

PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION \$1.50

JUNE 10, 1999



INSIDE

Postemergence Weed Corn Herbicides	1
Central Jersey Field Observations	2
Predicting Weather for Hay Making	2
Selecting Forage Varieties for Summer Seedings	3
Sludge Products Containing Lime	3
New Factsheet Available	3
Field Crops Weed Control	5
Deer Survey Results On-Line ...	5

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 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.

SEE POSTEMERGENCE ON PAGE 4

Central Jersey Field Observations

Daniel Kluchinski, Mercer County Agricultural Agent

Based on field visits and scouting by Tom Morgart and Matt Myers, North Jersey RC&D, and myself, the following pest problems have been occurring across central New Jersey:

Potato leafhopper (PLH) populations are above threshold (causing economically significant damage) in portions of Somerset County, while surrounding counties have yet to approach threshold. At this time, applications of insecticide or early harvest would be warranted in fields approaching or over threshold. The only method to determine populations is by use of a sweep net and to calculate the average number of PLH per sweep. Based on plant height and the population, a threshold is determined. For detailed information on sweep net use and threshold determination, contact your local field and forage crop Extension Agent.

Cutworms have been found across the region, and are causing some injury to corn, but no scouted fields have approached threshold. Continue to scout until the corn is past the 5-leaf stage. An insecticide treatment is recommended before the 3 to 5 leaf stage if 10 percent or more of the plants show leaf feeding or are cut at the soil surface. At the 3 to 5 leaf stage, treatment should be applied if 5 percent of the plants are cut, or if there are 4 or more cutworms per 100 plants. After the cutworms have reached $\frac{3}{4}$ to 1 inch in length, insecticides are ineffective. Insecticides are also ineffective when used under hot dry conditions.

Soybean growth has been slowing down due to the heat and dry conditions, but weeds continue to thrive. Weeds are now reaching sizes that may be causing possible yield loss. In fields where postemergence herbicide treatments are to be used, remember that most materials perform poorly under drought conditions. However, applications should be made as soon as possible, and ideally after some rainfall, to control these weeds. □

Predicting Weather for Hay Making

Daniel Kluchinski, Mercer County Agricultural Agent

To date, the start of this year's hay making season has been excellent. Warm to hot days, low humidity and light winds have created ideal conditions to make top quality hay and rye straw. Although we need some rain to break the mini-drought and heat wave this past week, the sunshine will help us get our crop in from the field.

Preparation for hay and straw making includes keeping an "eye to the sky", or perhaps the weather channel or Internet. Can we really predict what weather will be like during hay making to reduce the chances for weather-related losses? The answer lies in using knowledge of meteorological phenomena and forecasting.

The best conditions for making hay occur after the passage of a cold front. This normally provides at least three days of good hay making weather. What factors can help you determine when these conditions will occur and hay making should begin?

- How much temperature drop is expected? A 10° F or more drop is normally associated with a strong cold front passage.
- A forecast that mentions a trace or less of precipitation is the most desirable. A forecast of widely scattered showers, or less than 1/4 inch of precipitation, would also indicate a low rainfall risk period.
- A forecasted wind shift from a southerly to a westerly or northwesterly direction is a good sign.
- A low humidity forecast indicates good hay making conditions.
- Mention of rising barometric pressure is favorable.
- When viewing a television forecast, look for a cold front diagrammed slightly west of your geographic position, followed by a strong high-pressure area.

In addition to knowing when a cold front is approaching, one needs to know when the front has actually passed. The following signs, in order of importance, are:

- The wind should shift in a counterclockwise manner from a southerly to a westerly or northwesterly direction.
- The sky should clear rapidly and the appearance of fair weather cumulus or low fleecy alto-cumulus clouds is evident.
- Dry bulb thermometer temperatures should drop rapidly.
- Barometric pressure should rise steadily.

If one observes the above guidelines, a conservative estimate of a three day rainless period is 85 percent for the late May-early June period, and will be higher as the season progresses. Therefore, keep an eye to the sky and an ear to the forecast before cutting hay.

Adapted from Forages, Hughes, D. H, M. E. Heath and D. S. Metcalfe, editors. 1962. The Iowa State University Press. p. 534. □

Selecting Forage Varieties for Summer Seedings

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

Remember the old adage if you fail to plan then plan to fail. What I'm going to discuss in this article doesn't necessarily have such dire consequences, but selecting the right forage variety can have serious ramifications on your bottom line. Selecting a perennial forage is a serious commitment because the hope is that it will persist for at least four years if alfalfa, and longer if a cool-season grass.

