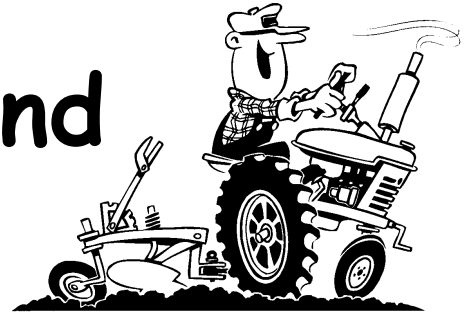


# Cultivating Cumberland

August - 2013 VOL. 18, ISSUE 8



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### Attachments:

## Cape May County Landscape Education Program

Wednesday, August 14, 2013  
9:00 a.m.

Rutgers Cooperative Extension of Cape May County  
355 Courthouse-South Dennis Road  
Cape May Court House, NJ 08210

Cost is FREE!!

You are invited to join other Cape May County Landscapers for a day of discussion and education on important topics in the commercial landscape industry.

### Agenda:

- Coffee Sponsored by Aquarius Supply and Introductions
- What are your industry needs?
- Hear about the benefits of a local landscape association, Jody Shilan, NJLCA
- Education and Pesticide Credits
  - \* Crabgrass Control, Fall Disease Management, Pesticide Safety Game
- Lunch - Sponsored by Aquarius
- Aquarius Products - Rich Oates

### Contact:

Jenny Carleo, County Ag Agent  
609-465-5115 x607 or email: [Carleo@njaes.rutgers.edu](mailto:Carleo@njaes.rutgers.edu)

## How Rainfall Influences Residual Herbicides

Brad Majek, Rutgers University

Heavy rains the past month have caused concern that residual preplant incorporated and preemergence herbicide applications may and not provide the length of weed control expected and increase the risk of crop injury compared to when rainfall is closer to average. The affect of the additional rainfall on herbicide activity and crop safety is complex, and is influenced the soil and the chemical properties of each herbicide.

**Soil characteristics** that influence herbicide effectiveness include texture, percent organic matter and pH. Sand particles are the largest, silt is medium in size, and clay particles are the smallest. Soils with a large percentage of large sand particles are considered to be coarse in texture and are called sand, loamy sand, or sandy loam. Soils with a moderate amount of each size soil particle are considered to be medium in texture, and are called loam, or silt loam. Soils with a large percentage of small clay particles are considered to be fine in texture and are called silty clay loam, clay loam, or clay.

Soil particles are negatively (-) charged. The negative charge attracts positively (+) charged fertilizer nutrients such as  $\text{H}_2\text{PO}_4^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{++}$ ,  $\text{Mg}^{++}$  and many herbicides. The attraction of a positively charged herbicide to the negative charge of the soil particles slows leaching. Other fertilizer nutrients, such as  $\text{NO}_3^-$  and a few herbicides, have a negative charge. Negatively (-) charged molecules are not bound to the soil and are more subject to leaching, especially if they are highly soluble in water.

Since substances that are positively (+) charged are called cations, the measure of a soil's ability to hold onto cations is called the **Cation Exchange Capacity** or **CEC**. Sand is the largest particle in size and has the lowest **CEC** value, less than one. Silt is intermediate in size and has an intermediate **CEC** value, near five. Clays are the smallest soil particles and have the highest **CEC** value of the mineral component of soil, near thirty-five, depending on the type of clay. The **CEC** of your soil should be listed on your soil test results.

Organic matter makes up only a small part of most soils, usually between 0.5 and 5.0 percent in soils across the northeastern United States, but it has the highest **CEC** value, near two hundred. Even small changes in the percent organic matter in soils, especially sandy soils, can have a strong influence on herbicide performance. That is the reason small changes in percent organic matter may require herbicide rate changes. Rate tables may have several columns with different herbicide rates for different levels of organic matter in each soil type.

