What's Cropping Up?

A NEWSLETTER FOR NEW YORK FIELD CROPS & SOILS VOLUME 7, NUMBER 3, 1997

Stellar Provides Postemergence Velvetleaf and Common Ragweed Control in Soybeans

Russell R. Hahn
Dept. of Soil, Crop and Atmospheric Sciences

Velvetleaf and/or common ragweed require sequential postemergence herbicide applications in New York soybean fields more often than other weeds. There are several individual products that are effective against these annual broadleaf weeds, and now there is a premix, Stellar, that has excellent activity against both species. Stellar is a 3.1 EC formulation that includes 0.7 lb/gal of flumiclorac pentyl ester, the active ingredient in Resource, and 2.4 lb/gal of lactofen, the active ingredient in Cobra.

Resource is in the N-phenylimide herbicide family while Cobra is a diphenylether. The mode-of-action of both herbicides is that of cell membrane disrupter. These herbicides are fast-acting, postemergence, contact herbicides that are readily absorbed into plant tissues where they cause irreversible damage of membrane function and structure. Herbicidal symptoms, including wilting, dessication, bleaching, browning, and necrosis, are often observed within a day under bright sunlight. While Stellar has excellent activity against velvetleaf and common ragweed, its' effectiveness against common lambsquarters is only fair at best.

Stellar Combinations

An experiment was conducted at Aurora in 1996 to evaluate tank mixes of Stellar with Basagran (bentazon) or Pinnacle (thifensulfuron) to enhance lambsquarters control. Soybeans (Funks G3197) were planted June 3 in a field with heavy velvetleaf pressure along with moderate infestations of common ragweed and common lambsquarters. The entire plot area was sprayed with 6 oz/A of Select (clethodim) plus 1% (v/v) of crop oil concentrate on June 26 to control the green foxtail. Early postemergence applications of broadleaf herbicides were applied on June 29 when soybeans were in the second trifoliolate leaf stage. At the time of application, velvetleaf had two to four leaves while the ragweed and lambsquarters had four to six leaves. Control ratings were made four weeks after treatment.

Stellar applied alone or in combinations with Basagran or Pinnacle controlled 95% or more of the velvetleaf (Table 1). Velvetleaf control with 2 pt/A of Basagran or with .25 oz/A of Pinnacle was 98 and 87% respectively. Common ragweed control was excellent with all treatments except .25 oz/A of Pinnacle, which controlled only 10% of the ragweed. While Stellar provided excellent velvetleaf and ragweed control, lambsquarters control was only 57 and 73% with 5 and 7 oz/A application of this premix combination. When applied alone, Basagran or Pinnacle controlled 99 and 96% of the common lambsquarters respectively, however combinations of 1 pt/A of Basagran or 0.1 oz/A of Pinnacle with 5 oz/A of Stellar only controlled 65 and 75% of the lambsquarters respectively. When these rates of Basagran and Pinnacle were tank-mixed with 7 oz/A of Stellar control was 83 and 80% respectively (data not shown). Soybean yield with the 2 pt/A Basagran treatment was 52 bu/A which was 5 to 7 bu/A better than the other treatments. The Basagran treatment provided excellent control of each of the annual broadleaf weeds and caused less soybean injury than the other treatments.

Table 1. Annual broadleaf weed control ratings and soybean yields following early postemergence herbicide application at Aurora in 1996.

Herbicides*	Amount/ Acre	% Control VELVET	% Control CORAG	% Control LAMBS	Yield bu/A
Basagran	2.0 pt	98	94	99	52
Pinnacle**	.25 oz	87	10	96	45
Stellar	5.0 oz	95	96	57	47
Stellar	7.0 oz	99	99	73	47
Stellar + Basagran	5.0 oz 1.0 pt	99	97	65	47
Stellar + Pinnacle	5.0 oz 0.1 oz	99	99	75	46
LSD (0.05)		12	24	13	4

* All treatments included 0.5% (v/v) of COC.
** Pinnacle treatment also included 2% (v/v) of 28% UAN.

