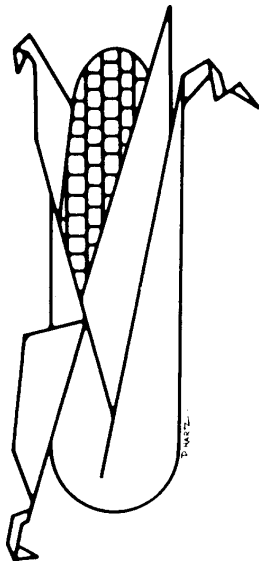


# PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION \$1.50

AUGUST 31, 2000



## INSIDE

**Reminders for Harvesting**  
**Quality Corn Silage** ..... 1  
**Weed Control in Seedling**  
**Alfalfa** ..... 2  
**Resist the Temptation to Treat**  
**Annual Weeds in the Fall** ..... 2  
**Weed Control for Grass or**  
**Mixed Pastures** ..... 2  
**Estimate Corn Yield** ..... 3  
**Silage Drive Over Piles?** ..... 3  
**Preparing Bins for Grain**  
**Storage** ..... 3  
**Don't Chop if You Aren't Going**  
**to Pack it Immediately!** ..... 4  
**Soybean Aphid Alert** ..... 5  
**Weekly Weather Summary** ..... 5

## Reminders for Harvesting Quality Corn Silage

*Limin Kung, Jr., Ph.D., Animal Science, University of Delaware*

**W**e have had a very mild summer with lower than usual temperatures. Thus, it is imperative that you monitor the maturity of your silage before harvest! In order to determine the maturity of the corn plant, select several ears of corn from a representative part of the field (do not sample from a border row). Break an ear of corn in half and look at the tip side of the break. As the corn plant matures, the milky sugars in the kernel are transformed to starch, a source of stored energy. When the kernel is immature it appears completely whitish-yellow. As it matures, the solid starch portion that appears to move from the tip of the kernel toward the cob turns yellow. The interface between the yellow and still white and milky endosperm is called the milk line. This occurs after the kernels are in the early dent stage of maturity. Whole plant corn matures slowly and may take 10 to 14 days to advance from the early dent stage to 1/2 milk line. In normal years, harvest corn silage for optimum nutritive value when the kernels show 1/3 to 1/2 milk line. Plan to complete all harvesting by 2/3 milkline.

In conjunction with monitoring the milk line, the moisture content of the whole plant should be determined. Whole plant will range from 33 to 37% DM at 1/2 to 2/3 milk line. During the time of kernel development, there is little change in protein, fiber, and lignin. As with grasses and legumes, harvesting whole plant corn when it is too immature or too mature is not recommended. Harvesting immature and wet corn silage (< 28-30% DM) will lead to excessive run off and nutrient losses. Harvesting in the extreme black layer stage of maturity causes the starch in the kernel to become very crystalline in nature and is poorly digested by rumen bacteria and the cow.

Before harvesting, the condition of equipment to be used during harvest and silo filling should be optimized. Knives on the chopper should be sharpened and set to cut a 3/8 inch theoretical length. If silage is kernel-processed, set chop length to a theoretical cut of 3/4 inch and adjust the rollers to 1 to 3 mm as needed. This is the best time to measure actual particle size (*not* 3 months after it is in the silo). In diets where corn silage makes up the majority of the forage,