Soil pH also affects the performance of some herbicides by influencing the degree of attraction to soil particles. Low pH, below 6.0, or high pH, above 7.0, may affect the availability of certain herbicides by changing the positive (+) charge of the molecule. Weed control may be reduced and/or herbicide carryover may be increased if the herbicide is more tightly bound to the soil. The risk of crop injury may increase if a herbicide is less tightly bound to the soil, and more available. Herbicides that are affected by pH may have **DO NOT USE** warnings on the label if the soil pH is above or below a value that increases the risk of crop injury, herbicide carryover, or poor weed control.

**Herbicides** leach more quickly through coarse textured (sandy) soils that are low in organic matter and more slowly through fine textured (clay) soils and soils high in organic matter, but the water solubility and adsorption characteristics of the herbicide also influence leaching (see table 1). Herbicides leach more quickly as solubility in water increases and adsorption decreases.

Herbicides, that have “Very Low” solubility in water and are “Strongly” adsorbed to soil, including Dacthal, Curbit, Goal, Prefar, Princep, Prowl, and Treflan, and are not leached by heavy rainfall. Since herbicide breakdown by soil microorganisms occurs when the soil is warm and moist, loss of these herbicides occurs due to increased speed of breakdown by microorganisms when the soil is continuously moist and warm. Erosion of treated soil can also affect herbicide performance. Some herbicides, such as Devrinol and Solicam, that are “Moderately” soluble in water are very “Strongly” adsorbed onto the soil and also do not leach. In general, herbicides that have long carry-over restrictions, two years or more, are less likely to leach quickly.

Herbicides that have “Moderate to High” solubility in water and are “Weakly or Moderately” adsorbed to soil, including Dual Magnum, Intrro, Metribuzin, Sinbar, and Stinger, are more likely to leach too deeply into the soil to provide weed control during extended periods of heavy rainfall. Reduced length of weed control is more apparent when lower rates are used and when the soil is coarse (sandy) in texture and organic matter is low. Split the herbicide treatments into more than one application to compensate for herbicide loss due to heavy rainfall.

**Example 1:** Tomato growers use metribuzin to control annual broadleaf weeds. Metribuzin can be applied preplant incorporated, postemergence, and late postemergence in tomatoes. Crop safety and weed control are both improved by splitting the total rate applied into three applications, compared to a single application at a higher herbicide rate.

**Example 2:** Transplanted cabbage growers have several herbicide options to consider. Treflan, Dacthal and Prefar have “Very Low” solubility in water and are “Strongly” adsorbed to the soil. Dual Magnum has “Moderate” solubility in water and is “Moderately” adsorbed to the soil. You should expect Treflan, Dacthal and Prefar to leach more slowly than Dual Magnum, and resist leaching in wet years. You should also expect Dacthal and Prefar to require more rainfall or overhead irrigation for activation than Dual Magnum in dry years. Goal has “Very Low” solubility in water and is “Very Strongly” adsorbed to the soil, therefore Goal does NOT Leach away from the soil surface. Goal is so “Very Strongly” adsorbed to the soil that any mechanical incorporation or cultivation deactivates the herbicide, resulting in poor weed control! Stinger has “High” solubility in water and is “Weakly” adsorbed by soil. Stinger is most likely to be leached by extended periods of high rainfall resulting in reduced length of weed control. This is one reason Stinger is applied as a postemergence herbicide for annual broadleaf weeds in cabbage.

**Example 3:** Sweet corn growers often apply atrazine preemergence for annual broadleaf weed control. Atrazine’s solubility in water is “Low to Moderate” and adsorption onto soil is “Moderate” when the soil pH is between 6.0 and 7.0. Princep’s (simazine) solubility in water is “Very Low” and adsorption onto soil is “Moderate to Strong”. Atrazine is more easily activated, requiring less rainfall than Princep, but can be leached below the zone of weed seed germination by extended periods of heavy rain, especially in coarse textured (sandy) soils. Princep requires significantly more rainfall for activation, but is unlikely to leach below the zone of weed seed germination. Tank-mixing atrazine and Princep provides more consistent weed control in dry and wet years.