Unfortunately, I cannot provide data on yields of alfalfa and grasses at multiple locations in New Jersey. However, my counterpart in Pennsylvania conducts annual forage trials. The data for this article are from his 1997 report. All yield data are presented at 12% moisture content and harvest data were collected beginning the year after seeding. The most significant point from his 1997 trial is that alfalfa yield varied by 1.73 and 2.16 tons per acre from the highest to the lowest yield at an upland site (Rock Springs, PA) and a site with a longer growing season (Landisville, PA). Considering the state average in New Jersey in 1997 was 2.9 tons per acre of hay, it seems like more attention and planning should focus on variety selection. Furthermore, the 1994-1997 average ranged from 6.17 to 5.08 at Rock Springs and 8.65 to 6.48 at Landisville, a difference of 1.09 and 2.17 tons per acre, respectively. A total of 33 and 28 varieties were evaluated at Rock Springs and Landisville, providing strong evidence of the variability among available alfalfa varieties.

Clearly, evaluating 4 years of production data are more reliable than a single year. Interestingly, the 4 year average from Landisville was only 0.5% lower than the 1997 average, compared to a 37% difference at Rock Springs between the 4 year and 1997 average. Nevertheless, 1.09 and 2.16 tons per acre or 18 and 25% difference between the highest and lowest yielding alfalfa varieties at the two sites are significant.

Fewer cool-season grasses are included in the forage trials. Among the 11 orchardgrass varieties, the difference between the highest and lowest yield averaged across 1996 and 1997 was 0.54 tons per acre with Warrior yielding 5.96 and Shawnee yielding 5.42 tons per acre. Only three timothy varieties were evaluated with yields of 5.09 (Tiller), 4.86 (Clair), and 3.9 (Climax), averaged across 1996 and 1997.

In conclusion, selecting alfalfa or grasses that hopefully will persist for 4 years is an important decision. Collecting as much information as possible will help alert you to the better varieties on the market and minimize the chances that you will end up with a lower yielding variety. Because yield differences can be so large between the best and worst, careful planning is required to ensure a high yielding perennial crop in your rotation. Take some time now to research varieties to prepare for summer seedings in August. For more information contact your County Agent. □

Sludge Products Containing Lime

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

Limed-sludge products are being used in many areas of New Jersey as soil amendments. These products are of greatest benefit when used to neutralize the acidity of low pH soils. Heavy applications of limed-sludge have in some instances resulted in excessive soil pH elevation and manganese deficient crops. Sandy soils are especially vulnerable to overliming and to manganese deficiency. Beneficial use of limed-sludge products requires the same attention to application rates as traditional liming materials. The application rate of any liming material should be based on the calcium carbonate equivalent as listed on the product label and the soil test recommendation. Refer to Rutgers Cooperative Extension Fact Sheets 635, 767, 902, 903, 904, and 905 for further information about liming and soil pH management.

In New Jersey, to obtain a free copy of any Rutgers Cooperative Extension Factsheets, contact your local County Cooperative Extension office or write to the Publications Distribution Center, Cook College, Rutgers University, 57 Dudley Road, New Brunswick, NJ 08901-8520. □

New Factsheet Available

A new fact sheet, "Potato Leafhopper Resistant Alfalfa" (FS941) is authored by Jeremy Singer, Assistant Extension Specialist, Field and Forage Crops and Joseph Ingerson-Mahar, Vegetable IPM Coordinator.

The fact sheet is available through your County Extension office or from Publications Distribution Center, 57 Dudley Road, Cook College, New Brunswick, NJ 08901-8520, Phone: (732) 932-9762, Fax:(732) 932-5023. It is also available on the web - <http://www.rce.rutgers.edu> □

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. Observed occasionally, slight crop injury 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.

Stinger - is a postemergence growth regulator type herbicide for corn that is extremely effective for the control of **annual** and **perennial broadleaf weeds** in the composite and legume plant families. Use higher rates, between 0.188 and 0.25 lb ai/A to control **perennials**. Use lower rates to suppress **perennials** and to control susceptible **annuals**. **Perennials** controlled include **common mugwort** (wild chrysanthemum), **Canada thistle**, **wild aster species**, **Canada goldenrod**, and **alfalfa**. **Annuals** controlled include **common** and **giant ragweed**, **common cocklebur**, **vetch**, **galinsoga**, and certain others. Stinger does *not* control **pigweed species** or **common lambsquarter**! Stinger is also available in jug-mixes with other herbicides, sometimes at a lower price.