*SEE CORN SILAGE ON PAGE 2*

## Weed Control in Seedling Alfalfa

Mark VanGessel, Ph.D., Weed Science

Getting seedling alfalfa off to a good start is critical for a long term quality stand. The following herbicide suggestions are for pure alfalfa stands. Gramoxone or Roundup can be used prior to planting to kill emerged weeds. Balan or Eptam can be used pre-plant incorporated for control of small-seeded broadleaves such as pigweed or lambsquarters and most annual grasses. Residual control of either Balan or Eptam is only a few weeks. Fall postemergence treatments include Butyrac 200 (2 to 4 alfalfa trifoliates), Buctril (at least 4 trifoliates), Kerb, Poast Plus, Select, or Pursuit (at least 2 trifoliates). Pursuit provides the broadest spectrum of control, and can be tank-mixed with Buctril or Butyrac to improve control. The addition of Buctril to Pursuit will improve German moss, lambsquarters, and henbit control. Kerb will provide the best common chickweed control, but it must be applied when soil temperatures are 50 degrees or less and requires rainfall for activation. Application to small weeds is critical for effective control. Poast Plus and Select are effective only on grasses, and can not be used on alfalfa/grass seedlings. Most of the labeled herbicides can cause some crop injury. □

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## Resist the Temptation to Treat Annual Weeds in the Fall

Mark VanGessel, Ph.D., Weed Science

Fall herbicide applications for control of annual weeds needs to be considered carefully. Most of the yield loss due to the weeds has already occurred. It is best to accept the fact the weed control program was poor; find out why your weed control was not acceptable; and wait until next year to take action. The temptation is often to spray in the fall to kill the weed seed. To have a significant impact on reducing weed seed production, the herbicide must be extremely effective on the specific weed and applied at or shortly after flowering. The further after flowering that the herbicides are applied, the greater the percentage of viable seed that is produced. Fall herbicides to dry down weed biomass to reduce foreign matter can make economic sense; but to spray to reduce weed seed often does not make economic sense. □

## Weed Control for Grass or Mixed Pastures

Mark VanGessel, Ph.D., Weed Science

Weed control options are very limited for establishing a grass or mixed stand pasture. There are no products to use pre-plant incorporated or preemergence that will provide residual control and not injure the crop. Early postemergence options are also very limited. Ally, Banvel, Crossbow, or 2,4-D can be used for pure grass seedings (they will kill clovers and alfalfa) but grasses need to be well established at time of application. Ally can injure fescue and ryegrass. Fescue injury can be reduced if Ally is tankmixed with 2,4-D. Pursuit is labeled for established mixed pasture stands (broadleaf plus grass pastures) but can not be used in the fall to a new seeding. □

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### CORN SILAGE FROM PAGE 1

15 to 20% of the particles should be greater than 1.5 inches long. If using a Pennsylvania State Forage Separator, 5 to 10% of the corn silage should be retained on the top screen to ensure optimum levels of effective fiber in the diet. If corn silage is not the major forage in the diet, 2 to 4% of the top screen may be sufficient.

Use a microbial inoculant or buffered propionic acid preservative as needed. Rapid filling and adequate packing are crucial because exclusion of air limits heating and encourages the ensiling process. Forage should be filled as a progressive wedge in a bunk. Adequate packing is also necessary to remove oxygen from the mass. Bunks should be covered with 4 to 6 mil plastic tarp and weighted with old tires (tires should be touching) to exclude air.

Silage should be allowed to ferment for about 3 to 4 weeks before feeding. Unfermented feed is the equivalent of feeding green-chop that is high in fermentable sugars and can cause cows to go off feed and have loose manure. If forage supplies are low, a gradual transition over a two-week period from old silage to new silage is recommended.

Submitted by Mike Westendorf, Ph.D., Animal Science. □

## Estimate Corn Yield

*William J. Bamka, Burlington County Agricultural Agent*

Many producers are anticipating high corn yields this season and wondering what the final yield will be. If you have the time and want to satisfy your curiosity, you can calculate a pre-harvest estimate. The yield estimates can be useful when making harvest and marketing decisions.

