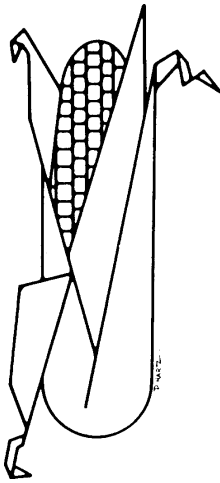


PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION \$1.50

JUNE 12, 1997



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Sidedress Nitrogen for Field Corn

Joseph R. Heckman, Ph.D., Soil Fertility

Corn is generally fertilized with some N applied at planting and the remainder applied as a sidedress to the growing crop. The key to effective use of sidedress N is to apply it when the crop needs it and to apply it in the correct amount. Consider the following points when sidedressing corn:

◆ Fields Without Manure

- The total season N requirement of corn varies with the crop yield goal. Research conducted on New Jersey soils has shown that the total N requirement is about one pound of N for each bushel of corn yield. For example, a 180-bushel corn crop will need to receive 180 pounds of N. If 60 pounds of N were applied at planting as starter or broadcast N, the sidedress N application should be 120 pounds per acre.
- Don't wait too long before applying sidedress N. If corn experiences a temporary N deficiency early in the season, the crop yield potential may be reduced. Apply sidedress N no later than when plants are 3 to 4 inches tall.
- On sandy soils the sidedress N rate should be split. Apply half of the sidedress N when plants are 3 inches tall and the second half at 12 inches tall.
- Nitrogen fertilizers containing urea are susceptible to loss of volatile N. Practices that help to minimize loss include: 1) sidedress before rain is expected; 2) irrigate; 3) use a urease inhibitor if rain is not expected; 4) apply the N below the soil surface; 5) a surface band application is better than broadcasting.

◆ Fields with Manure or Forage Legume History

- On manured fields, corn either does not need sidedress N or N rates can be reduced significantly. Use the presidedress soil nitrate test (PSNT) to determine need.
- PSNT soil samples should be taken when corn plants are 6 to 12 inches tall. If N is recommended by the PSNT, be prepared to sidedress before the crop becomes too tall. See RCE Fact Sheet 569 for information about using the PSNT.
- Corn following alfalfa rarely needs sidedress N. The PSNT may be used to confirm this.
- Nitrogen credits for ladino clover, crimson clover, red clover, or birdsfoot trefoil are 40 to 60 pounds N per acre.
- Wet spring weather generally increases the need for sidedress N. □

Weekly Field Crops Pest Summary - 6/12/97

Joseph Mahar, Field Crops IPM Agent; Dave Lee, Salem County Agent; Sue Jones, Field Crops IPM Program Associate; Miles Huffaker, Salem County Program Associate

◆ Alfalfa

Potato leafhoppers continue to remain at low levels state-wide, although one field in Salem County and one in Sussex County have above threshold levels on the field borders. In this situation farmers may be able to spray the borders and not field centers to hold down leafhopper populations. As noted, leafhoppers have now moved into Sussex County in the past week.

Small caterpillars of armyworm were picked up in alfalfa with an oat nurse crop in Salem County.

No other problems reported in alfalfa.

◆ Corn

Uneven germination and growth reported in many fields across the state. Late planted fields are generally catching up in growth with early planted fields.

Spotty occurrences of black cutworm found in fields across the state, but three new fields have been found over threshold for cutworms in Sussex County. Fields that are infested with small larvae are candidates for spraying if more than 3% of the stand is cut. If larvae are an inch long or more then they are nearly finished feeding and spraying would accomplish little.

A few armyworms are being found in fields in Salem County but all are below threshold so far.

One field in Sussex County may be over threshold for *Aphodius dung* beetles. Larvae are very small white grubs that may be feeding on smaller rootlets causing water deprivation and stress on plants. There is also a fungus involved which may be contributing to the problem.

Seed corn maggot is common in fields in the central and northern portions of the state.

Wireworms are active in fields in central and northern parts of the state. Dan Kluchinski, Mercer County Ag Agent, reports that two fields in Hunterdon County had to be replanted because of extensive wireworm feeding damage.

Slug damage is present in no-till fields. Damage is for the most part light with some plant mortality probable, especially in one field in Salem County.

Bird damage is being reported in several fields across the state, especially on knolls. Birds responsible are black birds, crows and Canada geese. Salem County had at least one field and Tom Morgart with Resource Conservation and Development reported two fields in the Somerset-Hunterdon County area that required

replanting.

Bob Moore, Helena Chemical Co. and John Minnick, South Jersey Farmer's Exchange both report of lambsquarter surviving atrazine applications in Salem County fields.

◆ Soybeans

One field in Sussex County is over threshold for giant foxtail. Most soybeans are still just emerging.

◆ Wheat

Bob Moore, Helena Chemical Co., reports that one wheat field in Cumberland County was over threshold for armyworm.

Light populations of cereal leaf beetle have been found in fields across the state.

