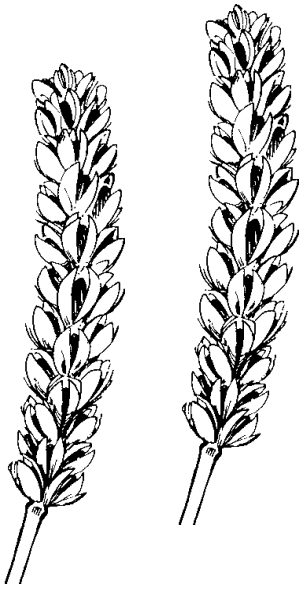
RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION $1.50 JUNE 24, 1999



INSIDE

Prevent Stored Grain Losses with Good Management Practices

Daniel Kluchinski, Mercer County Agricultural Agent

Harvest of wheat and other small grain has started in southern New Jersey and soon will occur statewide. Therefore, it is time to prepare storage bins to reduce or prevent grain losses while in storage. At stake are financial losses that can occur due to grain loss or reduction in grain quality. At current wheat prices, every precaution should be taken to reduce these losses. This is especially true if medium or long-term storage is planned. Without these actions, expected profits from future sales will be reduced. However, these losses need not occur if you follow these tips to keep grain losses at a minimum:

- Clean around the outside of the bins. Remove any brush, weeds or fallen leaves from around the bins. This material can be a haven for mice and rats, as well as insects.
- Empty and clean the inside of the bin. Vacuum or sweep any grain residues, paying particular attention to cracks, crevices, subfloors, ducts and fan systems.
- Harvest wheat at 9 to 17% moisture, but do not place in storage if the moisture level is over 13.5%. High moisture levels can lead to storage insect and disease development.
- 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 it is being augered into the bin. Contact your Extension agent for specific recommendations, as rates and materials vary with application method and crop.
- Monitor and inspect the bins every two weeks during the summer for any signs of infestation such as crusting or webbing on the upper surface, musty odors or wet warm grain. If present, further sampling may be helpful in determining the problem and course of action. Insects and disease organisms thrive in humid and hot summer conditions. Small grain is more susceptible to insect damage and development than corn and soybeans, which are harvested and stored during cooler periods. Be consistent and diligent when inspecting!

SEE GRAIN ON PAGE 2

GRAIN FROM PAGE 1

- For grain in long-term storage, the key is aeration. The lower the moisture and temperature of the grain mass, the longer the grain can be safely stored. Aerate when outside temperatures and humidity are low so that cool but dry air is pulled into the grain mass.

Proper moisture and temperature management will go a long way to maintain the quality of stored grain. However, these factors should be incorporated into a total stored grain management plan, including proper bin cleaning, and bin and grain treatment, to provide optimum stored grain conditions. For information on bin preparation, pest identification and thresholds, and control measures, contact your local field and forage crop county agricultural agent. ❑

