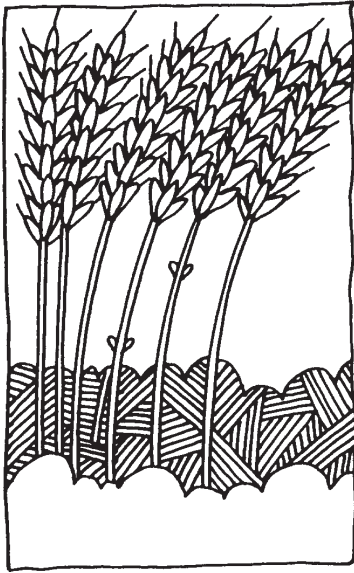


# PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION \$1.50

JUNE 11, 1998



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## Take-All Disease of Wheat

*William J. Bamka, Burlington County Agricultural Agent*

**T**here have been a number of reports in the state of circular patches in wheat fields where plants have matured prematurely and possess a bleached appearance. The heads are described as "white heads" and are sterile. What is being reported in these fields is a disease of wheat called **Take-all**. While it is too late to do anything for this year's crop, management strategies can be initiated to reduce Take-all in the future.

Take-all is the common name for a root and foot rot of wheat caused by the soil-borne fungus *Gaeumannomyces graminis*. Take-all infects the wheat plant through the roots. Invaded roots decay, causing starvation and drought to the plant, often leading to premature plant death. Symptoms of Take-all include a black lesion near the base of each plant stem, poor root growth causing the plant to be easily pulled out of the ground, shortened plants, and sterile, whitened seed heads. Symptoms on wheat usually do not occur during the Fall. Above ground symptoms usually first appear during early spring in severely infected areas. In mildly infected areas, above ground symptoms may not appear until after heading.

Take-all attacks wheat, barley, rye and several grasses including smooth brome grass, quackgrass, and bentgrass. The Take-all fungus lives in the soil on diseased, undecomposed roots and straw of wheat and other grass plants. Undecomposed debris is necessary for survival of the fungus. Take-all is favored by poorly drained, alkaline, infertile, and compacted soils. Take-all usually affects small areas in a field, but unless the field is rotated out of wheat (or other host crop), these areas can enlarge and result in substantial yield losses.

Currently, there are no chemical controls or resistant varieties available to manage the disease. Management strategies to eliminate take-all include rotation to a non-host crop such as soybean, corn or alfalfa for two to three years. Simply double cropping wheat with soybeans is typically not a sufficient rotation for Take-all control. Tillage that fragments wheat crop residues and encourages decomposition also reduces Take-all inoculum. Maintain balanced soil fertility with adequate phosphorus and potassium to promote root growth. Delayed seeding of wheat often reduces the severity of Take-all. Also, control grassy weeds and volunteer wheat in the field as they can serve as sources of the Take-all fungus.

Contact your County Agricultural Agent if you need additional information regarding Take-all disease of wheat. □

## Field Crops Weekly Pest Summary - 6/11/98

Joe Ingerson-Mahar, Field Crops IPM Agent;  
Dave Lee, Salem County Agricultural Agent;  
Miles Huffaker, Salem County Program Associate

### General

To see the Field Crops Weekly Pest Summary every week, call FaxInfoLine (732-932-6767) and request document 2017. It will be faxed to you immediately, any time, 24 hours a day. The weekly summary is updated Thursday afternoons.

### Alfalfa

Most alfalfa fields appear to be doing well, though dry weather may be slowing growth on younger plantings. Potato leafhoppers are being found across the state with many fields reaching and exceeding threshold in the southern half of the state. In the Hunterdon County area only a few fields are at threshold. No nymphs (immatures) have been seen as yet, but they should appear within the next week.

### Corn

Two fields have been found with minor infestations of armyworm in Salem County. Black cutworm damage has been seen in several fields but damage has been less than 1% of the stand. Very few plants are actually being cut, rather the cutworms are boring up into the plant stem from beneath the soil line. This may be because of reduced humidity in the air. By staying underground and boring into the plant the cutworm may be less subject to desiccation. Slug damage has been seen in fields across the state. Damage has sometimes been severe.

The primary weed problem in Salem County has been field bindweed. Several fields require spraying to control this weed. According to Tom Morgart, USDA-RCD, foxtail and shattercane continue to be the primary weed escapes in Warren and Hunterdon Counties. Dan Kluchinski, Mercer County Agricultural Agent, noted that several corn fields appear nitrogen deficient.

