At A Glance….Insect and Disease Problems That Should Be Considered This Week.

<table>
<thead>
<tr>
<th>PEST/DISEASE/CULTURE</th>
<th>APRIL 29- –MAY 6 BLOOM</th>
<th>MAY 6- –MAY 13 BLOOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moth Larvae – Leafrollers, Spanworms</td>
<td>Scout flower clusters for “worm” activity. Treat w/ Bt products or Intrepid/Confirm if over 1 larva per 100 flower clusters.</td>
<td>Scout flower clusters for “worm” activity. Treat w/ Bt products or Intrepid/Confirm if over 1 larva per 100 flower clusters.</td>
</tr>
<tr>
<td>Anthracnose</td>
<td>Spray during bloom to prevent fruit infections</td>
<td>Spray during bloom to prevent fruit infections</td>
</tr>
<tr>
<td>Mummy berry</td>
<td>Spray during bloom if strikes are evident in the field or nearby</td>
<td>No action necessary</td>
</tr>
<tr>
<td>Botrytis</td>
<td>No action necessary</td>
<td>To be determined</td>
</tr>
<tr>
<td>Phytophthora root rot</td>
<td>Test roots for infections. Apply drenches to affected fields.</td>
<td></td>
</tr>
<tr>
<td>Phomopsis</td>
<td>No action necessary</td>
<td>No action necessary</td>
</tr>
<tr>
<td>Nutrition</td>
<td>NPK should be applied now.</td>
<td></td>
</tr>
</tbody>
</table>

BLUEBERRY TWILIGHT MEETINGS

THURSDAY, MAY 30, 2013 @ 5:30
ATLANTIC BLUEBERRY CO
7201 WEYMOUTH RD.
HAMMONTON, NJ
FOR DIRECTIONS, CALL 609-561-8600

CULTURE
Dr. Gary C. Pavlis, Ph.D.
Atlantic County Agricultural Agent

Pollination: Pollination is an important factor in production of the highbush blueberry. Lack of adequate pollination causes reduced yield, small berry size, and a delay in berry maturity. It is chiefly the honey bee which performs this task. While bumble bees are efficient and diligent pollinators (even under more adverse weather condition), their numbers are steadily decreasing. According to MSU Entomologist, Dr. Roger Hoopingarner, "Historically, feral (wild) honey bee colonies have provided more than half of the pollination in Michigan." Wild bee populations are declining. This is due to changes in our own blueberry production practices which remove bee forage and suitable habitat. What does this mean for blueberry producers? What happens when we lose the free pollination service provided by wild bees? You probably already know - more honey bees. Blueberries have a tremendous number of blossoms per acre. A single bush may have 2,000 to 3,000 blossoms. At a planting density
of 870 bushes per acre, that's 1.75 to 2.6 million flowers! Large-block single-variety plantings make it essential that high numbers of pollinators be available at one time. The number of colonies needed per acre is determined by weather during the bloom period, colony size, variety, and blossom density per acre. Weather during blossom time affects the honey bee's foraging efficiency. Honey bee activity increases as the temperature increases from 50 to 95°F. Sunshine also increases foraging, especially at lower temperatures. Cold, wet, windy weather decreases foraging activity. Temperatures above 95°F will also reduce foraging as the bees spend their time cooling the hive.

