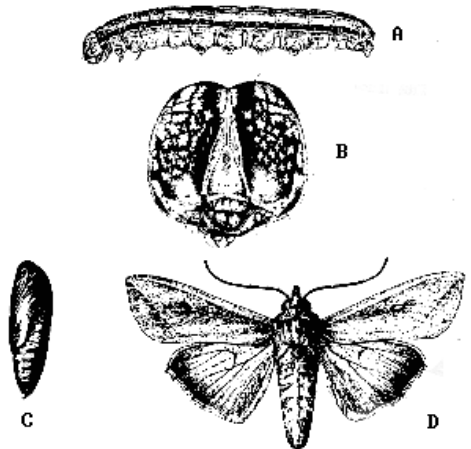


PLANT & PEST ADVISORY

FIELD AND FORAGE CROPS EDITION \$1.50

JULY 19, 2001



Armyworm. A, Larva. B, Larval head capsule. C, Pupa. D, Adult.

Armyworm Populations Explode in Localized Areas of NJ and PA

Donna Foulk, Warren County Program Associate, IPM

- In Washington, NJ armyworms completely devoured 12 inches of regrowth in an orchardgrass field. The ground was swarming with 10-15 larvae per square foot. Armyworms had moved into the adjacent cornfield and were actively feeding on the corn plants. Larvae were highly variable in size, ranging from 1/2 inch to nearly 1-1/4 inches in length.
- John Stutzman, Stutzman Crop Care, reports high populations of armyworm in cornfields in some areas of Warren County.
- Armyworms have been reported in small grain fields and mixed hayfields in Burlington County, NJ.
- High armyworm populations have devastated pastures in Glen Gardner and Change water, NJ.
- Armyworms have been reported to be above thresholds in cornfields in Wayne County, PA and in several cornfields in the National Park Service along the Delaware River.
- Joe Gourniak, Crop Production Service, reports that he has been contracted to spray several corn and hayfields in Warren County.
- Armyworm activity is highly localized. In checking thirty cornfields on one Pennsylvania farm, only one had armyworm activity and was above threshold. On several adjacent New Jersey farms, two orchardgrass fields were devastated by armyworms; other fields contained no armyworm damage. Fields should be scouted individually for armyworm activity.
- Armyworms are always found in areas of New Jersey and Pennsylvania, but rarely at economic thresholds. They overwinter as partially grown larvae under plant trash and in clumps of grass. Moths emerge from early May to early June. Armyworm moths are attracted to grassy areas to deposit their eggs. Larvae hatch and develop over a period of three weeks. When the larvae are 1 1/4 inches in length,

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Selecting Wheat Varieties for Fall 2001

Jeremy W. Singer, Specialist in Field and Forage Crops

The data from the 2000/2001 New Jersey Wheat Variety Trial have been summarized and will be available shortly on the web (www.rce.rutgers.edu) and at your County Extension office. Lack of rainfall during April and the first two-thirds of May lowered yields, particularly at the Adelphia location, where only 1.61 and 1.32 inches of precipitation were recorded in April and May. Nevertheless, some promising new varieties and a few older varieties performed well at the three experimental sites.

The best way to use the variety report is to identify wheat varieties that performed well across locations because these varieties tend to produce more stable yields under variable environmental conditions. Furthermore, evaluating more than one year of yield data, when possible, provides information on how varieties perform under even more variable environmental conditions. Variety trial reports dating back to 1999 are available on the website. For example, in the 2000 wheat variety trial, USG 3209, Pioneer Brand 2643, and AgriPro Sawyer were in the highest yielding group at all three sites. If a variety is in the highest yielding group, there is no statistical difference among all varieties in that group.