Both Dan Kluchinski, Mercer County Ag Agent and Tom Morgart, Resource Conservation and Development, USDA, report *Septoria* infections in fields in the central part of the state. □

Boron Needs of Field Crops

Joseph R. Heckman, Ph.D., Soil Fertility

The majority of New Jersey soils do not supply enough Boron (B) to crops that have high requirements for this micronutrient. Alfalfa and the clovers have high boron requirements and they should generally be fertilized annually with B. Corn and soybean have medium requirements for B. They may benefit from B fertilizer when grown on sandy soils which are typically quite susceptible to boron deficiency. Soybean often benefits from foliar applications of B at the early bloom growth stage. Wheat, barley, sorghum and grasses in general are not very responsive to boron fertilization.

Soil testing and plant analysis should be used to evaluate the need for B fertilization. While B fertilization can improve crop yield and quality it is also important to avoid excessive application of B. Too much B fertilizer applied to sensitive crops can cause toxicity.

Crop	Boron-Deficiency Symptoms
Alfalfa	Death of terminal bud, rosetting, yellow top, little flowering, and poor seed set.
Clover red, white	Poor stands, growth, and color. Reduced flowering and seed set.
Soybean	Reduced yield and poor quality.

For complete information on B fertilizer recommendations, obtain Fact Sheet 873 from Rutgers Cooperative Extension. □

Scout Corn Fields for Black Cutworm

William J. Bamka, Burlington County Agricultural Agent

Corn fields should be scouted for black cutworm activity. Cutworm activity should be suspected when young corn plants are cut off close to the ground surface during May and June. One field in Sussex County has reached threshold for black cutworm. The caterpillars were reported as small, only about half grown. Cutworm activity was also present in a field in Burlington County.

The University of Maryland has reported extremely high black cutworm moth captures in pheromone and blacklight traps. Evidence of cutworm injury to young corn plants by small larvae has been reported in Maryland and Pennsylvania.

The cool weather has prolonged egg laying and hatch, therefore, cutworm infestations of variable sizes are possible during the next few weeks. It is difficult to predict a cutworm infestation in any given field. Field characteristics often associated with cutworm problems include:

- minimum or no-till continuous corn or no-till corn in soybean stubble
- areas of poorly drained soils
- fields with early spring weed cover prior to tillage or planting (especially fields with chickweed and coarse grass)
- fields adjacent to areas of permanent weedy vegetation

Black cutworms usually feed at night or during overcast days. Leaf feeding by young cutworms too small to sever corn seedlings is the first sign that cutworms are present. Damage to plants becomes apparent when the larvae are half grown. In moist soil, cutworms cut the plants off just above ground level. Under dry soil conditions, larvae stay below ground and cut plants. Damaged plants will appear wilted. If damaged plants are encountered, look for cutworms under clods and trash, and dig 1 to 2 inches deep in the soil around the base of damaged plants.

While scouting for black cutworm, also look for indications of other early season pests such as wireworms and white grubs. Scout for these early season corn pests for the next 2-3 weeks.

If during scouting black cutworm damage is encountered, the field should be sampled to estimate the threat imposed by the larvae. Consult the [1997 Pest Management Recommendations for Field Crops](#) for threshold levels and control recommendations. □

Postemergence Herbicide Crop Tolerance

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

The recent extended period of cloudy weather and high soil moisture may have resulted in certain crops growing rapidly and developing a thinner than "normal" wax layer, called the cuticle, on the leaves. This thinner cuticle is more easily penetrated by postemergence herbicides. Warm temperatures during the cloudy moist period will increase the speed of growth and the thinness of the cuticle.

To reduce the risk of crop injury from postemergence herbicides this week:

1. Reduce the amount of spray additives used to the minimum labeled amount.
2. Use nonionic surfactants instead of oil concentrates when the herbicide label gives you a choice.
3. Do *not* add any surfactant, oil concentrate, or other additive if the label allows application alone.
4. Do *not* add liquid fertilizer to the spray solution, even if the herbicide label suggests it as an option.
5. Delay treatment of crops that are marginally large enough to treat according to the herbicide label.
6. Delay treatment until the crop has experienced 3-5 days of bright, clear, warm, and sunny weather before applying postemergence herbicides. The cuticle thickens when the weather turns warm, sunny, and dry. □

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 continues to grow, complicating the decisions 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 reduced usefulness for **grass control**. A disadvantage to using atrazine is herbicide carryover which may limit

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crops that can be planted next year. Atrazine is a triazine herbicide. Resistance has developed in certain fields in the northeastern United States 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 of 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** 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.

◆ More Recently Labeled Herbicides

✓ **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 certain 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 has 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 broadleaf** 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.

HERBICIDES FROM PAGE 4

✓ **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 SU 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 SU's, 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. □



Wheat Management Twilight Meeting

June 19, 1997

6:00 pm - 8:00 pm

Rutgers' Snyder Research and Extension Farm

Locust Grove Road

Pittstown (Hunterdon County), NJ



Topics will include:

- ❖ Nitrogen management including tiller counts and tissue testing
- ❖ Insect and disease identification, feeding damage assessment, and IPM scouting methods
- ❖ Crop management recommendations for planting this fall

Registration Information:

Call Daniel Kluchinski, County Agricultural Agent, Rutgers Cooperative Extension of Mercer County at (609) 989-6830 for additional information. The workshops are free, but pre-registration is required. Programs are offered without regard to sex, race, color, national origin, disability or handicap, or age. Pesticide recertification credits will be available.

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Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The user is responsible for the proper use of pesticides, residues on crops, storage and disposal, as well as damages caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact Rutgers Cooperative Extension in your County.

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