

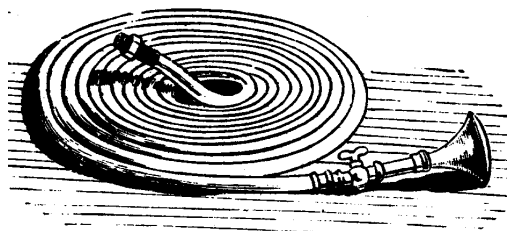
# PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

AUGUST 10, 1999

## Drought Conditions and Irrigation on Peaches

*Jerome L. Frecon, Agricultural Agent*



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Most peach growers have been irrigating regularly to maintain fruit size, tree growth, and productivity. So far many growers are maintaining good fruit size although many trees are showing varying levels of stress and will show more symptoms as the drought continues. Some growers in Harrison, Mantua and Washington Townships, in Gloucester County, received up to 1" of rainfall on Sunday evening, August 1, 1999. According to the state climatologist's weekly reports, spotty rainfall has occurred around southern New Jersey since March 1, 1999. Growers in central and northern New Jersey and eastern Pennsylvania have not received any of these rains and have greater shortfalls than many in southern New Jersey. Each farm is different but everyone has experienced some level of water shortage.

The following information on water use and irrigation has been printed in past newsletters:

1. The edible portion of a ripe peach contains about 87% water. Water, carbon dioxide, and sunlight interact in plants to form simple sugars in a process known as photosynthesis. Water deficiency may reduce photosynthesis by 40% before leaves actually show wilting.
2. Water status changes in a peach tree day by day and even hour by hour. Water requirements increase with increased air temperature, increased air movement, and decreased relative humidity.
3. A peach attains about 66% of its final fruit volume during the last 30 days on the tree. Water is critical during this period, partly because the evapotranspiration rate is high.
4. With overhead irrigation, rainfall plus irrigation should equal about 2 inches every 10 days from pit hardening through final swell, if sufficient water is available.
5. Once fruit growth and development are slowed from lack of soil moisture, the growth loss is permanent. The final swell does not produce peaches as large as when water supply is adequate all season.
6. With overhead irrigation, if a grower only has 4 to 5 acre-inches of water, this probably should be saved for the final swell.

*SEE IRRIGATION ON PAGE 2*

7. Approximately 80-90% of fine feeder roots are in the upper foot of an undisturbed soil.

8. The total water requirement for mature peach trees is about 36 inches per year. Under normal conditions a peach tree requires 8 gallons of water per day during July and August.

9. Experiments in arid regions showed that water application to 25% of the root system was sufficient to meet water and nutrient needs in mature peach trees.

10. Irrigating one side of a peach tree will not confine the root system to that side of the tree.

11. Withholding water does not send peach roots deeper into the soil, nor do light, frequent irrigations encourage shallow rooting.

12. Over a 10 year period (wet and dry years), irrigation may reasonably be expected to increase yields by about 25%, mainly due to increased fruit size.

13. Trickle irrigation saves about 25% of the water needed to irrigate. □

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## Disaster Relief Update

A bill is being introduced to allocate \$15 million in state money for loans and grants to aid drought distressed farmers. Look to the news media for details. Easy passage is anticipated. □

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## Job Opportunity with Farm Service Agency

The FSA will be hiring a limited number of individuals to assist with drought loss certification at offices around the state. \$9.75/hour plus mileage. Inquire at your local FSA office. □

## Rutgers Drought Meeting Held

Bob Belding, Extension Specialist in Pomology

The Rutgers Tree Fruit Working Group met August 5th to discuss the current drought, which ranks as the third worst in modern times. The following is a summary of the discussion.

### Current Status of Growers:

- There is a general lack of adequate irrigation equipment to meet our orchards' full season water needs, which now require round-the-clock efforts to keep up with demand.
- Ponds and surface water are drying up and becoming limiting.
- Those blocks of trees with trickle irrigation are faring the best for both labor and water efficiency.

### Short Term Advice:

- Devote limited water toward crops with the highest potential dollar return.
- Decrease competition for available water by maintaining and/or increasing the weed-free zone under the trees.
- Supply adequate water to first year trees, which have less extensive root systems.
- *Keep good records* for reporting crop losses to relief agencies. Records should include pond levels, increased labor costs, fuel costs, as well as fruit size and yields.