As a general rule, over-wintered colonies are stronger than package bees. A three pound package may have 12,000 bees, while an over-wintered colony may contain two to three times as many. Honey bee colonies will be smaller in an early bloom year. In essence, the crop has developed faster than the development rate of the forager bees. Are honey bees the answer? Many of you have seen your bees fly out of the hive, past your 'Duke' bushes, and over to your neighbor's 'Bluecrop' field. This preference for one variety over another is not fully understood. It may be related to the quantity of nectar, pollen, sugar concentration, or flower color. At this time, honey bees are the best bet. For the long term, we need to learn to cultivate the wild pollinators. The recommended concentration of hives per acre to use are tabulated below:

```
<table>
<thead>
<tr>
<th>VERY ATTRACTIVE TO BEES:</th>
<th>MODERATELY ATTRACTIVE:</th>
<th>POORLY ATTRACTIVE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hive/2 Acres:</td>
<td>1 Hive/Acre:</td>
<td>2 Hives/Acre:</td>
</tr>
<tr>
<td>Rancocas</td>
<td>Weymouth</td>
<td>Stanley</td>
</tr>
<tr>
<td>June</td>
<td>Bluetta</td>
<td>Concord</td>
</tr>
<tr>
<td>Rubel</td>
<td>Bluery</td>
<td>Berkeley</td>
</tr>
<tr>
<td>GN-87</td>
<td>Pemberton</td>
<td>Coville</td>
</tr>
<tr>
<td></td>
<td>Darrow</td>
<td>1316-A</td>
</tr>
<tr>
<td></td>
<td>Bluecrop</td>
<td>Elliott</td>
</tr>
<tr>
<td></td>
<td>Duke</td>
<td>Jersey*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Earlblue*</td>
</tr>
</tbody>
</table>

* Efficiency of pollination poor, add 1/2 hive more per acre.
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Sincerely,

[Signature]

Gary C. Pyle, Ph.D.
Atlantic County Agricultural Agent

Editor, Blueberry Bulletin   GP/sp

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**INSECTS**

*Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University*

*Mr. Dean Polk, IPM Agent – Fruit*

*Mr. Gene Rizio, IPM Program Associate – Fruit*

**Cranberry Weevil (CBW):** Over the past 7 days about 50% of beating tray samples have been positive for CBW, and about 6% of samples were at or above the threshold of 5 adults/bush. The highest level seen was 8 weevils per bush. These numbers suggest that CBW is still present but it is now rare to see levels at threshold. Two weeks ago 21% of samples were above threshold compared to 6% over the past 7 days. This decline is mostly due to the advance of flower bud development. No treatments are permitted while bees are in the field.
Plum Curculio (PC): Over the last 7 days, 3% of beating tray samples were positive for PC adults. This is a decline from the previous week most likely due to cooler temps and recent cloudy conditions. We expect to see more adults in our samples as we get further into bloom and fruit set.

Leps (Leafrollers and Spanworms): Adult redbanded leafrollers are flying and laying eggs, and larvae should be emerging over the next week to 10 days. No worms or leafroller larvae were seen last week. Earlier this week, one site was seen with a little leafroller activity.

Oriental Beetle Mating Disruption
As an alternative to insecticides, we recommend the use of mating disruption for oriental beetle control. Dispensers (see picture), containing the oriental beetle sex pheromone, are now available to growers. These dispensers are being sold by AgBio:

Mr. Jan Meneley, Ph.D.
AgBio Inc.
9915 Raleigh St.
Westminster, CO 80031
www.agbio-inc.com
ph 303-469-9221
fx 303-469-9598

To use, simply attach the dispensers to a lower blueberry branch at a density of 20-40 dispensers per acre in a grid pattern, depending on the size of the area to be treated. Please see label for information on restrictions, spacing, timing, etc. Below are instructions on how to space the disruptors through blueberry fields.

The price of each dispenser is $2.45 or $61.25 for a package of 25.

See instructions on following pages.
Disruptor Spacing Example: 9 ft Row Spacing & 4 ft Bush Spacing

Row 1:
- 9 ft row spacing = every 6th row
- 4 ft bush spacing = every 13th bush

Row 7:
- 54 ft between rows

Row 13:
- 54 ft between rows

Last Row:
(treat if more than 2)
We were just notified late on Wednesday afternoon that the Gowan 24C label was approved for use in NJ blueberries. This label is for the Gowan Malathion 8 Flowable, and gives us a maximum of 2 applications at 2.5 pt (lb ai) per acre, with a 1 day PHI. See label NJ Malathion 8 Flowable.

We are still waiting on the Cheminova and Loveland labels. See label on following page.