PSNT Results for North Jersey: Dry Spring Favors Nitrogen Release from Manures

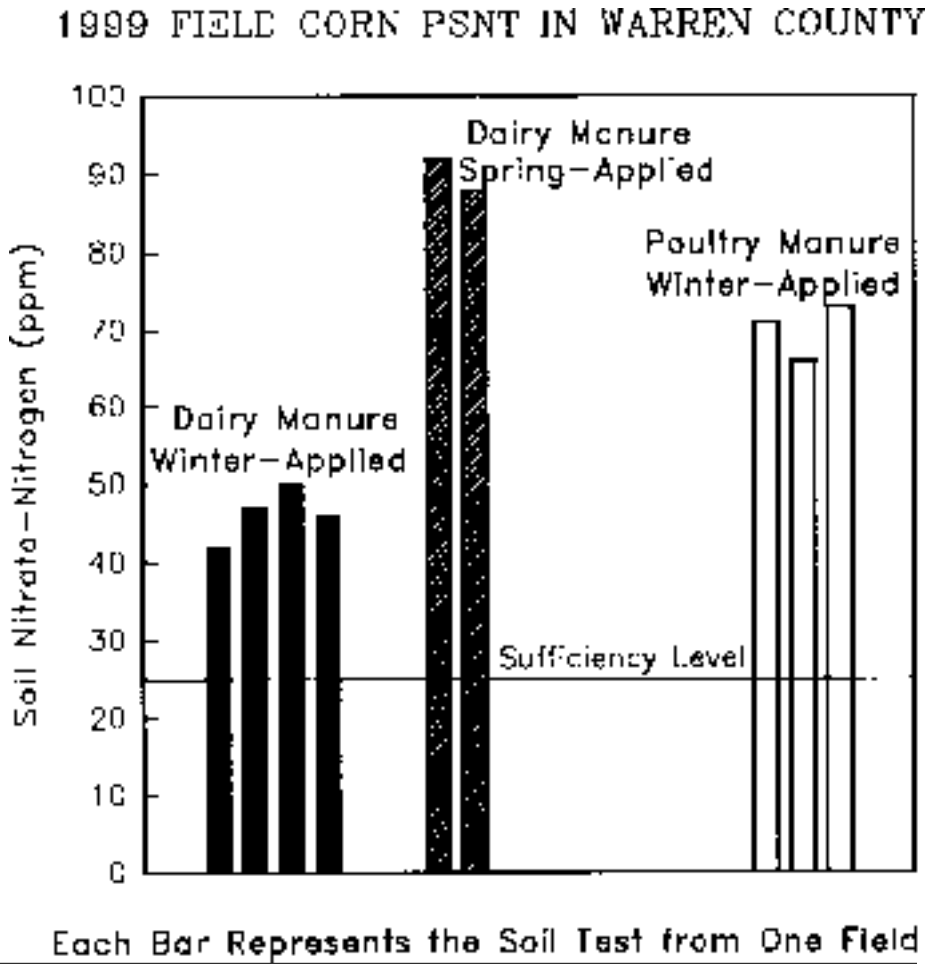
Brian Aldrich, Agricultural Outreach Specialist, North Jersey Resource Conservation & Development Council

The first results are in for this year's Presidedress Soil Nitrate Test (PSNT) in North Jersey. The PSNT is a soil test taken when corn is 6 to 12 inches tall. The amount of nitrate-nitrogen found in the soil is used to assess whether or not more nitrogen is needed. The PSNT is especially useful on manured ground, since the amount of available nitrogen released from manure varies greatly from year to year, depending in part on the weather.

Last year, heavy rains in May leached much of the nitrogen out of the root zone. This spring we are seeing the opposite effect: dry weather in May and June has produced excellent conditions for the mineralization (release) of manure nitrogen, accompanied by minimal losses. Dry soil stays warmer, which makes the microbes that break down the manure work faster. Dry soil is also better aerated, providing more oxygen to the microbes. The planting season began with just enough soil moisture to get things going. So those workers in the soil have had everything they need this spring: warmth, moisture, oxygen, and a food source (the manure!).

For producers using the PSNT, this weather has meant ideal conditions for saving money by reducing fertilizer costs. The figure below shows the soil nitrate tests from two different farms in Warren County: one spreading dairy

SEE PSNT ON PAGE 3



PSNT FROM PAGE 2

manure, the other spreading dry poultry manure. Each bar represents the soil test result from an individual field. The horizontal line, marked "Sufficiency Level", is placed at 25 parts per million (ppm) of nitrate-nitrogen. All of the fields shown are above the sufficiency level, thus they do not need any more fertilization. The only fertilizer nitrogen these producers had to purchase was the starter they put through the planter (26 to 28 pounds per acre).

These results show what is possible, but they can not be transferred directly to your farm, since site conditions vary so much from one place to another. In order to use the PSNT, you need to have samples taken from your own fields. There are factors other than weather that influence PSNT results: the type of manure you use, your soil type, and the time and method of application.