### Long Term Advice:

- If drought continues beyond harvest (and into hunting season), water trees during the fall to avoid tree loss due to winter injury brought on by drought stress.
- Consider increasing irrigation potential, particularly trickle irrigation, which conserves water, reduces labor costs, does not wash off protective spray materials and does not disrupt orchard operations.
- Applying organic mulch to orchard soils conserves water as well as restores necessary soil organic matter.

### Long Term Advice for Rutgers:

- Gather information on the long-term economics of Trickle Irrigation vs. Travelling Watering Methods.
- Conduct more grower oriented Research/Demonstration trickle irrigation projects. □

# Sweet Cherry and Bacterial Canker

*Win Cowgill, Agricultural Agent and Jeremy Compton, Plant and Soil Science Technician*

**B**acterial Canker can be a serious bacterial disease of sweet cherry in New Jersey. Bacterial canker or bacterial gummosis of sweet cherry is caused by a *Pseudomonas* bacterium.

Last year in the *Plant and Pest Advisory* I reported on this disease and our plan of attack to combat it in sweet cherry research trails at the Rutgers Snyder Farm. I am happy to report that our efforts were successful. Through the practices outlined below, implemented in the fall of 1998 and this spring, we eliminated 95 % of the bacterial canker in our plantings.

Bacterial Canker disease infects flower buds and spurs. It can completely kill new spurs and then move into the trunk. 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 die back 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.

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%.

We were surprised to see this disease develop as we had been on a preventative copper program with applications in the fall after leaf drop and in the spring before bud break.

## Control Program for Canker

- Summer Prune immediately after harvest, do no dormant pruning.
- After harvest utilize sprays of Champ 2F copper at 2 pints/acre at 2 week intervals where Bacterial Canker has been a problem or is of concern.
- Starting September 1, begin a series of 5 sprays of Bordeaux Mix, safened with vegetable oil (while foliage is present) at 2 week intervals.
- In the spring apply 1-2 applications of Bordeaux Mix prior to bud break.

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 trees enter their susceptible period. The bacteria that start these cankers are found on the surfaces of mature leaves and other green tissues, and *do not* come from existing cankers.

The above control program focuses around repeated applications of the old Bordeaux Mixture in September, October, November and repeated again in the spring.

Bordeaux Mix consists of Hydrated lime and Copper Sulfate. 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 Safened with vegetable oil to avoid burning the foliage. For rates and mixing instructions please refer to the *1999 Rutgers Tree Fruit Production Guide*. Review the cherry spray schedule and the special disease control section for stone fruit crops.

We would recommend that all new and young sweet cherry blocks begin a program of Bordeaux Mix applications this September. Careful observation and scouting in older blocks should be done now to determine if this bacterial disease is present and control warranted. If any Bacterial Canker is observed in sweet cherry, a spray program of Bordeaux Mixture starting September 1 should be implemented.

For additional information please do not hesitate to contact Win Cowgill at 908-788-1339 or [cowgill@aesop.rutgers.edu](mailto:cowgill@aesop.rutgers.edu).

## Fact sheets on Bacterial Canker

Previously the best information we obtained 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 control measures.

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

Penn State has a fact sheet on Bacterial Canker in Stone Fruit on their web site at <http://www.cas.psu.edu/docs/CASDEPT/PLANT/fpath/fpath.html>

West Virginia University  
[http://www.caf.wvu.edu/kearneysville/disease\\_descriptions/bactcank.html](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](http://www.caf.wvu.edu/kearneysville/disease_descriptions/disease_images/fig129c.jpg)

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

# Fruit IPM

Dean Polk, Fruit IPM Agent

## Peach

**Oriental Fruit Moth (OFM):** Trap captures of OFM adults are very high and average over 40 moths per trap. Highest counts are over 250 moths per trap. Growers should maintain alternate middle sprays at approximate 7 day intervals during this time. If sprays are stretched too much during this period, growers could find some unwanted protein in Rio, Autumnnglo, Encore, and other late varieties.

**Catfacing Insects and Ground Cover:** Low numbers of tarnished plant bugs are being found in the ground cover. Orchard blocks with weedy ground covers have up to 4 to 5 times as many tarnished plant bugs as those orchards without weedy aisles. In general, pest pressure has been low, but recent catfacing injury is being noted in post harvest samples being taken from blocks of PF17, Topaz and other similar ripening varieties.