### Soybeans

Few fields have been scouted as yet, but most fields appear to be doing well. Deer and ground hog damage is common in some fields in Hunterdon and Warren Counties.

### Wheat and Small Grains

Wheat, like other crops, seems to be maturing ahead of schedule. Barley is starting to be harvested in Salem County. Dan Kluchinski noted that one oat field in the boot stage in Mercer County had a light infestation of cereal leaf beetle and seemed to have nitrogen deficiency symptoms. □

## Soybean Double-Cropping in New Jersey

Jeremy W. Singer, Ph.D., Field and Forage Crops

Double-cropping soybeans after small grains is a common practice in south and central New Jersey. Nevertheless, double-crop soybeans are more difficult to manage than full-season soybeans. Many factors can influence grain yield. Let's review some of the basics for high yielding double-crop soybeans.

**Planting date** is more critical for double-cropped soybeans than for full-season soybeans. Planting as soon as possible after removal of a small grain crop is recommended. By late June, soybean yield potential decreases approximately 2-3 bushels per week. After July 1, delayed planting will result in a yield loss of approximately 1/2 bushel per day. Timely planting is essential for high double-crop yields. No-till planting into the previous crop stubble will allow soybeans to be planted earlier, conserve soil moisture, and minimize weed seed germination.

**Variety selection** also plays a key role in high yields. Planting a full-season soybean variety is risky due to the potential for an early frost. Late Group II and Group III soybeans are the best choices for double-crop systems in New Jersey. The lower yield potential compared to a Group IV soybean is offset by a greater likelihood that the crop will mature before a killing frost in the fall.

**Planting rate** for double-crop soybeans should be approximately 225,000 seeds per acre in narrow rows, 15 inches or less. Use the same procedure for inoculating double-crop soybeans as used for full-season soybeans.

Many factors affect soybean yield in a double-crop system, but the most limiting is soil moisture. The decision to plant double-crop soybeans should be flexible. Wait until after small grain harvest to assess soil moisture conditions. If there is adequate soil moisture, timely planting of soybean will ensure rapid germination and emergence of a uniform stand. □

# Prepare Now to Reduce Stored Grain Losses

Daniel Kluchinski, Mercer County Agricultural Agent

Harvest time is fast approaching as wheat, barley, and oats come to maturity. With grain prices reaching five to seven year lows, it is obviously important to keep as much stored grain as you can in top quality for later sale. There are numerous stored grain insect pests that can cause large losses in stored grain. These insects feed on the grain, reducing kernel weight and grain quality that can lead to financial losses at the elevator or reduced nutritional value of livestock rations. It is therefore important to prepare storage bins and develop a plan for preventing or reducing grain losses.

The most common source of insect infestation is old grain. Both internal and external sites can have grain residues and harbor these pests, allowing quick introduction once the grain is augered into the bin. External sites include spillage areas, grain residue in augers and other equipment, and stored animal feed. Internal sites include grain residues in the bin or subfloor areas, and grain attached to walls or in duct work. To reduce and eliminate such sites for these pests:

- Clean around the outside of the bins. Remove any brush, weeds, or spilled grain from around the bins. This can be a haven for insects as well as mice and rats.
- Clean equipment and augers before the start of harvest season. Removing this grain and any insects will help to avoid introduction of insects into the new grain. Dispose of this grain away from the bins.
- Clean the walls and floor of the empty bin with a broom or vacuum. If possible, clean as much duct and subfloor areas.

Once the bins have been cleaned and potential sites for insects removed, pesticide applications may be recommended to protect the new grain. These treatments include applications to the empty bin, to the grain as augered into the bin, or as a top dressing application.

- If necessary, use a fumigant to kill any insects in the subfloor area. This treatment should be done every 4 to 5 years. For recommendations and procedure on fumigant use, as well as bin preparation and safety procedures,

contact your county agricultural agent.

- The inside of the bin can be sprayed with a pesticide. Pesticides include Malathion 57 EC (premium grade) at one quart in 6 gallons of water, or methoxychlor 25 EC at one gallon in 10 gallons of water. Target cracks and crevices as well as the walls, floor and ceiling. These sprays should be applied at the rate of 1 gallon of solution to 500 square feet of surface.
- Auger the grain into an empty bin or on top of grain recently harvested. NEVER put newly harvested grain on top of last years' grain. If the grain is to be stored for six months or longer, consider using a pesticide on the grain stream while augering. General information is listed in the following table. Ask your Extension agent for specific recommendations, as rates and materials vary with application method and crops. Always check the label and follow all instructions and precautions.