Crop Management

Estimating Alfalfa Quality Using PEAQ

Jerry Cherney, Dept. of Soil, Crop & Atmospheric Sciences
R. Mark Sule, Dept. of Hort. & Crop Sciences, The Ohio State Univ.

Timing of alfalfa harvest is critical to obtaining optimum forage quality for dairy cattle, and it would be very useful for alfalfa producers to be able to plan ahead, particularly for spring harvest. While methods such as the scissors-cut method initiated in Wisconsin and the use of growing degree days have generated some interest, these methods have their shortcomings. One alternative is to use the PEAQ (Predictive Equations to estimate Alfalfa Quality) method, originally developed by Ken Albrecht and Rod Hintz at the University of Wisconsin.

PEAQ estimates fiber content (NDF) of standing alfalfa based on plant height (the tallest stem) and maturity stage (the most mature stage) in a sample. Other parameters were investigated, but these were considered the best compromise between estimation accuracy and ease of use. A representative 2 square foot area in a field is evaluated for the most mature stem stage, based on Gary Fick's Cornell staging system. The height of the tallest stem is measured from the soil surface. This is then repeated in at least 5 representative areas in the field. Wisconsin equations have been converted into a chart (courtesy of M. Rankin, University of Wisconsin-Extension) used to estimate NDF based on height and maturity stage.

Original PEAQ equations had been tested only in Wisconsin, where estimated NDF was found to be as accurate as commercial NIRS laboratory analysis. Alfalfa samples were collected in California, Ohio, Pennsylvania, New York and Wisconsin from producer-managed fields during 2 or 3 growing seasons (1994-96) to test the PEAQ equations across a wide geographic area. The accuracy of PEAQ in other states was as good as that observed in Wisconsin in the past. Nearly all samples were within plus or minus 3.5 percentage units of wet chemistry NDF. This compares to the accuracy of growing degrees days, which was plus or minus 6 percentage units, based on research in both New York and Michigan.

A major disadvantage for the technique for the Northeast is that it does not appear to work well for weedy fields or alfalfa-grass fields. The method is highly dependent on good sampling technique, and several samples per field are required to achieve good results. It also does not work on very short (less than 16 inches) or very tall (more than 40 inches) alfalfa.

For relatively pure stands of alfalfa, the PEAQ method of estimating alfalfa quality based on the tallest stem and the most mature stage is simple, fast and inexpensive. It appears to work fairly well across all cuttings of a season, not just first cut. The method also forces producers out into their fields for a close inspection of alfalfa development, which facilitates scouting for other alfalfa concerns, such as weevil or leafhopper damage.

Estimating Alfalfa NDF Content

	Stage of Most Mature Stem				
Height of Tallest Stem (from soil to stem tip)	Late Vegetative: Stem > 12 in, no buds visible	Early Bud: 1 to 2 nodes with buds	Late Bud: more than 2 nodes with buds	Early Flower: 1 node with 1 open flower	Late Flower: 2+ nodes with an open flower
-- inches --	% NDF				
16	28.5	29.3	30.1	31.0	31.8
17	29.2	30.0	30.8	31.6	32.5
18	29.9	30.7	31.5	32.3	33.1
19	30.6	31.4	32.2	33.0	33.8
20	31.3	32.1	32.9	33.7	34.5
21	32.0	32.8	33.6	34.4	35.2
22	32.7	33.5	34.3	35.1	35.9
23	33.4	34.2	35.0	35.8	36.6
24	34.0	34.9	35.7	36.5	37.3
25	34.7	35.5	36.4	37.2	38.0
26	35.4	36.2	37.0	37.9	38.7
27	36.1	36.9	37.7	38.5	39.4
28	36.8	37.6	38.4	39.2	40.0
29	37.5	38.3	39.1	39.9	40.7
30	38.2	39.0	39.8	40.6	41.4
31	38.9	39.7	40.5	41.3	42.1
32	39.6	40.4	41.2	42.0	42.8
33	40.3	41.1	41.9	42.7	43.5
34	40.9	41.8	42.6	43.4	44.2
35	41.6	42.4	43.3	44.1	44.9
36	42.3	43.1	43.9	44.8	45.6
37	43.0	43.8	44.6	45.4	46.3
38	43.7	44.5	45.3	46.1	46.9
39	44.4	45.2	46.0	46.8	47.6
40	45.1	45.9	46.7	47.5	48.3