## Apple

**General Stress:** Most trees are now showing severe signs from drought stress - yellow, drooping leaves and small fruit. While this could get worse to a point of dropping leaves and even fruit, certain pests will aggravate the situation. Any indirect pest that debilitates the leaves such as mites, leafhoppers, and leafminers will add to the situation. Leafminer injury especially, can cause leaf drop and fruit drop. If unable to irrigate apples, then lower the treatment thresholds for these pests in drought situations. See last newsletter for treatment suggestions for leafminers.

**Tufted Apple Budmoth (TABM):** Weekly alternate middle sprays should be continued for this pest.

## Insect Trap Captures

### Tree Fruit - Southern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-P	LPTB	PTB
2-Jul	51.33	1755	31.51	2.21	0.00	12.62	44.34	37.30	7.00
9-Jul	98.67	2131	15.63	4.39	0.00	13.41	19.08	42.83	12.27
16-Jul	8.67	1203	12.50	4.81	2.00	11.72	14.94	33.94	10.18
23-Jul	4.00	1547	22.06	4.06	0.10	8.42	17.13	25.05	5.00
30-Jul	9.00	1155	25.13	6.89	0.27	24.12	23.30	23.07	13.40
6-Aug	4.00	1552	33.47	5.22	0.14	43.38	34.48	21.94	10.41

### Tree Fruit - Northern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-P	LPTB	PTB
2-Jul	42.21	1599	15.10	2.86		18.31	12.00	0.06	1.76
9-Jul	82.66	1677	9.89	1.45		29.12	8.47	0.00	5.38
16-Jul	48.19	810	2.17	2.21	0.00	17.73	1.62	0.00	4.74
23-Jul	12.24	1122	2.24	4.18	0.00	20.06	2.90	0.00	4.25
30-Jul	6.76	1323	2.13	6.98	0.00	23.75	2.43	0.00	2.21
6-Aug	11.13	1339	2.93	8.77	0.00	20.46	3.99	0.00	1.54

SEE INSECT TRAP CAPTURES ON PAGE 7

TABM is probably running a little behind from where the degree model says it should be, but we should see 50% hatch by about mid week and 60% hatch by the end of the week to the week end.

**Codling Moth (CM):** Trap captures are above our treatment level of 5 males per trap on many farms. One farm where sprays were over-stretched, had 4% of the fruit infested with codling moth larvae. When trap counts are above 5 moths per trap insecticide applications need to be maintained.

**Fruit Rots:** Some black rot and white rot is starting to show up. While these initially infected the fruit earlier, continued use of Captan or Ziram will suppress these diseases.

## Blueberry

**Sharponosed Leafhopper (SNLH):** Adult trap captures are starting to show up, but are especially high on just one farm. Trap captures should increase over the next few weeks as second generation adults start to emerge. Since SNLH can move from bush to bush and transmit Blueberry Stunt disease, the population should be controlled, especially where Stunt Disease is a known problem.

**Blueberry Leafminer:** This has been a favorable year for leafminer activity. The leafminer we see in our fields spends only part of its larval stage mining in the leaf. Partially grown larvae actually leave the mining phase of their life cycle and become a type of leaf roller or leaf tier when they are about half grown, and spend the rest of their larval period within this tied up leaf or tent. The unique "teepee" tied leaf can be easily spotted when populations are present. There are 3 generations per year, of which we are seeing the second generation. This insect does not achieve economic pest status under normal conditions. Heavy populations that are present during drought conditions may have some minor impact.

# New Liberalized Farmer Deer Permit Regulations

*John Grande, Director, Rutgers Snyder Research Farm*

The New Jersey Legislature recently passed into law liberalized regulations pertaining to "Farmer Deer Permits". Below is a Division of Fish, Game & Wildlife (DFGW) comparison chart that addresses the major differences between the old vs. new permit system. A farmer must select which type of permit best suits his needs. Farmers experiencing excessive crop damage should carefully review the advantages of this new farm permit system. Farmers

who qualify for the "non-occupant" permit may hunt in the *entire* zone for which they qualify. Check with the Division of Fish, Game & Wildlife for details (609-292-9173, Permit Section). Also, we have been informed that farmers who received "Farmer Permits" last year will be mailed applications this year. Additionally, we understand the DFGW personnel will speak on the subject at County Ag Board meetings.