FIFRA §24(c) SPECIAL LOCAL NEED REGISTRATION
FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF NEW JERSEY
FOR CONTROL OF SPOTTED WING DROSOPHILA IN BLUEBERRIES

GOWAN MALATHION 8 FLOWABLE
AGRICULTURAL INSECTICIDE

EPA Reg. No. 10163-21 SLN No. NJ-130003

This label expires and must not be distributed or used in accordance with this SLN registration after 12-31-16

ACTIVE INGREDIENT: % By Wt.
Malathion (O,O-dimethyl phosphorodithioate of diethyl mercaptosuccinate): .................................................................. 79.5%
INERT INGREDIENTS ........................................................................................................................................... 20.5%
TOTAL 100.0%

Contains Petroleum Distillates
Contains 8 lbs. Malathion per gallon

KEEP OUT OF REACH OF CHILDREN
CAUTION

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- Follow all applicable directions, restrictions, Worker Protection Standard (WPS) requirements, and precautions on the EPA registered label for Gowan Malathion 8 Flowable (EPA Reg. No. 10163-21).
- This labeling must be in the possession of the user at the time of pesticide application.

DIRECTIONS FOR USE

<table>
<thead>
<tr>
<th>CROP</th>
<th>REI</th>
<th>RATE (PTS/ACRE)</th>
<th>PEST</th>
<th>RESTRICTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLUEBERRIES</td>
<td>12 hours</td>
<td>Up to 2.5</td>
<td>Spotted Wing Drosophila</td>
<td>The maximum number of applications per year is 2; and the minimum retreatment interval is 7 days.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Do not exceed a total maximum use rate of malathion from all sources of 5 lbs ai per acre per year.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Do not apply within 1 (one) day of harvest.</td>
</tr>
</tbody>
</table>

IMPORTANT: This product is sold subject to the Conditions of Sale and Warranty and Liability Limitations set forth on the container label.

24(c) REGISTRANT: Gowan Company
P.O. Box 5569
Yuma, AZ 85366-5569
04-22-13
Diseases:
By Peter V. Oudemans, Ph.D.
Associate Professor and Extension Specialist
Plant Pathology

Blueberry bloom is progressing nicely and bee activity seems reasonably good. Our biggest enemies are wind and cold. Botrytis does not seem to be developing in blueberry fields and should not pose any risk in the next 7-days. Anthracnose is our biggest disease concern at this point. Hopefully all conventional growers will have made one application of Ziram and will be looking at an application of Abound next week.

**Blueberry Scorch Disease:** Symptoms of the Blueberry Scorch Virus will begin to appear this week and next. Begin scouting for development of scorch at this time and flag all suspect bushes. Symptoms are easily seen during bloom and you should be aware that this disease is present on your farm. If it is present, map the locations of infected bushes and flag these bushes. Mapping the locations will make it easy to monitor for the disease in future years. Any scorch infected bushes should cut back and removed. Aphid scouting and management should be made high priority in fields with infected plants.

**Phomopsis Twig Blight** is no longer active. Fields with symptoms of this disease should be confirmed and targeted for management next season. Phomopsis can be recognized by dead cane tips that can be tracked down to a single point of origin such as an infected bud.

**Blueberry Shock Virus** has not been reported in New Jersey. If you see symptoms resembling this disease contact Peter Oudemans right away so that it can be diagnosed.
For **anthracnose** management, the most critical period to begin is at early to midbloom. Initiating applications at this time have been demonstrated to be most effective. Choice of materials should be determined by efficacy. Our research has shown that Abound applied during bloom will reduce migration of the pathogen from its overwintering reservoir to the developing fruit. Other fungicides are effective at protecting the developing fruit. For susceptible cultivars such as Bluecrop apply Abound twice during bloom and once with Ziram, Captan or Omega. Subsequent fungicide applications should utilize protectant fungicides such as Abound, Captan, Omega or Ziram. It is my experience that Ziram provides a longer residual period and a 14-day interval is reasonable. Captan will require a 7-day interval. Fungicides such as Pristine or Switch are effective for protecting against Mummy, Botrytis and Anthracnose while Captevate can be used for Botrytis and Anthracnose.

### THE TARGET:
Blueberry flowers like the one in this photo are expanded and the target for sprays is nicely exposed. Applications made to early will result in missing the target.

