Disease and Culture:

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

Honeybee Hives: The usual time of honeybee hive placement in blueberry fields is when 3% of the Weymouth flowers are open. For the Hammonton area the date for their first opening of flowers runs from April 15 to May 1 with the average about April 25 and is about 4 days later in the Pemberton area. Hive placement should be moved up accordingly. Note: Hives placed in the field too early, i.e. before bloom is present, may result in the bees finding blooms elsewhere.

Frost Injury: Growers have asked at what temperature blueberry blossoms will be injured. Dr. Paul Lyrene states that there isn’t one number that applies to all freezes. “In Florida, we have found that if the temperature is measured inside an official weather bureau box placed in the field at the same height as the flowers, even open flowers will suffer no damage at 27F if the wind blows at least 15 mph all night with no calm periods. However, if the sky is perfectly clear, there is no wind, and the dewpoint is very low, (for example 15 degrees F), the flowers can freeze dead when the temperature inside the weather bureau box never falls below 30F. The reason is that the flower temperature and the air temperature aren’t necessarily the same. The flowers get colder than the air if
there is no wind. It is the same principal that explains why you can get frost on your car on a clear calm night when the temperature of the air never falls below 36 of 38F. The top of the car obviously got below 32 or it would either be dry or would have dew on it." The reason that this important is that the average last frost for the Atlantic County area is May 15. We are all keeping our fingers crossed.

Sincerely,

Gary C. Polk
Ph.D.
Atlantic County Agricultural Agent

Editor-Blueberry Bulletin

HONEY BEE HIVES

Hives Needed for Adequate Pollination of Blueberries

Very Attractive to Bees:

- 1 hive per 2 Acres
  - Rancocas
  - June
  - Rubel
  - GN-87

Moderately Attractive:

- 1 hive per Acre
  - Weymouth
  - Bluetta
  - Blu-ray
  - Pemberton
  - Darrow
  - Blakecrop*

Poorly Attractive:

- 2 hives per Acre
  - Stanley
  - Concord
  - Berkeley
  - Coville
  - 1316-A
  - Elliott
  - Jersey*
  - Earliblue*

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

Insects

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University
Mr. Dean Polk, IPM Agent – Fruit

Cranberry Weevil (CBW): A slight decrease in activity was seen from last week. Out of 86 tray counts done for CBW, 60% were positive, showing weevil presence. About 25% of all samples showed weevil populations above the treatment threshold of 5 weevils per bush. The highest level seen was 30 to 40 weevils per bush. About 80% of time weevils are being found in about the first 6 rows only. Growers have been using perimeter sprays of both Asana or Imidan. Both products have been working well.

Plum Curculio (PC): The first adults of the season were seen in a tray sample April 14. Like cranberry weevils, PC overwinters as an adult in sheltered areas, hedgerows and wooded borders. Adults start to move into fields in the early spring as soon as temperatures reach the high 60’s. We expect to find increasing numbers as temperatures warm and fruit begins to set. During 2005 only a few active sites were seen. Activity can be detected using beating trays or by checking for crescent shaped scars on the fruit. Bias your sampling towards early varieties near wooded borders or hedgerows.

Redbanded Leafrollers (RBLR): The first adult flight is near a peak. Adults are mating and laying eggs, and larvae should be evident within the next 2 weeks. Higher counts are present in Atlantic County compared to Burlington County. Growers with first flight peaks of 100 adults or more, should be checking flower clusters and shoot terminals for the presence of developing larvae. The treatment threshold is 1 larva per 100 blossom/fruit clusters for all combined Leps/leafrollers and other ‘worms’.

Blueberry Bulletin, Vol. XXII, No. 3
### Insect Trap Counts - Blueberry

#### Blueberry Trap Counts – Atlantic County

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<th>Week Ending</th>
<th>CBFW</th>
<th>RBLR</th>
<th>OBLR</th>
<th>SNLH</th>
<th>OB</th>
<th>BBM</th>
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#### Blueberry Trap Counts – Burlington County

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<th>Week Ending</th>
<th>CBFW</th>
<th>RBLR</th>
<th>OBLR</th>
<th>SNLH</th>
<th>OB</th>
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Key: CBFW = Cranberry Fruitworm, RBLR = Redbanded Leafroller, OBLR = Obliquebanded Leafroller, SNLH = Sharpnosed Leafhopper, OB = Oriental Beetle, BBM = Blueberry Maggot

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### NUTRA ingredients.com | europe

Breaking News on Supplements & Nutrition - Europe

Blueberries show promise in protecting heart

13/04/2006- **Blueberries could strengthen blood vessels against oxidative stress that may lead to heart disease, says new research - news that could boost already impressive sales.**

Sales of the fruit have been booming, going from £10.3m (€14.9m) in 2003 to almost £40m (€58m) in 2005, according to UK supplier BerryWorld, driven by dieticians and scientists hailing the fruit as one of nature's superfoods.

The results of the new study, published in the *Journal of Nutritional Biochemistry* (Vol 17, pp 109-116), add to the other reports in the literature linking the berry to lowering cholesterol, and protecting against cancer and neurodegenerative diseases like Alzheimer’s.

The scientists, led by Dorothy Klimis-Zacas from the University of Maine, investigated the effects of blueberries on functional and structural molecules in the walls of the rats’ aortas.
Over a 13-week period a control group was fed a standard diet, while an intervention group received the standard diet supplemented with eight per cent powdered wild blueberry.

The scientists focused on glycosaminoglycans (GAGs), carbohydrate molecules in the blood vessel walls that are directly or indirectly involved in a variety of functions, including lipoprotein metabolism, blood coagulation, and organization of the extracellular matrix.

“In this study we document for the first time that diets enriched with wild blueberries significantly alter the composition and structure of rat aorta at the glycosaminoglycan level,” wrote lead author Anastasia Kalea.

Klimis-Zacas and her research team also found an increased level of a specific GAG called galactosaminoglycans (GalAGs).

“It seems that the increased GalAG content in the blueberry-fed group (plus 67 per cent compared to control) may well be a protective factor,” they said.

By maintaining higher levels of GalAGs the blood vessel walls are more resistant to oxidative stress that could lead to cardiovascular disease.

“Our investigation of the potential of natural antioxidants like those found in wild blueberries to combat the precursors to cardiovascular disease is part of a broader research movement to gain a better understanding of the role of diet in disease prevention,” said Klimis-Zacas.

The researchers said that identification of the bioactive compounds in the fruit that cause the structural GAG changes is needed to elucidate the specific mechanism of action.

The study has been welcomed by the blueberry industry. Susan Davis, nutrition advisor to the Wild Blueberry Association of North America said that the work expands on the importance of wild blueberries in helping fend off diseases of aging, like cardiovascular disease.

“Dr Klimis-Zacas’ work helps build the case for including phytonutrient-rich foods in the diet for good nutrition and disease prevention. Colorful foods like Wild Blueberries should be included as part of a healthy diet.”
“be the cornerstone of a healthy diet,” she said.

An estimated 19m people are affected by diabetes in the EU 25, projected to increase to 26mn by 2030. CVD causes almost 50 per cent of deaths in Europe, and is reported to cost the EU economy an estimated €169 billion ($202bn) per year.

According to the American Heart Association, 34.2 percent of Americans (70.1 million people) suffered from some form of CVD in 2002. The direct (from hospitalization, medication, care and so on) and indirect costs (from lost productivity) are estimated to cost the US$403.1bn in 2006.

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