## Special Note: Geese

It was also announced that during the September goose hunting season, the limit is 5 per day. Hunters will not be required to purchase the special \$2.00 permit, but must call 1-800-WETLANDS to receive a "HIP" number. State and Federal Waterfowl Stamps are still required.

## Comparison Between "Occupant" and "Non-Occupant" Farmer Deer Permit Application Requirements

### "OCCUPANT"

Permit will be valid for the farm property where applicant resides.

Must live on farm property.

Must have at least 5 acres of land that is tax-assessed as farmland.

Must be the owner or leasee and his immediate family members, who also live on the farm, can qualify.

Each family member (see above) may apply for a bow, shotgun and muzzleloader permit.

If farm property is located in multiple zones, the applicant must choose one zone to apply for the free farmer deer permit.

A hunting license or rifle permit is *not* required if hunting on the farm where applicant lives. If hunting on the other lands, a valid hunting license, and a rifle permit if hunting during muzzleloader season, is required.

Farmer may also apply for regular deer permits through the mail-in lottery.

### "NON-OCCUPANT"

Permit will be valid for the entire zone listed on application.

Is not required to live on farm property.

Must actively till at least 30 acres of land that is tax-assessed as farmland. Woodlots cannot be used to qualify.

If applying for leased land, a copy of agricultural and hunting rights leases must be attached to application.

The farmer or farmers and their immediate family members (up to a total of 5 people) may qualify.

Each of the 5 people (see above) may apply for a bow, shotgun and muzzleloader permit.

If farm property is located in multiple zones, the applicant must choose one zone to apply for the free farmer deer permit.

A valid hunting license, and a rifle permit if hunting during the muzzleloader season, is required. A hunting license or rifle permit is not required if hunting on the farm where applicant lives.

Farmers may also apply for regular deer permits through the mail-in lottery.

## “Blackbirds” and Agriculture

*Janet L. Bucknall, Wildlife Biologist and State Director, USDA APHIS Wildlife Services*

The term “blackbird” refers to a diverse group of about ten North American bird species. Two blackbirds are common in New Jersey: red-winged blackbirds and common grackles. Crows and starlings are not classified as blackbirds, but are also commonly involved in agricultural damage situations. Although crows and blackbirds are protected by the Migratory Bird Treaty Act and State law, a “Depredation Order” exists at the Federal and State levels that enables the farmer to control these species to reduce damage without a permit. Starlings are not afforded Federal or State protection, and may also be taken without a permit. Prior to initiating a control program, it is advisable to consult local and county laws to ensure compliance with firearm discharge, animal protection, and noise ordinances.

Corn loss to blackbirds is currently the greatest economic loss by birds to any North American crop. In 1990, red-wings destroyed over 360,000 tons of field corn in the U.S.; although this represented only 1% of the national production, localized losses were severe to many farmers. Damage is typically concentrated in farm areas that are within 5 miles of a wetland roost site.

Starlings often congregate in winter roosts associated with farm buildings and barns. Thousands of starlings may seriously impact farm operations through feed consumption (individual starlings may consume up to 50% of their body weight in grain each day) and contamination.

As with every wildlife damage problem, the most effective control program is one that integrates a number of practical, effective, and legal techniques. Blackbird damage control programs on the farm typically consist of modification of certain farm practices, harassment, and removal of birds through lethal means. Success of the program will depend on the flexible and diligent application of techniques by the farm operator, and in some cases, coordination of damage control programs among neighboring farmers.

To reduce red-winged blackbird damage to field corn, modification of farm practices may include use of bird-resistant varieties of corn, insect control, and alteration of planting and harvest schedules. To reduce starling damage in farm buildings, clean up spilled grain, store grain in bird-proof facilities, use feed forms not appealing to starlings, and adjust feeding schedules (starlings prefer to feed early-mid morning).

Harassment of blackbirds and starlings can be accomplished through use of pyrotechnics, propane cannons (State permit needed, 908-735-8793), and use of Avitrol (R). Initiate harassment programs as early as bird presence is detected, and as necessary to prohibit the birds from developing strong affiliations to your farm. Propane cannons work best when they are moved periodically, and shut down when birds are not present. Prior to use of Avitrol (R), contact the NJ Bureau of Pesticide Control (609-984-6901) to guarantee its registration, and comply with all pesticide use regulations.