Soybean Production Under Different Weed Control Methods

Bill Cox and Dill Otis
Dept. of Soil, Crop and Atmospheric Sciences

Crop Management

Soybean producers frequently spend 40 to $50/acre on herbicides for weed control. We evaluated soybean production under two tillage systems (moldboard plow and chisel tillage) and three weed control methods during the 1994, 1995, and 1996 growing seasons to determine if mechanical weed control methods could reduce or eliminate herbicide use while providing satisfactory weed control.

Weed control methods evaluated in the study included: 1) broadcast herbicide (preemergence application of 2 lb/A Lorox DF plus 2 pt/A Dual followed by postemergence application of 1½ pt/A Basagran spot-sprayed on about 25% of the acreage), 2) banded herbicide plus cultivation (a 10-inch band of Lorox and Dual at planting followed by two cultivations), and 3) mechanical weed control exclusively (two rotary hoe operations followed by two to three cultivations). We solid-seeded the broadcast herbicide plots at 15-inch row spacing, whereas we planted the mechanical and banded herbicide plus cultivation plots with the same planter at 30-inch row spacing to allow for cultivations. All plots averaged about 300 feet in length and 10 feet in width.

Results

Weed control methods did not affect weed density under moldboard plow tillage in any year of the study (Table 1). Apparently, a banded herbicide or rotary hoe operations, supplemented by timely cultivations, can provide the same level of control as the use of pre and postemergence herbicides in soybeans under moldboard plow tillage. Nevertheless, when averaged across the 3 years, soybeans yielded less under mechanical weed control than under broadcast herbicides (Table 2). The lower yield under mechanical weed control was probably associated with wider row spacing.

In contrast to moldboard tillage, weed control methods under chisel tillage affected weed density in all 3 years of the study. The greater weed densities, especially in the row, under mechanical weed control contributed to lower yields in 1994 and 1995. Likewise, the greater weed densities under banded herbicide plus cultivation compared with broadcast herbicide contributed to lower yields in 1995. When averaged across the 3 years in chisel tillage, soybeans under broadcast herbicide had greater yields than banded herbicide plus cultivation, which had greater yields than mechanical weed control methods.

Conclusion

Soybean producers, who use moldboard plow tillage, can apparently reduce or eliminate herbicides and maintain satisfactory weed control by using banded herbicides or rotary hoe operations, supplemented with timely cultivations. Nevertheless, soybeans will probably yield less in New York with these weed control methods because of the yield penalty associated with 30-inch row spacing when compared with solid-seeded soybeans in 7 or 15-inch row spacing. The yield reduction, however, may be partially offset by reduced weed control costs. Another way to reduce herbicide costs and still solid-seed soybeans is to use Roundup Ready soybean varieties. Soybean producers, who use chisel tillage, should only consider the use of Roundup Ready soybeans to reduce herbicide use.