For dairy manure, we do know that the PSNT gives the most consistent results on smaller fields which have a history of manure application, or which have received a recent heavy application of manure. More concentrated materials, like the dried poultry manure above, can provide all of the nitrogen required for corn with a single application. In five years of testing, we haven't found a single field with spring-applied poultry manure that was deficient. For winter-applied poultry manure, the results are more variable. The only way to know for sure if there is enough nitrogen is to do the test. The PSNT takes the guesswork out of the decision-making.

Taking full advantage of the PSNT also requires accurate recordkeeping, and careful spreading of manure, to ensure coverage as complete and uniform as possible. The best way to get the most fertilizer value from manure is to treat it as if it *is* fertilizer. That means no donut and figure-eight patterns in the field when you're spreading.

Now if we would just get some rain! Unfortunately we can't control the weather, so our next line of defense is to excel at managing the factors we can control, like spreading manure carefully and planting on time.

For more information about the PSNT, read Rutgers Fact Sheet 569 by Dr. Joseph R. Heckman, available free from your County Cooperative Extension office or write to the Publications Distribution Center, Cook College, Rutgers University, 57 Dudley Road, New Brunswick, NJ 08901-8525. ❑

Field Crops Weed Control

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

✔ **Wheat: Perennial weeds**, including **Canada thistle**, **milkweed**, **hemp dogbane**, **horsenettle** and others reduce yield and interfere with harvest. Roundup can effectively control these **annual weeds**, but application timing is important for good results. Weeds must be treated when they are actively growing and have a healthy canopy of foliage to intercept the spray at the time of year when the herbicide will be moved down into the roots.

Many perennial **broadleaf weeds** are most effectively treated with Roundup when they are in the bud to green fruit stage of growth. This occurs in late June or early July for many troublesome weeds, but farmers have difficulty fitting the needed period of weed growth and a Roundup application into the crop rotation.

Roundup can be applied by ground sprayer or by air to wheat as a harvest aid *before harvest* to control most **annual weeds** and to suppress or control **perennial weeds**. Follow specific application instructions found in the "Weeds Controlled" and "Application Equipment and Techniques" sections of the Roundup label. Apply after the hard-dough growth stage (30% moisture or less) and at least seven days before harvest. Do not exceed 1 quart per acre for preharvest applications to wheat.

Minimize Banvel/Clarity and 2,4-D Injury to Corn

✔ **Corn:** Banvel/Clarity (field corn only) or 2,4-D are very effective and economical postemergence herbicides for **broadleaf weeds** in corn. Apply before corn exceeds 8 inches in height to minimize the risk of crop injury, or use drop nozzles to avoid spraying herbicide into the whorl of the corn, or wetting corn foliage. Delay cultivation for 8 to 10 days after application to avoid temporary brittleness sometimes caused by these herbicides. During periods of cloudy weather, plentiful soil moisture, warm temperatures, and high humidity increase corn sensitivity. Use the minimum rate or delay application when conditions that increase the risk of crop injury prevail.

Caution: Banvel or 2,4-D can drift as fine spray particles or as a vapor and harm sensitive vegetable and ornamental crops in adjacent fields. Use *only* amine formulations to minimize the tendency of these herbicides to drift. Do *not* apply during periods of high wind to avoid spray drift. Do *not* apply when the temperature *or* the humidity is high and the air is dead calm to reduce the risk of vapor drift. Consult the *Commercial Field Crops/Vegetable Production Recommendations* for rates and additional information. ❑

Postemergence Weed Control in Soybeans

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

Options for weed control in soybeans continue to expand, but choosing the right program seems to become more difficult. Despite the increased effectiveness and number of weeds controlled by postemergence herbicides, total post programs are not generally recommended.

- Preemergence herbicide applications require rain or irrigation after application before weeds emerge to make the herbicide available to the weeds. Dry weather can cause preemergence herbicides to fail.
- Cloudy warm humid weather and high soil moisture cause crops to grow fast and "soft", with a thin cuticle (wax layer) on the leaf. The risk of crop injury from postemergence herbicides increases during periods of weather that favor "soft" growing conditions.
- Hot dry weather or other factors that cause stress after weeds emerge reduce the effectiveness of postemergence herbicides.

