



WEEKLY CROP UPDATE

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Vegetable Crops

Soil Temperature and Vegetable Seed Emergence -Gordon Johnson, Extension Ag Agent, Kent Co.; gcjohn@udel.edu

We have had a late spring with limited periods where soils were dry enough to plant spring crops. Warmer weather is being forecast for the coming week. However, soil temperatures currently are on the cold side. Cold, wet soils will lead to delays in crop emergence and potential loss of stand due to seed rots, seedling diseases, and insect feeding as fungicide and insecticide seed protectants dissipate. The longer the emergence period, the more risk to the crop.

The following are some guidelines for days to emergence at various soil temperatures for field seeded vegetable crops:

Beans (snap): at 50°F limited germination, at 59°F emergence takes 16 days, at 68°F emergence takes 11 days, at 77°F emergence takes 8 days, at 86°F emergence takes 6 days.

Beans (lima): at 50°F limited or no germination, at 59°F emergence takes 31 days, at 68°F emergence takes 18 days, at 77°F emergence takes 7 days, at 86°F emergence takes 7 days.

Cantaloupe: at 50°F limited or no germination, at 59°F emergence takes 14 days, at 68°F emergence takes 8 days, at 77°F emergence takes 4 days, at 86°F emergence takes 3 days.

Carrot: at 41°F emergence takes 51 days, at 50°F emergence takes 17 days, at 59°F emergence takes 10 days, at 68°F emergence takes 7 days, at 77°F emergence takes 6 days.

Cucumbers: at 50°F limited or no germination, at 59°F emergence takes 13 days, at 68°F emergence takes 6 days, at 77°F emergence takes 4 days, at 86°F emergence takes 3 days.

Lettuce: at 41°F emergence takes 15 days, at 50°F emergence takes 7 days, at 59°F emergence takes 4 days, at 68°F emergence takes 3 days, at 77°F emergence takes 2 days.

Okra: at 50°F no germination, at 59°F emergence takes 27 days, at 68°F emergence takes 17 days, at 77°F emergence takes 13 days, at 86°F emergence takes 7 days.

Onion: at 41°F emergence takes 31 days, at 50°F emergence takes 13 days, at 59°F emergence takes 7 days, at 68°F emergence takes 5 days, at 77°F emergence takes 4 days.

Peas: at 40°F emergence takes as much as 30 days, at 50°F emergence takes 10-14 days, at 59°F emergence takes 9 days, at 68°F emergence takes 8 days, at 77°F emergence takes 6 days.

Spinach: at 41°F emergence takes 23 days, at 50°F emergence takes 12 days, at 59°F emergence takes 7 days, at 68°F emergence takes 6 days, at 77°F emergence takes 5 days.

Sweet Corn: at 50°F emergence takes 22 days, at 59°F emergence takes 12 days, at 68°F emergence takes 7 days, at 77°F emergence takes 4 days, and at 86°F emergence takes 4 days. Sweet corn emergence success in cold soils will vary greatly depending on variety class. Shrunken seed types have low cold tolerance.

Watermelon: at 50°F no germination, at 59°F emergence takes 21 days, at 68°F emergence takes 12 days, at 77°F emergence takes 5 days, at 86°F emergence takes 4 days.

Of course, there are many factors that will modify days to emergence including soil moisture, seed vigor, seed quality, and variety.

Greenhouse "Air Pollution" Caused By Ethylene - *Jerry Brust, IPM Vegetable Specialist, University of Maryland;*
jbrust@umd.edu

Ethylene (C₂H₄) occurs in trace amounts in gasoline and natural gas and is produced when these substances are burned. It also is present in wood and tobacco smoke. Ethylene is a plant hormone produced by plants during their growth and development. However, ethylene produced through defective heating equipment can be detrimental to greenhouse crops, because it is produced in greater quantities. Ethylene pollution influences the activities of plant hormones and growth regulators, which affect developing tissues and normal organ development, many times without causing leaf-tissue damage. Injury to broad-leaf plants occurs as a downward curling of the leaves and shoots (epinasty), followed by a stunting of growth. Other symptoms of excess ethylene exposure include the abscission of flower buds (figure below), petals or leaves; water-soaking of older leaves; chlorosis; and wilting of flowers. Crops vary in their sensitivity and response to ethylene toxicity. The degree to which a crop is affected depends on the variety, temperature, ethylene concentration, and the duration of exposure. High temperatures and high light levels will increase the severity of ethylene damage. In high tunnels that burn propane, kerosene or use motors that burn gasoline and have poor or no

ventilation, even minute amounts of this pollutant can cause severe damage to tomatoes. Unvented unit heaters in greenhouses can at times also cause problems. These problems tend to increase in very tight greenhouse structures, i.e., those that have little exchange with the outside air. Symptoms of ethylene damage can be very subtle, especially if there are no plants grown in clean air available for comparison.