You will need three pieces of information to calculate your yield estimate:

1. The average number of rows per ear;
2. The average number of kernels per row;
3. The plant population.

Select 5 or 6 ears which are representative of the field. Count the number of rows and kernels per row for each ear, and determine the average. To increase your accuracy, don't count the small kernels at the tip of the ear. With the information you have collected, use the following formula to estimate yield:

$$\frac{(\text{Avg. No. kernel rows} \times \text{Average kernels per row} \times \text{plant population})}{90,000} = \text{u/A}$$

Example:

$$\frac{(22 \text{ kernel rows} \times 30 \text{ kernels per row} \times 24,000 \text{ plants per acre})}{90,000} = 176 \text{ bu/A}$$

The 90,000 figure represents an average kernel count for a bushel of corn. Keep in mind that this formula only provides an estimate. □

## Silage Drive Over Piles?

*Limin Kung, Jr., Ph.D., Animal Science, University of Delaware*

I have been in many dairies throughout the country and observed the increasing popularity of so called "drive over silage piles". Drive over piles are cheap and incur little capital costs, but you get back what you put into the process. The major problems that I have seen with these piles include 1) lack of covering, and 2) incredible waste and spoilage. In piles that are oval or round shaped, it is difficult to tell where the "face" of the silo is to start feeding out from. This leads to a large, uneven "face" that is prone to spoilage. Even in situations where the piles have been covered and form a more traditional bunker silo shape, waste can be substantial. Plan to have the pile on a good base that slopes away from the silage pile. This will avoid a muddy base during feedout. Seal the pile with plastic and tires to prevent air from penetrating into the mass. Don't make the piles too high. You should be able to comfortably "drive-over" the piles from all directions.

*Submitted by Mike Westendorf, Ph.D., Animal Science. □*

## Preparing Bins for Grain Storage

*William J. Bamka, Burlington County Agriculture Agent*

Managing grain stored in bins to prevent insect damage is as important as managing the crop in the field. When insect infestations occur they can result in a 10% loss of stored grain. That is like not harvesting 10 acres from a 100-acre field.

To prevent loss from insect feeding, producers should implement an IPM Program in their grain bins. Part of the plan should include preparing bins to receive grain. Preparation of grain bins should include:

- ✓ Removal of all old grain that can serve as a source of insects that can infest new grain.
- ✓ Clean the empty bin – sweep the walls and floor. Remove grain from ledges and between the ceiling and walls.
- ✓ Clear trash and litter from outside the bin and remove spilled grain from under and around bins.
- ✓ Remove or mow any weeds around the outside of the bin. Grain infesting insects can develop on weed seed and then move into grain.
- ✓ While your bin is empty, make any necessary repairs. If necessary, make repairs to insure a weather-proof seal, especially where side walls join the floor and roof.

A clean grain bin is a good start toward protecting grain from insects. Once your grain bin is cleaned, make sure your combine is cleaned and properly adjusted. A combine that was parked last year without cleaning can contain insects on augers and screens. □

# Don't Chop it if You Aren't Going to Pack it Immediately!

*Limin Kung, Jr., Ph.D., Animal Science, University of Delaware*

After a long day, have you ever left chopped forage in the wagon because you were too tired to put in into the silo? On larger dairies (and often when custom harvesters are filling silos), chopped forage often sits in wagons or piles overnight before being put into the silo the next morning. This practice can have severe negative consequences on silage fermentation and quality. Last year, our lab conducted a small experiment to investigate what happens when chopped corn forage is not packed in the silo immediately. Corn forage was chopped and

analyzed immediately or allowed to sit in piles for 6, 12, and 24 hours. Some of our findings are presented in the table below. As you can see, there was a significant decrease in the water soluble carbohydrate content of delayed-filled forage. This left less sugars for the lactic acid bacteria to ferment. Actual dry matter losses also increased. A loss of 5% was observed after just 24 hours in a pile! In addition, the number of undesirable yeasts increased dramatically during this incubation period! High numbers of these microbes steal energy and dry matter from the silage and often result in silage that spoils rapidly when exposed to air. The results of this study emphasize the need for rapid filling and sealing of silos. The bottom line is, don't chop your forage unless you plan to pack it into your silo immediately.