Once the grain has been placed in the bin, monitor and inspect the bins periodically. A good inspection program should include inspection 4 to 6 weeks after the grain is stored, and then every 30 days. Look for any signs of infestation such as crusting or webbing on the upper surface, musty odors or wet, warm grain. All are indications that insect activity may be present. Probing the grain is particularly useful in determining infestations, grain damage or moisture in the grain mass. If present, further sampling may be helpful in determining the problem and course of action.

For grain in long-term storage, the key is aeration. During the fall, winter and spring, the best way to slow insect activity is to cool the grain mass. The optimum temperature for insect development is 70° F. If the grain temperature is below 55 to 60° F, insects quit feeding and egg laying, and if maintained at even lower temperatures, will eventually starve out.

These procedures should help to reduce potential losses due to insect pest infestation. If insects are found, bring a sample to your county agricultural agent for identification and information on best control practices. □

Pesticides Labeled for Use in Stored Grain Insect Control in Barley, Oats and Wheat		
Pesticide	Dilution Rate	Application Rate and Method <sup>1</sup>
Malathion 57 EC (premium grade)	1 pint in 2 to 5 gallons of water	5 gallons per 1000 bushels as grain fed in auger.
Malathion 1, 2, or 6% dust	apply undiluted	Apply labeled rate as grain fed in auger OR mix into grain surface in truck prior to augering.
Reldan 4E	Apply as grain fed in auger. Check label.	Rates depend on grain to be treated.
Reldan 3% dust	apply undiluted	Apply 10 lb per 1000 bushels as grain fed in auger OR mix into grain surface in truck prior to augering. Can also apply as top dressing in bin at 7 lb per 1000 sq ft of surface area.
Bacillus thuringiensis	1 lb in 10 gallons of water OR wettable powder formulation dry to grain surface	Apply as a top dress in the bin at 10 gallons per 500 sq ft of surface area. Mix into top 4 inches of grain.
<sup>1</sup> Insecticide can be applied by small compressed air sprayer, gravity feed drip-on applicator or auger mounted dust distributors		

# Postemergence Weed Corn Herbicides

Bradley A. Majek, Ph.D., Weed Science

Each year some corn fields require postemergence herbicide applications due to the failure of herbicides applied at planting to perform adequately, or as part of a planned program. The choice of postemergence corn herbicides and jug mixes continue to grow, complicating the decisions that need to be made. Each product has strengths and weaknesses to be considered. Read each herbicide label completely, and follow label recommendations on tank-mixing products.

## Old Standbys

Atrazine - is still an extremely useful herbicide to use postemergence to control most **broadleaf weeds** and **yellow nutsedge**. Always add oil concentrate. The maximum amount that can be applied per acre in one year has been reduced in recent years, which has decreased usefulness for **grass control**. A disadvantage to using atrazine is herbicide carryover which may limit crops that can be planted next year. Atrazine is a triazine herbicide. Resistance has developed in certain fields in the northeastern US where the product has been used continuously and exclusively for **broadleaf weed** control.

Bladex - is another triazine herbicide. The primary advantage to its use is no carryover the following year. **Pigweed** control with Bladex is poor. The margin of crop safety is narrow when applied postemergence to corn. Only apply Bladex 90DF postemergence and never use any spray additive after corn has emerged to minimize the risk of temporary crop injury.

2,4-D - is low in cost and is a very effective herbicide for the control of many seedling **annual broadleaf weeds**. **Perennials** may only be temporarily suppressed, and large established **annuals** may not be controlled as effectively. The ester formulation is more effective than the amine formulation, but is more likely to drift. The herbicide may cause slight crop injury under certain conditions, and the crop may become brittle after application. Crop injury is most likely to occur during periods of warm cloudy humid weather and high soil moisture. Directing the spray toward the base of the corn and avoiding spraying into the whorl reduces the risk of injury. Beware that spray or vapor drift may adversely affect adjacent crops.