In the 2001 trial, extremely dry conditions resulted in more variability in wheat yields in the Adelphia location. Adelphia had the lowest yields with a range from 55 to 37 bu/acre. Sisson, a new variety from Virginia, performed the best at all three sites in 2001, with the highest yield at the Rutgers Agricultural Research and Extension Center (RAREC) in Upper Deerfield, and the Snyder Farm in Pittstown, and the second highest yield at the Adelphia Farm. Pioneer Brand 25R37 performed well at the Snyder Farm and at Adelphia, but did not do well at RAREC. USG 3209 was in the highest yielding group at RAREC, was near the top at the Snyder Farm, but did not yield as well at the Adelphia Farm. The wheat variety trials are conducted in New Jersey to provide unbiased, research based information to help you select superior varieties for production on your farms. □

ARMYWORMS FROM PAGE 1

they will enter the soil to pupate. There are two, and possibly three, partial generations in Pennsylvania and New Jersey.

- Larvae feed primarily on grasses and young grain crops, attacking other plants only when these are not available. Infestations usually develop in grass pastures, along roadsides, and in small grains. Once the larvae consume all of the food or the grasses and small grains dry down, armyworms move into other green crops - especially corn where they are difficult to control.
- Economically damaging populations depend on a large variety of factors - cropping practices, insect migration patterns, parasites, predation, and weather conditions. One theory on the present outbreak is that the tropical air mass experienced with the slow movement of "Allison" up the eastern coast may have forced large numbers of moths into the area. Another theory is that the severe drought experienced in 1999 may have drastically reduced natural parasites and pathogens that normally keep armyworm populations in check. It may take several years to rebuild these natural biological controls.
- Attempts should be made to control armyworm in hayfields and pastures, especially if there is corn nearby. If alfalfa is present in the hayfield, there are many products, such as Warrior and Asana that are labeled for use. A non-chemical treatment in hay is to harvest hay with a hay conditioner that crimps the hay. This will crush a lot of larvae.
- Treating pastures for armyworm has very few options. Malathion (Atrapa) by Griffin is labeled for use on pastures. Most Bt formulations are also labeled. Most carbaryl formulations have a national registration for pastures, but not for armyworm in these crops. Check labels carefully for specific information and grazing restrictions.
- All cornfields should be scouted carefully for armyworm. Fields that contained large populations of grass weeds that were not controlled, and corn that was planted into a small grain cover crop are at particular risk. The perimeter of all cornfields should be checked for armyworm activity, especially if they border large grassy areas or small grains. Armyworms remove large irregular areas of leaf tissue, creating a ragged appearance on corn. Caterpillars will usually be found deep in the whorl during the day. Control is warranted if 25% or more of the plants show evidence of feeding, and larvae are less than 1" in length. There are a number of insecticides labeled for use on armyworms in corn. These include Carbaryl, Asana, Lorsban, Pounce, Warrior (for larvae less than 3/4"), Bt, and Ambush.

Note: Yield Guard corn and Bt-Extra hybrids suppress armyworm activity during the seedling and whorl stage. It may be wise to use these hybrids in fields that experienced heavy armyworm feeding this year and in no-till fields planted into small grain cover crops. □

IPM Report

Donna Foulk, Warren County Program Associate, IPM

- Check small grains, pastures, hayfields, and corn for **armyworm** populations.
- Although **armyworms** themselves are not toxic, people feeding hay should be on the alert for any spoilage in the hay. The secondary effect of dead armyworm is clostridium, which is related to botulism and very toxic. Any part of the hay that is moldy, rotten or has a foul odor should be discarded. Armyworms have been reported sporadically in very high numbers in hayfields throughout Pennsylvania and New Jersey. Some farmers report that bales are "oozing" from armyworms crushed in the baling process.
- Some local alfalfa fields are showing signs of **potassium deficiency**. Potassium deficiency is expressed as a series of uniform white spots along the margin of the leaflets. Alfalfa is a large consumer of potassium and typically removes 50 lbs. per ton of yield (5 tons of alfalfa would remove 250 lbs. of potassium each year). Soil tests are necessary to determine how much potassium is needed. Applying excess potassium to avoid deficiency is not recommended since alfalfa is a "luxury" consumer of potassium and will remove more than it needs.
- Continue to check corn for the presence of **armyworm** - especially cornfields planted next to small grains that have begun to dry down. Larvae that are 1 1/4 inch in length are nearing pupation.
- Conduct soil tests on those fields that will be planted into wheat or forages in late summer or fall. Soil tests should also be conducted on fields that show poor early crop growth. Several soil tests conducted recently on local fields had soil pH levels of 4.2 to 4.4. These pH levels are low enough to interfere with proper uptake of nutrients and normal rates of growth.
- Check cornfields for "brittle snap or green snap". According to Greg Roth, Penn State University Agronomist, research plots have experienced 5-10% breakage. In the past, some cornfields experienced 75% to 100% breakage. Local weather conditions have been right for brittle snap. This occurs when corn is in pre tassel and growing rapidly and faces winds of 40 miles per hour or greater. Some hybrids are more susceptible. Applying all the nitrogen at planting and using growth-regulating hormones seems to increase susceptibility.
- **Potato leafhoppers** have been at threshold in some fields in New Jersey and Pennsylvania. Continue to sweep fields to determine if fields have reached economic thresholds.
- Check cornfields for lodging caused by **corn rootworm beetles**. Corn rootworm beetle damage has been observed in several fields in Warren County. The larvae caused typical gooseneck lodging of the corn stalks. The roots of the plants showed significant pruning and larvae could be seen on the roots and in the surrounding soil. □

