the next 2 years. Cat coverage is not buy-up. If insurance is not available for your crop, you must purchase NAP coverage on that crop for the next 2 years. Failure to purchase insurance or NAP requires you to refund the payment plus interest.

Talk to an agent now about crop insurance costs. You may think twice about applying for the program if your disaster payment is worth only \$500 but your insurance premiums are \$1000.

The application closing date has not been announced yet. This program will likely run for a few months so you have time to gather your records.

Sign-up will be by *appointment* only. *When you come in for your appointment you must be prepared:*

1. To give (if you already haven't done so) a complete crop acreage report for the year which you will be applying for Disaster Assistance (2001 or 2002) which includes dates each crop and field was planted.
2. Provide production evidence of the existence of the crop (for late-filed acreage reports). Evidence may include seed, fertilizer, herbicide and pesticide bills; third party verification of the existence of the crop; and aerial slides.
3. Provide evidence of the disposition of the crop. This could be in the form of sales receipts (with dates and units sold), daily register tapes identifying crops sold (farmstands), records showing the crop was fed to livestock, documentation of invoices for custom harvesting, RMA loss adjuster appraisals, Non-insured Assistance Program (NAP) applications if processed for payment, if the crop was unharvested a producer statement of disposition and/or final use, and third party verification of disposition of the crop.

Submitted by William H. Tietjen, Agricultural Agent. □

Insect Trap Captures

Tree Fruit - Southern Counties

Week Ending	LPTB	PTB	OFM	TABM-P	AM	CM	DWB	OFM-A	STLM	TABM
6/6	35		4	32		2		12	13	16
6/13	47	5	3	26		4		3	325	18
6/20	37	5	3	27		8		7	1952	21
6/27	49	3	6	16		2	18	8	2268	15
7/4	48	9	7	25	0	2	18	11	1974	18

Northern Counties

Week Ending	LPTB	PTB	OFM	TABM-P	AM	CM	DWB	OFM-A	STLM	TABM
6/6			8.2	6.4		5.6			7.0	6.0
6/13	58.5		12.6	15.0		7.3			10.0	11.4
6/20	31		9	24.6		12.1			326.7	16.8
6/27	4.9	0.0	6.4	19.1		6.0	8.0		932.5	17.3
7/4	2.0	0.5	17.2	21.0		11.6	15.5		1526.4	18.7

Blueberry - Atlantic County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
6/6	0.08	1.0				
6/13	1.65	2.13				
6/20	0.5	34.5		0.02	14	0
6/27	.13	115.8		.15	164.9	.01
7/4	0.98	130.3		0.31	1780.2	0

Burlington County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
6/6	2.6	0.3				
6/13	3.36	0.0				
6/20	4.7	0.7		0	0	0
6/27	1.8	17.4		3.3	9.1	.12
7/4	0.8	56.6		5.2	377.5	0.13

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