Consistent and cost-effective broad spectrum weed control that is minimally affected by adverse weather usually requires a preemergence herbicide application and postemergence sprays targeted to control escaped weeds.

Postemergence **annual grass** control in soybeans can be easily accomplished with any one of several good products. Identify the grass before spraying the field, and choose the correct rate for your grass problem. The postemergence grass herbicides are all very effective, but each is particularly good for the control of certain grass species. Choose a product that controls the grass in your field, is compatible when tank-mixed with any postemergence **broadleaf weed** herbicide you may need to apply, and is cost effective. Failures are often the result of tank-mixing with unlabeled and incompatible broadleaf weed herbicides, treating grasses in heat or drought stress, or spraying grasses after they have grown larger than the size specified on the label for the herbicide rate used. Be patient! The postemergence grass herbicides work slowly.

Choosing herbicide(s) to control **broadleaf weeds** postemergence is more difficult. Weed identification and size is the first consideration. Applying the wrong herbicide or spraying weeds that are too big to be controlled is sure to result in failure. Consider the crop that you will plant next year. Some herbicides carryover and have crop rotation restrictions that can limit what can be planted for 2 years or more!

Several very effective herbicides in two chemical families, sulfonyl ureas (SU's) and imidazolinones, have the same single site of action in sensitive weeds. They are called ALS inhibitors. Continuous and exclusive use of herbicides that are ALS inhibitors to control a weed may lead to the development of a resistant biotype in your field. Use ALS inhibitors in rotation with or tank-mixed with other effective herbicides to prevent or delay the development of resistance.

Consider the cost of an herbicide program along with the size and spectrum of weeds controlled, carryover potential and crop rotation restrictions, and the need to rotate or tank-mix ALS inhibitors with herbicides that have a different mode of action. Remember that chlorimuron, the active ingredient in Classic, is also one of the two herbicides in Canopy, and that chlorimuron, Pursuit, and Scepter are ALS inhibitors.

✔ **Basagran** has been available for many years. The primary target weeds are **yellow nutsedge** and **common cocklebur**. Several other **broadleaf weeds** are also controlled when they are small seedlings. Crop rotations are not restricted after soybean harvest.

✔ **Blazer** was developed for the control of annual **morningglory** and **nightshade** species. In addition, many other seedling broadleaf weeds are suppressed or controlled. Slight temporary soybean leaf burn may be observed. Crop rotations are not restricted after soybean harvest.

✔ **Classic** is an extremely effective herbicide for the control of many **broadleaf weeds**. **Common lambsquarter** is not controlled. Classic is an ALS inhibitor, and has long crop rotation restrictions.

✔ **Cobra** suppresses or controls many **broadleaf weeds**, including nightshade species. Some temporary soybean leaf burn is frequently observed. Cobra is not an ALS inhibitor, and is frequently recommended at reduced rates as a tank-mix partner with ALS inhibitors to improve the number of different **broadleaf weeds** controlled and to prevent the development of resistance.

✔ Flexstar suppresses or controls many **broadleaf weeds**. Slight temporary soybean leaf burn may be observed. Flexstar has crop rotation restrictions.

✔ **Pinnacle** is an extremely effective herbicide for the control of **common lambsquarter**. Pinnacle is an ALS inhibitor.

✔ **Pursuit** is a residual herbicide that can also control weeds postemergence. Several hard to control weeds, including common **cocklebur** and **nightshade** can be killed, but **common ragweed** and **common lambsquarter** control may not be acceptable. Pursuit is an ALS inhibitor, and has long crop rotation restrictions.

SEE POSTEMERGENCE ON PAGE 5

POSTEMERGENCE FROM PAGE 4

✔ **Raptor** is an imidazolinone herbicide related to Pursuit and Scepter, but with less soil activity and carryover. Applications are made postemergence to the soybeans and target weeds. The spectrum of weeds controlled is similar to Pursuit.