Field and Forage Crop Twilight Meeting

July 31, 2001

Rutgers University Snyder
Research and Extension Farm
Pittstown, NJ
(Hunterdon County)

4:00 to 5:00 PM Registration and Trade Show

5:00 to 6:00 PM Dinner Buffet (Free – but must register!)

6:00 to 8:00 PM Twilight Meeting and Farm Tour

The program will provide updates on on-going research, demonstration and Extension programs, including:

- ◆ an update on the NJ ethanol facility plans
- ◆ corn and soybean variety trials
- ◆ nutrient and integrated pest management techniques
- ◆ organic soybean weed control and marketing
- ◆ pesticide handling and safety information.

Pesticide license recertification credits will be available (1 core, 3-Category 1A, and 3-Category PP2).

Sponsors:

- Rutgers Cooperative Extension
- Grain and Forage Producers' Association of New Jersey
- North Jersey Resource Conservation and Development

Manganese Deficiency in Soybean

Joseph R. Heckman, Specialist in Soil Fertility

Many of the sandy soils of Southern New Jersey are manganese (Mn) deficient. When these soils are cropped to soybean, Mn deficiency symptoms typically begin to appear in late June with the emergence of the first and second trifoliolate leaves. The symptoms are exhibited as yellow to white colored leaves but with green veins (interveinal chlorosis). The deficiency is easily corrected with foliar applications of Mn fertilizer. Treatment should begin as soon as the deficiency symptoms become apparent. Generally more than one application is needed to fully correct the deficiency. Spray about one pound of Mn per acre during early vegetative growth and another one pound of Mn per acre during the early flower growth stage. Soybean leaf color should improve within a few days after the application of the Mn fertilizer. Yield increases of as much as 10 bushels/acre have been observed when fields with severe Mn deficiency received treatment.

Further information about correction of manganese deficiency in a variety of crops is provided in Rutgers Cooperative Extension Fact Sheets: FS632, FS568, and FS973. □

Soybean Prices Looking Up

Adapted from AgAnswers, S. Leer, writer/editor. "Analyst: Soybean Crop May be Worth a Hill of Beans." 13 July 2001. Purdue University, West Lafayette, IN <http://www.aganswers.net>.

Higher soybean prices may be just over the horizon if U.S. Department of Agriculture crop production and usage estimates hold true, according to Chris Hurt, a Purdue University agricultural economist. Hurt foresees soybean futures approaching highs set in December 2000. "That is about \$5.30 per bushel on the August and the November futures," he said. Harvest cash prices should come in between \$4.50 and \$4.80 a bushel. Adding in Loan Deficiency Payments, producers could net \$5.60-\$5.90 per bushel," he said. "It can't get much better for the soybean balance sheet," Hurt said.

In a monthly crop report released July 11, the USDA projected a fall soybean harvest of 2.935 billion bushels, a reduction of 50 million bushels from its June forecast. The lower production estimate, while still a record, reflected fewer reported soybean acres resulting from weather-related crop shifts or acres left unplanted in parts of the south and the northwest Corn Belt. On the flip side, strong world demand for oil meals and shrinking oil stocks led the USDA to raise estimates of soybean exports and domestic crush by 20 million bushels and 15 million bushels, respectively.