**What YOU Should Do:** All herbicides will be affected to some degree by extended periods of excessive rainfall. Expect herbicides with “Very Low” or “Low” solubility in water and/or “High” soil adsorption to be least affected. Soil adsorption is more important in fine (clay) textured soils than in coarse (sandy) soils. Herbicides that have “Moderate” solubility in water and “Moderate” adsorption will be more affected, and herbicides that have “High” solubility in water and “Weak” soil adsorption will be most affected by heavy rainfall.

1. If you have overhead irrigation for herbicide activation, choose herbicides that have low water solubility and high soil adsorption to control the weed species in your field, when you have a choice.
2. Tank-mix two herbicides with different solubility and adsorption characteristics, such as Atrazine and Princep for sweet corn in Example 3.
3. Split the herbicide treatment into two or more smaller applications when the label allows, such as the Metribuzin for tomatoes in Example 1.
4. Be prepared to apply a postemergence treatment such as Stinger in cabbage in Example 2, when available, when preemergence herbicides do not provide full season control.

Table 1. Residual Herbicide Water Solubility and Soil Adsorption Characteristics <sup>1</sup>

Herbicide	Solubility	Soil Adsorption
Atrazine	Low/Moderate	Moderate
Devrinol	Moderate	SAstrong
Callisto	Moderate	Moderate/Strong
Caparol	Low	Strong
Command	High	Strong
Curbit	Very Low	Strong
Dacthal	Very Low	Strong
Dual Magnum	Moderate	Moderate
Goal	Very Low	Very Strong
Intrro	Moderate	Moderate
Karmex (diuron)	Low	Strong
Kerb	Low/Moderate	Strong
Lorox	Low/Moderate	Strong
Metribuzin	High	Moderate
Prefar	Very Low	Strong
Princep	Very Low	Moderate/Strong
Prowl H2O	Very Low	Strong
Sandea	Low/Moderate	Moderate
Sinbar	High	Weak
Solicam	Low/Moderate	Strong
Stinger	High	Weak
Treflan	Very Low	Strong

<sup>1</sup> Herbicide Handbook. Weed Science Society of America Ninth edition 2007

## FDA Steps Up Outreach on the Proposed Produce Safety Rule

FDA is expanding its outreach to small- and medium-size growers to address questions that have arisen since the proposed rule was issued in January 2013. According to Michael Taylor, Deputy Commissioner for Foods and Veterinary Medicine, FDA expects and welcomes questions that arise during the rulemaking process. He emphasizes that FDA is committed to developing, with input, a final rule that prevents illnesses but that also is practical and adaptable to a wide diversity of growing conditions and practices.

As part of the expanded outreach, FDA is issuing several new publications focusing on key issues such as agricultural water and alternatives and variances to certain provisions in the proposed rule. FDA will work through a network of key stakeholder organizations to publicize the materials. The materials will appear on a new "Resources for Farmers" section on the FSMA Proposed Rule for Produce Safety page ([www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm](http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm)).

Engagement with stakeholders has been, and will continue to be, a priority for FDA, and the Agency is planning additional outreach, including targeted outreach on specific areas such as agricultural water that continue to generate questions.

Comments on the proposed rule are due by September 16th and can be submitted on [www.regulations.gov](http://www.regulations.gov)

Following are the new materials available:

- Interview with Michael Taylor, Deputy Commissioner for Foods and Veterinary Medicine
- Fact sheet on Agricultural Water and Diagram: Subpart E
- Fact sheet on Alternatives and Variances
- Commodities Related to Outbreaks Change Frequently

Additional materials are being developed, including materials regarding mixed-type facilities, and will be posted to the new "Resources for Farmers" section referenced above.

## Raising Figs in a High Tunnel

Maury Sheets, Woodland Produce

A presentation will be made at the Vegetable Growers Twilight meeting on August 20, 2013 at 7:00 p.m. on raising figs in high tunnels. This is the result of a SARE grant to determine the profitability of using high tunnels for fig production. The following is the summary of the final report.