*Submitted by Mike Westendorf, Ph.D., Animal Science.* □

Item	Hours of Delay Before Packing Chopped Forge			
	0	6	12	24
Water soluble carbohydrates, % DM basis	3.6	2.4	1.9	0.5
Dry matter loss, %	0	0.4	1.0	5.0
Yeasts, number/gram of forage	398,000	501,000	6,300,000	63,000,000

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## PLANT & PEST ADVISORY

Field Crops/Livestock edition

### Feedback Form

How are we doing? We would like to hear from you. Please provide comments below on whether the newsletter helps your business, if there are ways we can improve the newsletter, etc.

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Occupation \_\_\_\_\_ County \_\_\_\_\_

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## Soybean Aphid Alert

Robert Balaam, Director, Division of Plant Industry, NJ Department of Agriculture

An exotic aphid has recently been identified as a pest of soybeans in several Mid-western states. The USDA APHIS PPQ New Pest Advisory Group is working with several experts and state officials to determine a course of action for dealing with this new pest. It appears that this pest has been here for a couple of years and regulatory action at this time may be ineffective. Heavy aphid populations in some of the infested fields in the Mid-west have collapsed due to a fungal epizootic. We need to determine the US distribution of this pest, so we are urged to survey (look any way you can at this point) for this pest.

We have provided some information and helpful links concerning this pest on our National Plant Board web site. Please consult that web site for useful information: <http://www.aphis.usda.gov/npb/issues.html#SoybeanAphid>.

If you find any aphids that might be the soybean aphid, please contact my office.

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## Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal. Extremes were 86 at Pemberton on the 26th and 42 degrees at Charlotteburg on the 22nd. Weekly rainfall averaged 0.21 inches north, 0.05 inches central, and 0.38 inches south. The heaviest 24 hour total reported was 1.07 inches at Atlantic City Marina on the 24th to the 25th (but with some isolated totals of several inches on the evening of the 27th near Plainfield). Estimated soil moisture, in percent of field capacity, this past week averaged 81 percent north, 65 percent central and 62 percent south. Four inch soil temperatures averaged 64 degrees north, 67 degrees central and 68 degrees south.

### Weather Summary for the Week Ending 8 am Monday 8/28/00

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.16	30.44	6.51	84	50	67.	-1	2081	-56	67
CANOE BROOK	.00	24.53	-.55	84	51	68.	-1	2270	118	78
CHARLOTTEBURG	.28	24.44	-.90	84	42	64.	-1	1683	-23	69
FLEMINGTON	.52	25.70	1.54	85	49	68.	-1	2302	95	86
LONG VALLEY	.08	25.87	-.26	78	48	64.	-2	1864	-42	73
FREEHOLD	.01	20.34	-3.23	86	53	70.	0	2487	138	67
LONG BRANCH	.14	27.61	3.73	80	54	69.	-1	2262	-10	50
NEW BRUNSWICK	.02	25.11	1.32	85	53	70.	-2	2406	-41	75
PEMBERTON	.06	23.55	-.64	86	48	70.	-1	2900	503	45
TOMS RIVER	.01	25.08	.68	83	50	68.	-3	2393	138	47
TRENTON	MISSING									
CAPE MAY COURT HOUSE	.19	22.81	1.73	81	52	69.	-4	2496	259	39
DOWNTOWN	.14	23.70	1.40	84	51	70.	-2	2594	37	58
GLASSBORO	.11	23.78	.53	85	55	71.	-1	2740	205	50
HAMMONTON	.21	22.02	-1.24	85	49	69.	-3	2509	-30	56
POMONA	.60	29.12	7.62	82	50	69.	-1	2445	78	80
SEABROOK	.34	25.25	3.93	84	52	71.	-1	2707	136	70
ATLANTIC CITY MARINA	1.07	27.52	6.91	81	57	71.	0	2518	217	78
SOUTH HARRISON	.12	26.95	3.98	83	53	70	NA	2674	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW										
Last Week	200	(Ending 8/21/00)								
This Week	209	(Ending 8/28/00)								

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