Proper heating system installation and maintenance are the best ways to prevent problems. A maintenance plan should include cleaning the unit heater and fuel orifice twice a year. Propane flames should have a small yellow tip when properly adjusted and natural gas flames should be a soft blue with a well-defined inner cone. To ensure proper combustion, heater units should have a clean air intake and should be vented to the outside with a stack, which keeps exhaust gas from being drawn back into the greenhouse through the ventilation system.



Agronomic Crops

Agronomic Crop Insects - *Joanne Whalen, Extension IPM Specialist;* jwhalen@udel.edu

Alfalfa

As temperatures increase, we will start to see a significant increase in feeding damage from alfalfa weevil. As alfalfa approaches harvest, the decision to cut instead of treat may be

considered. However, this option should only be used if you plan to cut shortly after you find an economic threshold level, since damage can occur quickly. Cutting should only be considered as a management option if you can cut within 3-5 days of finding an economic level. As you get close to harvest, be sure to check labels carefully for time between application and harvest.

Field Corn

Although only a small percentage of the corn acreage has been planted, be sure to check for cutworms as plants emerge, even if an at-planting insecticide was used for cutworm control. With the cool, wet weather, slugs can be found under residue in no-till fields. A new fact sheet from Ohio State provides information on slug biology, scouting and management of slugs on field crops:

<http://ohioline.osu.edu/ent-fact/pdf/0020.pdf>.

Small Grains

As grain heads emerge on barley, be sure to watch for the movement of aphids into grain heads. In many cases, beneficial activity is still not high enough to take care of populations moving from the lower canopy of the plants into the grain heads.

Once grain heads have emerged, you should also begin sampling small grains for sawfly and armyworm larvae. Moth flights are behind compared to past years due to the cooler temperatures over the past few weeks.

Remember, armyworm larvae are nocturnal so look for larvae at the base of the plants during the day. As a general guideline, a treatment should be considered if you find one armyworm per foot of row for barley and 1-2 per foot of row for wheat. Since sawflies feed on the plants during the day, small sawfly larvae can often be detected early using a sweep net. *However, there is no threshold for sweep net samples.* Once sawfly larvae are detected, sample for larvae in 5 foot of row innerspace in 5-10 locations in a field to make a treatment decision. You will need to shake the plants to dislodge sawfly larvae that feed on the plants during the day. As a guideline, a treatment should be applied when you find 2 larvae per 5 foot of row innerspace or 0.4 larvae per foot of

row. If armyworms and sawflies are present in the same field, the threshold for each should be reduced by one-half.

Should You Leave Simazine Out With Later No-Till Corn Plantings? – Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

In the past, it was recommended to use simazine (Princep) when the cornfields were sprayed early. I have been asked whether it is worthwhile to include simazine as a component of no-till spray mixes for later planted corn. Princep will not control emerged grasses, but it will provide residual control. Be sure to include paraquat or glyphosate to control the grasses that have already emerged, then simazine will be there to control later emerging grasses. In fields with a history of crabgrass and fall panicum problems, it is a good idea to include simazine even with later plantings.

Controlling Perennials When They Emerge From Seeds – Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Perennials often produce seeds that are adapted to being moved by the wind (hemp dogbane, milkweed, or Canada thistle) or produce large seeds or berries that are eaten by birds and animals and spread around (pokeweed). We conducted a greenhouse study (funded by DE Soybean Board) to examine which commonly used soil-applied herbicides are effective in controlling these plants when they originate from seeds. Perennials seedlings can produce a perennial root system after only 3 - 4 weeks. Being able to select the correct herbicide when you know seeds are coming into your fields can help prevent headaches and frustration in years to come. If at all possible, keeping the perennials mowed along the ditches and field edges will reduce (or eliminate) seed production. Prevention is the best approach.

Johnsongrass, bermudagrass, Canada thistle, hemp dogbane, common milkweed, common pokeweed, and horsenettle were planted in the greenhouse and sprayed with common soil-

applied herbicides (Dual, Prowl, Command, Lorox, Sencor, Lexone, atrazine, Scepter, and Canopy). Next to each weed are the herbicides that provided the best level of control (over 90% control). This study was conducted a few years ago and neither Lumax nor Canopy XL was available at that time for testing.