The USDA projected year-end stocks at 255 million bushels, the lowest carryover since 1997. The production/usage estimates bode well for producers with soybeans to sell. "As a general statement, weather markets should be sold, and that is likely the case this year," he said. "However, crop yields will still be vulnerable over the next month, so plan to finish up old crop sales by early August. "For new crop, cash forward contract prices near \$5 should be considered for up to 30 percent of expected production. For soybeans, there will be much less incentive to store and price for later delivery, compared to corn. So if storage space is limited, corn or wheat storage should be considered before soybeans."

Farmers may need a lot of space to store corn. In its report, the USDA boosted its 2000 crop carryout by 5 million bushels, to 2.038 billion bushels — the largest old crop volume in nine years. "Much of these stocks remain in farmers' hands, raising the question of how this much corn can be marketed in the next two months without depressing prices," Hurt said. Then there's the 2001 corn crop. Despite revising its production numbers downward, the USDA projected a fall harvest of 9.5 billion bushels. Feed use estimates rose and export estimates fell 25 million bushels each. Corn prices have been climbing of late but larger stocks and a bin-busting harvest could bring the trend to an end, Hurt said. Weather will be the deciding factor, he said.

Hurt recommends pricing old corn now because of the large amount of old crop corn still to be sold. "On new crop in many areas, cash bids are now above loan rates," Hurt said. "This premium above loan is likely to be sufficient to get producers who are looking at very good yield potential to do some pricing." Hurt expects much lower cash prices at harvest, with Loan Deficiency Payments around 20 cents per bushel. With cash forward contract prices of \$2.15-\$2.20 a bushel, net prices should hover between \$2.35 and \$2.40 a bushel, he said. "Those with storage will want to forward contract for delivery into the late winter or early summer of 2002, and could generate cash prices in the \$2.55 to \$2.60 range," Hurt said.

Submitted by Dan Kluchinski, Mercer County Agricultural Agent. □

Soybean Leaf Cupping

The following is an article written by Dwight Lingenfelter and Bill Curran at Penn State.

A few questions have been asked about soybean cupping, particularly with glyphosate-resistant soybeans. Potential causes include herbicide, environment, or soybean genetics.

Growth regulator herbicides: Dicamba (Clarity, Banvel, Distinct) and 2,4-D (and prepackaged mixes containing these herbicides) are commonly used in our area and can cause problems by either drift (particle or vapor) or spray tank contamination. Even very small amounts of growth regulator herbicides can affect soybeans. The first step in dealing with this situation is to rule out the possibility of the soybean coming in contact with a growth regulator herbicide.

Postemergence herbicide applications: The response may be due to the inert ingredients in the herbicide formulation, the herbicide itself, or the spray additives (e.g., nonionic surfactant, crop oil concentrate, ammonium sulfate, UAN) used with the herbicide. The number of problems associated with leaf cupping has increased with the increase in postemergence applications in soybean. Roundup Ready soybeans seem to be as likely to develop the response as traditional varieties.

Environmental response: One theory suggests that soybean plants may also develop cupped leaves in the absence of herbicide applications. This most commonly occurs during conditions of rapid growth. The theory suggests that under these conditions, the balance of naturally occurring hormones in the plant is disrupted, resulting in symptoms characteristic of growth regulator herbicide damage. When this situation develops, the entire field frequently develops symptoms and there will not be any indication of a "drift" pattern. Another thing to look for is the presence of growth regulator symptoms on susceptible weeds in the field. **Velvetleaf** or **pig-weeds** are fairly responsive to low levels of dicamba. If soybeans are exhibiting cupped leaves but velvetleaf in the field appears normal there is a good likelihood that the cupping is an environmental response rather than one caused by a growth regulator herbicide.

New genetics: A possible explanation is that current genetics found in soybean are more prone to a growth regulator type response. Some researchers speculate that possibly today's higher yielding varieties are more temperamental than older varieties, and thus results in their hormones getting out of balance occasionally and creating a growth regulator herbicide-type response. However, there are no data to support this theory.