Removal of birds usually is accomplished through shooting. As noted earlier, no Federal or State permit is needed, but check your local laws to guarantee compliance with municipal and county statutes. Shooting should be employed as a reinforcement to harassment.

For more detailed advice on reducing blackbird and starling damage on your farm, contact the USDA APHIS Wildlife Services, 140-C Locust Grove Road, Pittstown, NJ 08867, (908) 735-5654 and request leaflets entitled:

- Starling Control at Feedlots
- Control of Blackbird, Starling, and Crow Damage to Corn and Other Crops
- Control of Blackbird, Starling and Crow Roosts
- Bird Control Devices, Sources of Supply
- Pyrotechnics for Bird Control

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## Calendar of Events

**September 9, 1999** - Fruit Variety Showcase and Tour, Rutgers Fruit Research and Extension Center, 283 Route 539, Cream Ridge, NJ. For information or to RSVP call Rutgers Fruit Research & Extension Center **(609) 758-7311, ext. 10.**

Blueberries - WEEK END:	Atlantic County						Burlington County					
	RBLR	OBLR	CBFW	SNLH	BBM	OB	RBLR	OBLR	CBFW	SNLH	BBM	OB
2-Jul	42.21	0.24	0.04	0.86	0.02	325.5	48.70	1.17	0.00	1.06	0.41	588.8
11-Jul	45.86	0.30	0.07	0.55	0.29	300.0	33.33	0.57	0.38	0.49	0.74	621.0
18-Jul	11.79	1.36	0.00	0.38	0.88	114.9	8.20	0.86	0.22	0.43	1.66	120.6
25-Jul	6.11	0.88	0.00	0.14	0.98	61.8	1.50	0.14	0.11	0.10	2.18	90.6
1-Aug	19.52	3.87	0.00	0.02	0.67	28.62	0.50	0.43	0.00	0.00	2.36	10.63
8-Aug	19.11	3.24	0.36	0.57	0.27	4.92	0.50	1.25	0.00	0.00	0.29	0.71

## Small Fruit

*Kathy Demchak, Penn State Cooperative Extension*

### ELEVATE (FENHEXAMID) LABELLED FOR GRAY MOLD CONTROL ON STRAWBERRIES AND GRAPES:

Elevate 50WDG (fenhexamid) from Tomen Agro, Inc. was recently labeled for use for control of *Botrytis* (gray mold) on strawberries and grapes. Considering the losses of Rovral and Ronilan for strawberries, this is especially good news. Elevate has both 'protective and curative activity'; meaning it can be used as a bloom spray and as needed during the harvest season. It works by inhibiting germ tube and mycellial growth of the fungus, and if alternated with other fungicides, should be useful in resistance management. It has a re-entry interval of 4 hours, and a pre-harvest interval of 0 days. Unfortunately, it's a little late for use on strawberries this year (except day-neutrals), but this will be something to keep in mind for next year.

*Submitted by Jerome L. Frecon, Agricultural Agent*

## Summary of New OP Changes

*Peter W. Shearer, Ph.D., Tree Fruit Entomology*

Last week, the USEPA sent out notices describing changes to two organophosphorus (OP) insecticides currently available for use on tree fruit. Essentially, methyl parathion, sold as PennCap-M®, will no longer be registered for use on tree fruit and certain other crops next season. Also, azinphos-methyl, sold under various trade names including Guthion®, Azinphos-M®, and Sniper®, will have the total amount used per acre reduced for next season. Both label changes are a result of the implementation of the Food Quality Protection Act (FQPA) of 1996.

Elf-Atochem, the manufacturer of PennCap-M®, has voluntarily withdrawn the use of this product to meet the more restrictive FQPA risk-cup requirement. The product can still be used until the end of the year. Afterwards, it can no longer be applied to tree fruit. Growers will be able to return unopened containers to the place of purchase.

Changes to the azinphos-methyl label reduces the maximum yearly rate that can be applied per acre from 6 lb to 4.5 lb of active ingredient (ai) per acre per year for apples and pears. The maximum yearly rate for peaches and nectarines has been reduced from 4.5 lb to 3.375 lb ai. □

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