- Bermudagrass - Dual, Prowl, Command, and Sencor or Lexone
- Johnsongrass - Command
- Canada thistle - Command, Sencor or Lexone, atrazine, and Canopy
- Hemp dogbane - Command, Canopy, Sencor, and atrazine
- Common milkweed - Sencor or Lexone, and Canopy
- Common pokeweed - Canopy, and Sencor or Lexone
- Horsenettle - Sencor or Lexone, atrazine, and Canopy

This was control of plants emerging from seeds. This study did not examine control of plants emerging from rootstocks. If you are concerned about perennial weeds establishing in your fields due to seeds be blown in, there are options for controlling them before they become established as seedlings. As the list indicates, one herbicide will not control all the different perennial weeds. Be sure to match your herbicide with the species.

Grape Hyacinth Control in No-Till Fields -
Mark VanGessel, Extension Weed Specialist;
mjv@udel.edu

Grape hyacinth has been showing up in no-till fields in Sussex County. The biggest problem with grape hyacinth is in soybeans, because it interferes with soybean harvest. It emerges in the fall and can grow to 8 - 10 inches tall. If the infestation is severe, the waxy succulent leaves will interfere with the cutter bar. We do not have a lot of experience with grape hyacinth at this point, but it appears that glyphosate at 1.5 times the normal rate is the best treatment (1.12 lbs acid equivalent per acre). Last spring we compared glyphosate at normal and 1.5 X rates, and included paraquat; both tank mixed with Canopy EX. The treatment that provided

the best grape hyacinth control in the fall was the higher rate of glyphosate. Glyphosate in the spring was slow to kill the grape hyacinth; but in the fall, the number of stems was significantly lower and the plants were smaller. As with all perennials, one year of an aggressive treatment will really help, but it requires more than one year to “clean up” the field.

Grain Marketing Highlights - *Carl German,*
Extension Crops Marketing Specialist;
clgerman@udel.edu

Trader Attention Turns to Weather
 With planting progress for U.S. corn nearly equal to what it was this time last year, commodity market traders are turning their attention to weather forecasts for the Corn Belt growing region. For the week ending April 19 U.S. corn planting progress was reported at 5 percent, 1 percent ahead of last year’s progress and 9 percent behind the 2004-2008 average (Table 1).

Table 1. Corn: Percent Planted, Selected States¹

State	Week Ending			2004-2008 Avg.
	Apr 19 2009	Apr 12 2009	Apr 19 2008	
	<i>Percent Planted</i>			
CO	8	2	6	6
IL	1	0	1	23
IN	0	0	0	9
IA	6	0	0	10
KS	8	5	7	23
KY	4	2	10	37
MI	2	0	1	5
MN	0	0	0	3
MO	7	5	4	42
NE	3	0	2	6
NC	37	13	39	54
ND	0	0	1	2
OH	2	0	0	7
PA	1	1	8	6
SD	0	0	1	1
TN	11	4	15	51
TX	60	59	62	66
WI	1	0	0	1
18 States	5	2	4	14

¹These 18 states planted 92% of last year’s corn acreage.

Winter wheat crop conditions are reported to be a tad worse than last year at this time with 13 percent of the crop reported to be in very poor condition compared to 8 percent last year. The good to excellent categories were reported to be 43 percent this year compared to 45 percent for the week ending April 19 last year (Table 2).

Table 2. Winter Wheat: Crop Condition by Percent for Selected States, for Week Ending April 19, 2009

State	% of Crop in Designated Condition ¹				
	VP	P	F	G	EX
AR	0	7	35	52	6
CA	0	5	10	35	50
CO	2	8	26	48	16
ID	0	0	19	74	7
IL	1	7	27	56	9
IN	1	2	21	56	20
KS	4	12	40	40	4
MI	2	4	28	51	15
MO	0	8	39	48	5
MT	2	5	37	47	9
NE	1	4	27	59	9
NC	2	2	20	65	13
OH	1	6	25	51	17
OK	30	30	28	12	0
OR	2	20	47	28	3
SD	2	5	33	50	10
TX	49	25	16	9	1
WA	6	10	33	44	7
18 States	13	14	30	36	7

¹VP-Very Poor, P-Poor, F-Fair, G-Good, EX-Excellent
National crop conditions for selected States are weighted based on 2008 planted acres.