So how does this effect soybean yield? In short, no data exist that definitively explain every case of cupped or puckered soybeans. It is unlikely that one "blanket" explanation exists; each case may be somewhat unique.

Rope-wicking Large Weeds

Mark VanGessel, Specialist in Weed Science, University of Delaware

In a number of situations the weeds are very large and growers are searching for ways of controlling them, and spraying an herbicide over the top of the crop is not an option. One consideration is using a rope-wick. There needs to be a height difference of at least 6 inches between the crop and weeds that allows the weeds to come in contact with the wick, but the wick is safely above the crop. Glyphosate (Roundup or Touchdown) is the best option to use with rope wicks. Since glyphosate will kill the crop, a good quality rope wick that does not leak or drip is essential. The rate of glyphosate is one-third glyphosate (as it comes out of the jug) and two-thirds water. Drive at a slow speed (3 to 5 mph), and the slower the speed the better the coverage because the weeds are in contact with the rope wick for a longer period of time. If the weeds are real dense, consider wicking the weeds twice, driving in opposite directions. □

When dicamba or some other growth regulator herbicide is not involved, soybean plants typically resume normal growth shortly after the cupped leaves are observed. Frequently two or three leaves will develop symptoms and then normal growth resumes. It is believed that soybean yield should not be impacted under these situations.

The potential for a yield response is greater when a growth regulator herbicide is involved; however, it is impossible to determine the extent of yield loss by examining symptoms that develop after the exposure. Data exist that describe the response of soybeans to exposure to growth regulator herbicides, but other factors may also be at work. The available literature tends to suggest that this type of injury does not always necessarily result in soybean yield loss, but several factors are involved in determining if yield loss will occur. In particular, soybean variety, time of exposure, and dosage are important factors that determine whether yield loss will or will not occur. Much of the available literature suggests that if minor exposure occurs during early vegetative development, yield loss is less likely to occur than if exposure occurs when soybeans have entered the reproductive stage of development. The only reliable method of determining a yield response is comparing the yield of the injured soybean to an area of the same field that is unaffected by the herbicide. In many situations, a valid comparison is not available to help determine the cost of the herbicide damage.

Submitted by Mark VanGessel, Specialist in Weed Science, University of Delaware. □

Purple Loosestrife-Eating Beetles Help Native Plants Reclaim Wetlands

Robert Chianese, Chief, NJDA, Div. of Plant Industry, Phillip Alampi Beneficial Insect Rearing Laboratory

Purple loosestrife, *Lythrum salicaria*, is a European plant that is now found in all lower 48 states except Florida and has infested thousands of acres of New Jersey freshwater wetlands. It has been declared a noxious weed in a number of states but is not regulated in New Jersey. Purple loosestrife propagates vegetatively and by seed, out competes natural vegetation, prefers full sun but can tolerate 50% shade and a mature plant can produce over two million seeds. To date, it has caused few problems for growers in New Jersey, but loosestrife will thrive in wet meadows, displaces native vegetation used by waterfowl and other native animals for food, shelter and nesting, infests irrigation ponds and can clog drainage ditches reducing water flow. In addition, it will grow in soil with a pH as low as four, which makes it a threat to the cranberry growing area.

There is no satisfactory means, chemical or mechanical, that can be used for controlling purple loosestrife once it has become well established. Although some native species of insects can be found feeding on purple loosestrife, they have little impact on the plant. Two species of purple loosestrife eating beetles, *Galerucella pusilla* and *G. californiensis*, collected from their native European country and approved for release in the United States by the United States Department of Agriculture, are being raised by the New Jersey Department of Agriculture, Division of Plant Industry's Phillip Alampi Beneficial Insect Rearing Laboratory. At the request of the Department of Environmental Protection (DEP), release of the beetles are being made on a number of state parks and wildlife management areas (WMA). The goal of the program is to raise thousands of beetles in the laboratory and release them in loosestrife infested sites, in an effort to slow the spread and eventually reduce the population of this aggressive plant. The program is receiving some funding from the DEP's, Nongame and Endangered Species Program for release of the beetles on privately owned bog turtle, *Clemmys muhlenbergii*, sites. Bog turtle is on the New Jersey endangered species list and its habitat is being threatened by the spread of purple loosestrife.