Banvel/Clarity - is a very effective herbicide for the control of many **annual** and **perennial broadleaf weeds**. **Perennials** may only be temporarily controlled by one application. Banvel is active in the soil as well as by foliage uptake, but does not last long enough in sandy soils to provide full season control when used preemergence. The herbicide may cause slight crop injury under certain conditions, and the crop may become brittle after application. Crop injury is most likely to occur during periods of warm cloudy humid weather and high soil moisture. Directing the spray toward the base of the corn and avoiding spraying into the whorl reduces the risk on injury. Beware that spray or vapor drift may adversely affect adjacent crops.

Basagran - controls certain seedling **broadleaf weeds** and **yellow nutsedge**. Most weeds must be sprayed as small seedlings to obtain good results. **Common cocklebur** and **yellow nutsedge** are exceptions. Basagran controls any size **common cocklebur**. Applications to **yellow nutsedge** should be delayed until a leaf canopy is established. Basagran is more effective when the weather is hot and humid. Oil concentrate is needed to control certain weeds. **Pigweed** and **common lambsquarter** control may not be controlled.

Buctril - controls many seedling **annual weeds** including **pigweed** and **common lambsquarter** without risk of vapor drift or plantback restrictions. Larger established **annual weeds** may be burned but not killed. Slight crop injury occasionally observed is not significant.

Clarity - is a new formulation of dicamba, the same active ingredient used in Banvel (see Banvel). The product was reformulated to reduce volatility and the off-site vapor drift injury occasionally observed when Banvel is used. The Clarity label is more restrictive than the Banvel label, and post-directed sprays in tall corn are not labeled.

Accent - controls many **annual** and certain **perennial grasses** in corn. In addition certain **broadleaf weeds** are also controlled, but some commonly observed **broadleaf weeds** are tolerant. Accent is classified as an ALS inhibitor herbicide which has one single site of action in sensitive weeds. Avoid continuous and exclusive use of ALS inhibitors to control a weed to prevent the development of resistance. The use of Counter to control corn insect pests increases the risk of corn injury from Accent. Do not use Accent if Counter as been applied unless corn with genetically improved tolerance, called IR corn, has been planted.

Beacon - controls many **annual** and certain **perennial grasses** in corn. In addition certain **broadleaf weeds** are also controlled, but certain commonly observed **broadleaf weeds** are tolerant. Beacon is classified as an ALS inhibitor herbicide which has one single site of action in sensitive weeds. Avoid continuous and exclusive use of ALS inhibitors to control a weed to prevent the development of resistance. The use of Counter to control corn insect pests increases the risk of corn injury from Beacon. Do not use Beacon if Counter has been applied unless corn with genetically improved tolerance, called IR corn, has been planted.

Resource - controls certain **annual weeds** without risk of vapor drift or plantback restrictions. The primary **target weed** for this herbicide is **velvetleaf**, a particularly difficult **annual** to control.

Exceed - controls many **annual weeds** and suppresses certain **perennial weeds** without risk of vapor drift and with minimal plantback restrictions. Exceed tank-mixed with Accent or Beacon for **grass control** will increase the number of **broadleaf weeds** controlled. Exceed is classified as an ALS inhibitor herbicide which has one single site of action in sensitive weeds. Avoid continuous and exclusive use of ALS inhibitors to control a weed to prevent the development of resistance.

Permit - controls many **broadleaf weeds**, but the primary use in corn is expected to be **yellow nutsedge** control. Results using Permit to control this very difficult weed have been outstanding. Certain **common broad-**

SEE WEEDS ON PAGE 5

leaf weeds escape control, including **common lambsquarter**. Permit is classified as an ALS inhibitor herbicide which has one single site of action in sensitive weeds. Avoid continuous and exclusive use of ALS inhibitors to control a weed to prevent the development of resistance.

Sencor - is a triazine herbicide traditionally used in soybeans for **broadleaf weed control**. The margin of crop safety for Sencor in corn is not as good as atrazine, but rotation to soybeans or tomatoes is not a problem after Sencor use.

Basis - is a combination of two ALS inhibitor herbicides, Matrix, and Pinnacle. **Annual grass** and **broadleaf weeds** are controlled, and certain **perennials** are suppressed. The label allows application preemergence through the spike stage up to four leaf corn. Research results have indicated that preemergence applications may not provide the length of control needed on coarse textured soils. Results obtained from applications made at the spike through the two to three leaf stage of growth have been very good. Use care as the corn approaches four leaves. Basis controls **small** emerged weeds, but as they get beyond 1-2 inches tall, control may decrease. Use Basis when the weeds are at the **"Green Haze"** stage of growth for best results. Follow label instructions on spray additives. Always tank mix with atrazine or Banvel to prevent the development of resistance in the weed population.