✔ **Reflex** suppresses or controls many **broadleaf weeds**, including **nightshade** species. Slight temporary soybean leaf burn may be observed. Reflex has long crop rotation restrictions.

✔ **Resource** is an herbicide that is very effective for the control of velvetleaf. Resource is labeled to control velvetleaf in soybeans up to 30 inches tall.

✔ **Roundup** is a translocated nonresidual postemergence nonselective herbicide for use on *Roundup Ready Soybeans only*!

✔ **Scepter** is a residual herbicide that can also control weeds postemergence. Several hard to control weeds, including **common cocklebur** and **pigweed** can be killed, but control of certain other **broadleaf weeds** may not be acceptable. Scepter is an ALS inhibitor, and has long crop rotation restrictions.

✔ **Stellar** is a jug-mix of Cobra plus Resource.

✔ **Storm** is a jug-mix of Basagran and Blazer.

✔ **Synchrony STS** is a package-mix of Classic and Pinnacle labeled for use in STS soybeans *only*! Synchrony STS is an ALS inhibitor, and has long crop rotation restrictions.

Always read and follow label instructions, and consult the *Pest Management Recommendations for Field Crops* for additional information. ❑

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 87 degrees at Freehold on the 15th and 42 degrees at Charlotteburg on the 19th. Weekly rainfall averaged 0.62 inches north, 0.84 inches central, and 1.89 inches south. The heaviest 24 hour total was 2.06 inches at Pomona on the 20th to the 21th. Estimated soil moisture, in percent of field capacity, this past week averaged 67 percent north, 60 percent central and 56 percent south. Four inch soil temperatures averaged 65 degrees north, 67 degrees central and 68 degrees south.

Weather Summary for the Week Ending 8 am Monday 6/21/99

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.57	10.46	-3.63	82	48	65.	-4	743	49	64
CANOE BROOK	1.02	10.61	-4.62	86	54	67.	-2	901	241	73
CHARLOTTEBURG	.46	12.07	-3.25	81	42	62.	-4	586	81	63
FLEMINGTON	.48	8.61	-5.91	83	48	65.	-5	789	103	65
LONG VALLEY	.58	9.65	-5.92	78	46	63.	-4	625	65	70
NEWTON	.00	.00	.00	0	99	0.	0	0	0	0
FREEHOLD	.78	10.17	-4.14	87	53	68.	-2	910	139	70
LONG BRANCH	1.17	11.08	-3.36	79	52	65.	-5	791	84	77
NEW BRUNSWICK	.60	11.36	-2.63	84	49	67.	-4	851	34	73
PEMBERTON	1.70	12.51	-1.28	86	48	67.	-4	925	121	94
TOMS RIVER	.20	5.32	-8.91	82	49	65.	-4	762	61	36
TRENTON	.59	12.54	-.45	82	48	64.	-8	744	-123	70
BRIDGETON	.00	.00	.00	0	99	0.	0	0	0	0
CAPE MAY COURT HOUSE	1.56	8.49	-4.12	79	51	65.	-5	880	103	75
DOWNSTOWN	1.42	11.71	-1.16	84	52	67.	-5	899	11	81
GLASSBORO	.00	.00	.00	0	99	0.	0	0	0	0
HAMMONTON	1.48	10.42	-3.10	85	49	66.	-6	896	37	79
POMONA	2.47	11.77	-.57	81	49	65.	-5	856	73	100
SEABROOK	2.53	12.57	.32	84	54	68.	-4	1008	114	100
ATLANTIC CITY MARINA	1.91	9.37	-2.39	77	60	67.	-2	901	179	98
WOODSTOWN	0.82	12.47	-1.36	85	49	69.	NA	1011	NA	NA

WES KLINE — GDD BASE 40 PINEY HOLLOW

Last Week 226 (Ending 6/14/99)

This Week 189 (Ending 6/21/99)

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