Marketing Strategy

The planting progress and crop condition reports given above do not present any reason to be alarmed at this point in time. Corn planting progress is expected to make great strides next week. Rumors are said to be circulating among commodity traders that corn export business is about to dry up. If that happens then prices would adjust accordingly. The April supply and demand report strongly indicated that there is no shortage of wheat in the world.

The bullish undertone in the soybean market is currently being reaffirmed by reports from Argentina that their crop might turn out to be shorter than USDA previously projected. USDA's

April estimate for Argentine soybean production was at 39 MMT. Consensus is building that the Argentine crop size could range somewhere between 33 to 37 MMT.

Outside market forces will continue to play an important role in influencing commodity prices. Currently, Dec '09 corn futures are trading at \$4.02 per bushel; Nov '09 soybeans at \$9.24; July '09 SRW wheat at \$5.27; June '09 crude oil at \$47.85; June '09 U.S. Dollar Index at 86.55; and the Dow is 7959. For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

Announcements

Governor's Forum with Delaware Farmers Postponed

The meeting between Governor Markell and Delaware Farmers which had been scheduled for Wednesday, April 29, 2009 at the Carvel Research and Education Center in Georgetown has been postponed.

Field Crop Pest Management Recommendations Available

The 2009-10 version of the regional Pest Management Recommendations for Field Crops is available. This publication is a collaborative effort between University of Delaware, University of Maryland, Virginia Tech, Rutgers, Penn State, and West Virginia University. The guide includes weed control, insect management, and disease control recommendations. The print version is available in the county Extension offices for \$20 per copy and online at <http://extension.umd.edu/publications/EB237online/index.cfm>

Pasture Walk Featuring Netherfield Estate

Saturday May 2, 2009 2:00-4:00 p.m.
50185 Hays Beach Road, Scotland, MD 20687
Hosts: Ruth & Peter Pry

There will be a tour of host farm highlighting conservation practices. Learn about pasture and hay management, soil testing and nutrient management,

cost share incentive programs, manure composting, watering facilities, and more.

SPEAKERS:

Elmer Dengler

Grazing Specialist, USDA Natural Resources Conservation Service (NRCS)

Les Vough

Forage Systems Management Consultant, RCS Southern Maryland RC & D

Bruce Young

District Manager, St. Mary's Soil Conservation District

Terry Heinard

District Conservationist, USDA Natural Resources Conservation Service (NRCS)

Ben Beale

Extension Agent, St. Mary's County Extension

This event is FREE!!

Advance registration is required. Please RSVP by April 25 to Sara Lewis at

St. Mary's County Soil Conservation District: (301) 475-8402 ext. 3 or Sara.Lewis@md.nacdn.net

New Castle County Weed ID Workshop

Tuesday, May 12, 2009 5:00-7:00 p.m.
University of Delaware Webb Farm
508 S. Chapel Street, Newark, DE

What is that weed!? Learning to identify weed species can help with controlling the weed, crop production and your bottom line. Learn to identify a number of weed species that are found locally. Experts will be on hand to answer your questions and help with weed management issues.

Please bring a folding chair.

Pesticide (2) and CCA credits will be available.

This meeting is free and everyone interested in attending is welcome. Please call (302) 831-2506 to register by May 8.

Equine Pasture Walk

Tuesday, May 19, 2009 5:00-7:00 p.m.
Two Eagles Farm
1311 McQuail Road
Smyrna, DE

Learn about Natural Resource Conservation Services Cost Share Programs and EQIP Eligibility. See on-farm manure storage facility and storm water management projects. Learn about pasture management and managing the diet to avoid injuries and illness. Experts will be on hand from the University of Delaware and the Natural Resource Conservation Service (NRCS) to answer your questions!

Please bring a folding chair.

Nutrient Management (1.75), Pesticide (1) and CCA credits will be available.

This meeting is free and everyone interested in attending is welcome. Please call (302) 831-2506 to register by May 15.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of April 16 to April 22, 2009

Readings Taken from Midnight to Midnight

Rainfall:

0.46 inch: April 20

0.02 inch: April 21

0.47 inch: April 22

Air Temperature:

Highs ranged from 75°F on April 18 to 53°F on April 22.

Lows ranged from 52°F on April 21 to 31°F on April 17.

Soil Temperature:

60.3°F average

Additional Delaware weather data is available at http://www.deos.udel.edu/agirrigation_retrieval.html and <http://www.rec.udel.edu/TopLevel/Weather.htm>

Weekly Crop Update is compiled and edited by Emmalea Ernest, Extension Associate - Vegetable Crops. For subscription information, contact her at emmalea@udel.edu or (302) 856-2585 x 587.

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