Since the initiation of the program in 1997, more than 830,000 beetles have been released and the species are now established in ten counties. Loosestrife is demonstrating moderate to high mortality rates at some of the first release sites, and native vegetation has been

observed reclaiming infested wetlands in at least one of these sites. This is an encouraging sign, since the first releases were only initiated four years ago and impacts to the plant were not expected so soon. The Department continues to work with DEP, releasing the beetles in a number of bog turtle sites. In addition the beetles will be released in a wetland mitigation site and state wildlife management sites.

In an effort to help support the program, a fee of \$100/1000 beetles is charged for all beetles released on other than state-owned land. To establish the beetle, the laboratory recommends a minimum release of 3,000 beetles/acre on sites with a moderate to heavy purple loosestrife infestation.

Requests for beetles should be addressed to Mr. Daniel Palmer (609) 530-4192, fax- (609) 530-4195, e-mail- Daniel.Palmer@ag.state.nj.us. □

The goal of the program is to raise thousands of beetles in the laboratory and release them in loosestrife infested sites, in an effort to slow the spread and eventually reduce the population of this aggressive plant.

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged below normal. Extremes were 93 degrees at Pemberton on the 11th and 42 degrees at Charlotteburg on the 15th. Weekly rainfall averaged 0.34 inches north, 0.06 inches central, and 0.16 inches south. The heaviest 24 hour total reported was 0.59 inches at Seabrook on the 10th to 11th. Estimated soil moisture, in percent of field capacity, this past week averaged 83 percent north, 63 percent central and 53 percent south. Four inch soil temperatures averaged 68 degrees north, 71 degrees central and 73 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/16/01

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.67	19.38	1.90	91	53	70.	-2	1328	137	88
CANOE BROOK	.00	20.33	1.75	92	52	70.	-3	1408	215	67
CHARLOTTEBURG	.34	18.21	-.55	88	42	66.	-4	1138	177	83
FLEMINGTON	.47	22.57	4.67	89	52	69.	-5	1279	47	72
LONG VALLEY	.03	17.31	-1.85	82	50	66.	-5	1090	55	77
NEWTON	.56	17.90	.81	89	51	68.	-3	1281	223	71
FREEHOLD	.01	17.97	.53	90	55	72.	-2	1556	223	67
LONG BRANCH	.00	19.36	1.98	91	56	72.	-2	1411	153	48
NEW BRUNSWICK	.28	20.30	3.06	91	54	71.	-4	1452	40	71
PEMBERTON	.01	14.94	-2.27	93	48	70.	-4	1503	133	43
TOMS RIVER	.00	15.97	-1.68	91	53	71.	-3	1476	208	44
TRENTON	.05	19.10	2.77	90	55	72.	-4	1546	75	45
CAPE MAY COURT HOUSE	.00	13.63	-1.77	92	58	74.	-1	1600	248	39
DOWNSTOWN	.28	14.10	-1.92	91	54	72.	-4	1541	57	43
GLASSBORO	.10	19.01	1.92	92	56	74.	-2	1681	218	46
HAMMONTON	.07	13.93	-3.00	92	54	73.	-3	1602	144	34
POMONA	.05	14.05	-1.23	91	56	72.	-3	1533	183	47
SEABROOK	.59	19.74	4.27	92	59	74.	-2	1682	189	54
ATLANTIC CITY MARINA	.00	11.92	-2.71	91	59	74.	0	1575	305	40
SOUTH HARRISON	.35	19.12	1.90	91	58	74	NA	1618	NA	NA

*Some values for Flemington were estimated for the period April-May

WES KLINE — GDD BASE 40 PINEY HOLLOW

Last Week 204 (Ending 7/09/01)

This Week 228 (Ending 7/16/01)

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
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PLANT & PEST ADVISORY

FIELD AND FORAGE CROPS EDITION

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