The purpose of the project was to determine if there was any economic advantage to growing figs in a high tunnel as opposed to growing them outdoors in the Northeastern states.

Three main plots were set-up:

- high tunnel
- winter protected
- winter unprotected

Four different varieties were grown as subplots in each main plot. Dates, weights and number of fruits in each harvest were recorded for the 2011 growing season. The different varieties have shown significant variations in all plots, so care needs to be used when selecting which varieties of figs to grow in your area. The high tunnel out produced the other two plots combined both in number of fruit and in total yield in weight. Over a 100% increase in weight was observed in the high tunnel as compared to the other two plots. Very nearly a 100% increase in fruit pieces was observed in the high tunnel compared to the protected and unprotected plots. Two to three weeks were gained in ripening time in the high tunnel. Using a high tunnel for production of figs can increase yields and help to insure a complete harvest.

The full report can be found at:

<http://mysare.sare.org/mySARE/ProjectReport.aspx?do=viewRept&pn=FNE11-727&y=2012&t=1>

## NJDA Plant Laboratory Offers Testing

The recent stretch of unusual rainy weather raises the potential of mycotoxin contamination in small grains, and other field or forage feed crops. Grain growers may be affected by price discounts and/or restricted markets. Mycotoxin contamination in animal feed and forage can lead to feed refusal, reduced productivity (reduced production of eggs, milk, and weight gain), reproduction problems (disrupted heat cycles, early embryonic death, abortion) impaired health, and in severe cases, death.

The New Jersey Department of Agriculture's Plant Laboratory offers concerned growers and producers services to test for mycotoxins: Aflatoxin, DON/Vomitoxin, Fumonisin, Ochratoxin, T-2 Toxin, and Zearalenone.

Sample submission information can be found at:

<http://www.state.nj.us/agriculture/divisions/pi/pdf/mycotoxinsubmissionform.pdf>

If you have any questions, please call (609) 406-6939 for more information.

## Pesticide Posters

The "Protect Yourself from Pesticides" poster that is required on the farm bulletin boards is now available at the Rutgers Extension Center-Cumberland County.

We have a limited number of the poster. They are available for pick up at no charge. If you would like to pick one up, please call Tammy at the Extension Office at 856-451-2800 x1.

The posters can also be ordered from the EPA website or at Gempler's, Inc., 800-382-8473 (a per poster charge applies).

## Vegetable Twilight Meeting and Research Tour

DATE: Tuesday, August 20, 2013

PLACE: Rutgers Agricultural Research & Extension Center  
121 Northville Road  
Bridgeton, NJ

TIME: 5:30 p.m. - 9:00 p.m.

We will tour research plots and have presentations by the investigators. All tours will begin in the Research & Extension Center parking lot at 5:30 p.m.

Pesticide credits have been requested.

The following topics/plots will be part of the tour:

- Basil Downy Mildew Trials
- Cucurbit Study - Dr. Andy Wyenandt
- Pepper Phytophthora Studies - Dr. Andy Wyenandt
- Pepper Anthracnose Studies - Dr. Andy Wyenandt
- Fresh Market Tomato Breeding Studies - Dr. Tom Orton
- Bell Pepper Variety Trials - Dr. Wesley Kline
- Fig Production - comparing high tunnel and outside production - Maury Sheets, Owner, Woodland Produce

This is your opportunity to have plant, insect, disease or weed samples identified.

Any questions, contact Dr. Wesley Kline, Ag Agent, Rutgers Cooperative Extension, Cumberland County, at 856-451-2800 x1.