The target we are aiming for is the exposed flower stem (pedicel) and the green base (calyx) of the flower.

Abound, Cabrio, Pristine Resistance!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Fungicides are subject to resistance if they are over used or improperly used. Some fungicides are considered high risk since a relatively simple genetic mutation in the fungus can lead to resistance. Other fungicides are considered low risk since it would require complex genetic changes for resistance to develop. The best strategy to reduce the chance of resistance is to use effective low-risk fungicides between applications of high-risk fungicides. In blueberry we have two fungicides that are considered high risk. These fungicides are related and this means resistance to one results in resistance to the other. It is critical therefore to never use these fungicides more than twice in a row and preferably only once. Abound and Pristine both contain a strobilurin fungicide as the active ingredient. Therefore these materials should not be used in succession in a spray program. The Table below gives some examples of spray regimes that may or may not select for resistance.

<table>
<thead>
<tr>
<th>Spray 1</th>
<th>Spray 2</th>
<th>Spray 3</th>
<th>Spray 4</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abound</td>
<td>Pristine</td>
<td>Abound</td>
<td>Pristine</td>
<td><strong>Very bad</strong> all high risk with the same mode of action</td>
</tr>
<tr>
<td>Abound</td>
<td>Pristine</td>
<td>Ziram</td>
<td>Abound</td>
<td><strong>Still heavy emphasis on high risk materials</strong></td>
</tr>
<tr>
<td>Abound or Pristine</td>
<td>Ziram</td>
<td>Abound or Pristine</td>
<td>Ziram</td>
<td><strong>Best</strong>, high risk materials separated by low-risk</td>
</tr>
</tbody>
</table>
Agricultural Recycling Services Inc.

Waste Consultants and Procurement Specialists

Serving All of New Jersey and Surrounding States

Facility is located in Atlantic County NJ 08330

Contact Keith: 347-439-5585 or Frank: 917-477-5812

ARSrecycling@yahoo.com

Accepting Mulch film, drip tape and other agricultural films. Nursery, green house film, peat moss bags, silo covers, hay bale covers. We can accept almost any non-container agricultural plastic including pots and trays.

Pots and trays should be separated by type of plastic, PP, PE, PS stamped on the item.

Program is open to all Growers. Save 25% or more of your landfill cost! Out of state growers are welcome.

Your waste agricultural plastic will be made into new products saving you money and helping to clean our air, water, and soil.

Preparing product for delivery or pick up:

1) Shake film and drip tape to remove all foreign material including but not limited to, soil and plant material. Also remove any foreign plastics or twine.

2) To reduce cost, drip tape and mulch film should be separated and bundles should be secured using either drip tape or film. NO WIRE OR TWINE PLEASE.

3) Commingled loads, drip tape and mulch film, will be accepted at a higher price.

4) Material should be kept as clean and dry as possible. If stored outside it should be covered with large tarps. Sunlight will degrade the film over time.

What Are The Fees We Charge?

- The fees will be different for each location and quality of material, but they will be substantially lower than your land fill costs. We need to see good pictures or do an onsite inspection of your material. Loads that arrive that do not match what we approve will be rejected. Please call or e mail Keith or Frank for a quote.

- We can arrange trucking, but all trucking fees must be pre-paid. For exact delivery location please call Keith or Frank. If you want to estimate trucking costs use the following zip code 08330.

- Please check with us regularly for updates on what we can accept, as our business is evolving. In the near future we may be able to accept other plastics.
April 29, 2013

BLUEBERRY BULLETIN

If you have any comments about this newsletter, please make them in the space below and mail to:
Dr. Gary C. Pavlis, County Agricultural Agent
Rutgers Cooperative Extension of Atlantic County
6260 Old Harding Highway, Mays Landing, NJ 08330

I would like to see an article on the following subjects:______________________________________________________
I would like to comment on the following articles:____________________________________________________________
Title:_________________________________________ Date:__________________________________________________________
Comment:______________________________________________________________________________________________

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