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. To prevent the development of resistance, avoid continuous and exclusive use of ALS inhibitors to control a weed. 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 as 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. To prevent the development of resistance, avoid continuous and exclusive use of ALS inhibitors to control a weed.

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. To prevent the development of resistance, avoid continuous and exclusive use of ALS inhibitors to control a weed.

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.

SEE HERBICIDES ON PAGE 5

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 nor Accent is 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.

Accent Gold - is a combination of four herbicides. Three are SU's, Python, Matrix, and Accent. The fourth is Stinger. Apply Accent Gold postemergence to control **annual grass** and **broadleaf weeds**, and to suppress certain **perennials**. Be aware that neither Matrix, Accent, or Stinger are effective for the control of **lambsquarter**. Control of **common lambsquarter** in Accent Gold is accomplished with the Python; therefore, SU resistant **common lambsquarter** will not be controlled. Either add Banvel/Clarity or Atrazine, or choose a different herbicide if SU resistant weeds are suspected in the field.

Python controls many **annual broadleaf weeds** and suppresses certain **perennial broadleaf weeds** in corn. Grasses are not controlled. Python 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. Do not use Python if Counter has been applied unless corn with genetically improved tolerance, called IR corn, has been planted. □

Field Crops Weed Control

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

Grass Pastures: Crossbow, an ester jug-mix formulation of 2,4-D and triclopyr has been registered for use in pastures for a few years. The product is especially effective for the control of woody **perennial broadleaf weeds** and certain other hard to control **annual** and **perennial broadleaves**, including **spiny pigweed**. Hay harvest and grazing restrictions, especially for lactating dairy animals were severe, and limited the product's usefulness. Shorter restrictions have been approved for rates below 2 gallons per acre. Standard rates are 2 to 4 quarts per acre, depending on weed species.

- Pasture and Green Forage
 - Lactating dairy animals - 14 days
 - other livestock - no restrictions
- Grass Hay
 - Lactating dairy animals - next growing season
 - other livestock - 7 days
- Slaughter Restrictions - withdraw livestock from treated forage 3 days before slaughter.

Consult your Cooperative Extension Office and the new product label for additional information. □

Deer Survey Results On-Line

Rutgers' New Jersey Agricultural Experiment Station (NJAES) Center for Wildlife Damage Control conducted a 65 question survey of New Jersey's farmers in 1998 to improve understanding of how deer, and current deer management practices, impact agriculture. This comprehensive opinion survey determined farmers' perceptions of deer and identified and quantified how current deer management practices impact their farming. Survey results should lead to improved deer management programs that are more responsive to the needs of farmers seeking solutions to crop damage.

The Rutgers Deer Survey Results with color maps are now available on the Web: <http://www.rce.rutgers.edu/programs/wdc/deer.htm>. □

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey
Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

PLANT & PEST ADVISORY FIELD CROPS/LIVESTOCK EDITION CONTRIBUTORS

Rutgers Cooperative Extension Specialists

George Hamilton, Ph.D., Pest Management
Joseph R. Heckman, Ph.D., Soil Fertility
Bradley A. Majek, Ph.D., Weed Science
Jeremy Singer, Ph.D., Field and Forage Crops
Michael L. Westendorf, Ph.D., Animal Science

RCE County Agricultural Agents and Program Associates

Burlington, William J. Bamka (609-265-5757)
Mercer, Daniel Kluchinski (609-989-6830)
Monmouth, Bill Sciarappa, Ph.D., (732-431-7260)
Salem, David L. Lee (609-769-0090)
Sussex, Robert C. Mickel (973-579-0985)
Warren, Everett A. Chamberlain (908-475-6503)

North Jersey Resource Conservation & Development Council

Brian Aldrich (908-852-2576, ext.113)

Newsletter Production

Jack Rabin, Assistant Director, NJAES
Cindy Rovins, Editor and Designer
Mary Ann Hughes, Assistant Editor

Rutgers Cooperative Extension provides information and educational services to all people without regard to sex, race, color, national origin, disability, handicap or age. Rutgers Cooperative Extension is an Equal Opportunity Employer.

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.

Use of Trade Names: Trade names are used in this publication with the understanding that no discrimination is intended and no endorsement is implied. In some instances a compound may be sold under different trade names, which may vary as to label clearances.