## **Calendar of Important Events**

↪ Indicates the newly added event since last calendar

### **August 2013**

#### ↪ **July 31-August 1**

**PANTS 13**, Pennsylvania Convention Center, Philadelphia, PA. For more info call 732-449-4004 or visit: [www.pantshow.com](http://www.pantshow.com)

#### ↪ **August 13-14**

**North American Strawberry Growers Assoc. Summer Tour**, Vermont. For info visit: [www.nasga.org](http://www.nasga.org)

#### **August 15**

**NJ Pest Management Association 66th Annual Clinic, Tradeshow and Clambake**, Hickman Hall, Douglass campus, 89 George Street, New Brunswick, NJ. Cost \$125-\$290 (call 732-932-9271 for details). For info call 732-932-9271 or visit: [www.cpe.rutgers.edu](http://www.cpe.rutgers.edu)

#### ↪ **August 28**

**Annual Synder Farm Open House and Great Tomato Tasting**, 3-8:00 p.m., Synder Research & Extension Farm, 140 Locust Grove Rd., Pittstown. RSVP online: <https://njaes.rutgers.edu/rsvp/tomato> or call Joanne Stevely 908-730-9419 x3501.

### **October 2013**

#### **October 18-21**

**Produce Marketing Association Fresh Summit 2013**, New Orleans. For more info call 302-738-7100, email: [solutionctr@pma.com](mailto:solutionctr@pma.com) or visit: [www.freshsummit.com](http://www.freshsummit.com)

### **November 2013**

#### ↪ **November 6-7**

**2013 Irrigation Show & Education Conference**, Austin, Texas. For more info visit: [www.irrigation.org](http://www.irrigation.org)

#### ↪ **November 10-13**

**Western Growers Assoc. 88th Annual Meeting**, Waikiki, Hawaii. For more info call 949-885-2262 or visit: [www.wgannualmeeting.com](http://www.wgannualmeeting.com)

#### **November 13-14**

**Pacific Northwest Vegetable Assoc. Conf. & Trade Show**, Three Rivers Conv. Ctr, Kennewick, Washington. For info call 509-585-5460 or visit: [www.pnva.org](http://www.pnva.org)

### **December 2013**

#### **December 2-4**

**Washington State Hort. Assoc. Annual Mtg**, Wenatchee, Wash. Info call 509-665-9641 or visit: [www.wahort.org](http://www.wahort.org)

#### **December 4-7**

**Joint NCSA/NASGA Conf.**, Sheraton Imperial Hotel, Durham, N.C. For info email: [info@ncstrawberry.com](mailto:info@ncstrawberry.com) or visit: [www.ncstrawberry.com](http://www.ncstrawberry.com)

#### **December 6**

**Haygrove Owners Conference.** For info call 717-492-4955 or visit: [www.tunnelbuzz.com](http://www.tunnelbuzz.com)

**December 10-12**

**Great Lakes Fruit, Veg & Farm Market EXPO**, DeVos Place Conv. Ctr, Grand Rapids, Mich. For info call 616-794-0492 or visit: [www.glexpo.com](http://www.glexpo.com)

**January 2014**

👉 **January 6-7**

**Kentucky Fruit and Veg. Conference**, Lexington, Ky. For more info contact John Strang 859-257-5685 or email: [jstrang@uky.edu](mailto:jstrang@uky.edu)

**January 8-10**

**Potato Expo 2014**, Henry B. Gonzalez Convention Center, San Antonio, Texas. For info call 202-682-9456, email: [hollee@nationalpotatocouncil.org](mailto:hollee@nationalpotatocouncil.org) or visit: [www.nationalpotatocouncil.org](http://www.nationalpotatocouncil.org)

👉 **January 8-12**

**Illinois Specialty Crops, Agritourism and Organic Conf.**, Springfield, Ill. For more info contact Diane Handley 309-557-2107 or email: [dhandley@ilfb.org](mailto:dhandley@ilfb.org)

👉 **January 9-12**

**Southeast Regional Conf. and Trade Show**, Savannah International Trade & Conv. Center, Savannah, Ga. For more info visit: [www.seregionalconference.com](http://www.seregionalconference.com)

**January 10-11**

**National Potato Council annual meeting**, Henry B. Gonzalez Convention Center, San Antonio, Texas. For info call 202-682-9456 or email: [hollee@nationalpotatocouncil.org](mailto:hollee@nationalpotatocouncil.org)