Basis Gold - is a combination of three herbicides. Two are ALS inhibitors, Matrix and Accent. The third is atrazine. Apply Basis Gold postemergence to control **annual grass** and **broadleaf weeds**, and to suppress certain **perennials**. Be aware that neither Matrix or

Accent are effective for the control of **lambsquarter**. Control of **common lambsquarter** in Basis Gold is accomplished with the atrazine, therefore, triazine resistant **common lambsquarter** will not be controlled. Either add Banvel, or choose a different herbicide if triazine resistant weeds are suspected in the field. The use of Counter or certain other products used to control corn insect pests increases the risk of corn injury. Do not use if insecticides with labeled restrictions have been applied unless corn with genetically improved tolerance, called IR corn, has been planted.

Accent Gold - is a combination of four herbicides. Three are ALS inhibitors, Broadstrike, Accent, and Matrix. The fourth is Stinger. Apply Accent Gold postemergence to **control annual grasses** and **broadleaf weeds**, and certain **perennials**. Stinger does not control **pigweed** or **common lambsquarter**. Control of these weeds is exclusively by ALS inhibitors which have a single site of action in susceptible weeds. Consider adding atrazine for resistance management unless triazine resistance has occurred. The use of Counter or certain other products used to control corn insect pests increases the risk of corn injury. Do not use if insecticides with labeled restrictions have been applied unless corn with genetically improved tolerance, called IR corn, has been planted.

Pinnacle - now has a label for corn. Soybean growers are familiar with Pinnacle as an excellent **common lambsquarter** herbicide. Pinnacle is an ALS inhibitor with a single site of action in susceptible weeds. Always combine it with a herbicide with a different mode of action such as atrazine, unless triazine resistance has been observed, or Banvel/Clarity. □

## Weekly Weather Summary

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 82 degrees at Freehold and Woodstown on the 3rd, and 39 degrees at Charlotteburg on the 4th. Weekly rainfall averaged 0.03 inches north, 0.09 inches central, and 0.13 inches south. The heaviest 24 hour total was 0.38 inches at Woodstown on the 1st to 2nd. Estimated soil moisture, in percent of field capacity, this past week averaged 84 percent north, 78 percent central and 46 percent south. Four inch soil temperatures averaged 66 degrees north, 68 degrees central and 69 degrees south.

Weather Summary for the Week Ending 8 a.m. Monday, 6/ 8/98

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.10	19.68	7.27	75	44	59.	-7	644	180	76
CANOE BROOK	.03	19.11	5.52	79	44	61.	-5	781	354	85
CHARLOTTEBURG	.01	19.22	5.71	75	39	55.	-8	541	232	73
LONG VALLEY	.00	18.24	4.37	72	44	56.	-8	548	194	78
NEWTON	.00	15.52	3.45	74	40	55.	-9	538	178	80
FREEHOLD	.06	20.43	7.62	82	45	61.	-7	775	255	78
LONG BRANCH	.00	23.96	10.87	76	46	61.	-6	601	135	65
NEW BRUNSWICK	.05	19.93	7.35	79	45	60.	-9	715	157	87
PEMBERTON	.17	17.05	4.81	80	46	62.	-6	897	348	51
TOMS RIVER	.25	27.36	14.61	75	45	61.	-4	779	306	65
TRENTON	.03	20.09	8.49	76	45	60.	-9	704	99	67
CAPE MAY COURT HOUSE	.14	14.78	3.53	78	51	64.	-3	727	197	21
DOWNSTOWN	.31	14.91	3.40	78	49	62.	-7	837	218	49
GLASSBORO	.00	13.58	1.25	78	50	63.	-6	846	247	53
HAMMONTON	.31	14.81	2.81	78	47	62.	-7	788	198	34
POMONA	.00	19.39	8.34	79	47	63.	-4	765	250	38
SEABROOK	.11	15.69	4.95	78	49	64.	-5	881	257	47
ATLANTIC CITY MARINA	.04	19.78	9.27	75	52	64.	-2	682	195	43
WOODSTOWN	.56	12.03	1.37	91	54	73	NA	814	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW Last Week								228 (Ending 6/1/98)	This Week 153 (Ending 6/8/98)	

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