**January 20-22**

**Ohio Produce Growers & Marketers Association**, Kalahari Resort & Convention Center, Sandusky, Ohio. For more info visit: [www.opgma.org](http://www.opgma.org)

**January 21-23**

**Empire State Fruit & Vegetable Expo**, Oncenter Convention Center, Syracuse, NY. For info email Jeanette Marvin at [nysvga@twcnny.rr.com](mailto:nysvga@twcnny.rr.com)

**January 23-24**

**Iowa Fruit and Vegetable Growers Association Conference**, Ankeny, Iowa. For more info contact Adam Hohl by email: [info@ifvga.org](mailto:info@ifvga.org)

**February 2014**

👉 **February 24-27**

**National Potato Council Potato D.C. Fly-In**, The Madison Hotel, Washington, D.C. For more info call 202-682-9456 or email: [hollee@nationalpotatocouncil.org](mailto:hollee@nationalpotatocouncil.org)

## REGULARLY SCHEDULED MEETINGS

✓ Indicates meeting will be held at RCE of Cumberland County

<p>✓</p> <p><b>Pesticide Certification Exam Schedule—Cumberland County</b> 291 Morton Avenue Millville, NJ 08332 (Between Rosenhayn &amp; Carmel)</p> <p><u>2013</u></p> <p>Sept 25    Oct 23 Nov 6      Dec 18</p> <p><b>To Register call 609-984-6614 For directions call 856-451-2800</b> *****</p>	<p>✓</p> <p><b>Cumberland County Agriculture Development Board</b> 291 Morton Avenue Millville, NJ 08332 (Between Rosenhayn &amp; Carmel)</p> <p><u>2013</u></p> <p>Aug 14    Sept 11 Oct 9      Nov 13    Dec 11</p> <p><b>Reg. Meetings start at 7 p.m. Call DeAnn at 856-453-2211</b> *****</p>	<p>✓</p> <p><b>Cumberland County Board Of Agriculture</b> 291 Morton Avenue Millville, NJ 08332 (Between Rosenhayn &amp; Carmel) 7 pm meetings</p> <p><u>2013</u></p> <p>Sept 19    Oct 17 Nov 21     Dec 19</p> <p><b>For info call Shirley Kline, President 856-685-3784</b> *****</p>
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**Cumberland County Improvement Authority (CCIA)  
Pesticide Container Recycling  
9:00 a.m. to 12 Noon**

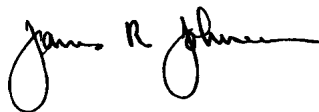
Cumberland County Solid Waste Complex  
169 Jesse's Bridge Rd. (located off Route 55 Exit 29)  
Deerfield Township, New Jersey

Questions? Call Karen Kritz, NJ Dept. of Ag 609-984-2506

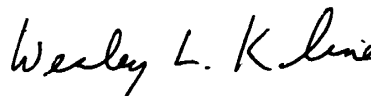
Aug 16

Sept 20      Oct 18      Nov 15

Sincerely,



James R. Johnson  
Agricultural Agent  
Nursery Management Commercial  
Internet: [jjohnson@njaes.rutgers.edu](mailto:jjohnson@njaes.rutgers.edu)



Wesley L. Kline, Ph.D.  
Agricultural Agent  
Vegetable & Herb Production  
Internet: [wkline@njaes.rutgers.edu](mailto:wkline@njaes.rutgers.edu)

**Pesticide User Responsibility:** Use pesticides safely and follow instructions on labels. The user is responsible for the proper use of pesticides, residues on crops, storage and disposal, as well as damages caused by drift.

**Use of Trade Names:** Trade names are used in this publication with the understanding that no discrimination is intended and no endorsement is implied. In some instances the compound may be sold under different trade names, which may vary as to label.

Have you visited the Cumberland County website for the Present and/or past issues of "Cultivating Cumberland"? It's a great resource for information and dates.....

<http://Cumberland.njaes.rutgers.edu/>

#### Public Notification and Non-discrimination Statement

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