Table 1. Weed density in July under two tillage systems and three weed control methods at Aurora, NY in 1994, 1995 and 1996

Tillage/Weed Control Method		1994	1995	1996	Mean
		weeds m^{-2}			
PLOW	Chemical	0.5	2.1	1.2	1.3
	Mechanical + chemical	0.6	1.1	1.4	1.0
	Mechanical	0.7	2.1	1.7	1.5
	LSD 0.05	NS	NS	NS	NS
CHISEL	Chemical	1.1	1.1	2.6	1.6
	Mechanical + chemical	1.5	4.2	3.0	2.9
	Mechanical	6.8	8.5	7.0	7.4
	LSD 0.05	2.1	2.9	2.5	1.2

Table 2. Soybean yields under two tillage systems and three weed control methods at Aurora, NY in 1994, 1995 and 1996

Tillage/Weed Control Method		1994	1995	1996	Mean
		bu/acre			
PLOW	Chemical	42	40	47	43
	Mechanical + chemical	43	34	46	41
	Mechanical	39	34	47	40
	LSD 0.05	NS	6	NS	3
CHISEL	Chemical	45	35	42	41
	Mechanical + chemical	41	25	41	36
	Mechanical	39	18	39	32
	LSD 0.05	5	7	NS	4

Crop Management

New York Corn Growers Respond to Survey on Cover Crops and Cultivation

Nancy Gift and Jane Mt.Pleasant
Dept. of Soil, Crop and Atmospheric Sciences

Cover crops and cultivation for weed control both offer numerous benefits in improving sustainability of field corn production. Little is known, however, about the frequency with which farmers use these tools; and their familiarity and experience with them determines the best strategies for increasing their implementation through extension programs. Therefore, a survey was sent to field crops agents and farmers in February 1997 to find out the use levels and interest in cover cropping and cultivation among New York's field corn growers.

Survey questions

Field crops agents representing 56 counties were each sent 1 agent survey and 10 grower surveys with reply envelopes on January 31, 1997. Extension agent surveys requested information about total corn acres and growers, acreage and grower numbers where intercropping, cover cropping, and cultivation were thought to be used, as well as numbers of additional growers who might be interested in these practices. Grower surveys requested information about how often and how extensively they used cover cropping and cultivation, as well as cover crop seeding time, species, cultivator type, and herbicide application when cultivating on that farm. In addition, space was left for growers to cite reasons for and against cover cropping and cultivation, and to state their level of interest in cooperating with a demonstration. Growers were offered free bulletins on these practices for returning their surveys with a reply slip.

Returns

149 grower surveys were returned from 39 counties, and extension agent information was returned or elicited from 37 counties. Among counties where field corn growers were present and received surveys, 29% of grower surveys were returned. Mean corn acreage was 277 for responding growers. This included 24 farms with 50 or fewer corn acres, 28 with 51-100 acres, 14 with 101-150 acres, 21 with 151-250 acres, 24 with 251-400 acres, and 27 with larger corn acreage (up to 2000 acres). It is assumed that the growers who returned their surveys were generally more interested in cultivation and cover cropping than the average grower. Therefore, the extension agents' survey results are assumed to be more indicative of overall use rates and interest levels.

Cover Crop Responses

Extension agents estimate that about 1% of corn growers are using intercrops (on less than 1% of the corn acres), while 8% are using cover crops (on about 4% of the corn acres). Of the 34 agents who responded (some for multiple counties), 17 reported no intercrop use, while 8 reported no use of cover crops. Interest in intercropping for these areas averages 10% of corn growers, while cover cropping interest is estimated to be 14% of growers. Intercrops were distinguished from cover crops by the former being seeded during corn growth, whereas cover crops were seeded after corn harvest.

About one-fifth (19%) of respondents reported using cover crops or intercrops yearly or every other year. Over half (57%) reported that they had never used cover crops; 24% (35) categorized themselves as using cover crops "occasionally," though these often noted that they had tried a cover crop but not used one in several years. Of the 116 growers not using cover crops regularly, 11 reported that they intended to use a cover crop soon; 69 reported that they had "some interest" in using a cover crop in the future; 22 reported having no interest in cover crops.

Small farms, i.e. less that 100 acres of corn, had the highest average proportion of cover cropped land, about 25%. However, two large farms (450 and 1600 acres of corn) reported using over 400 acres each of cover crops (450 and 700 acres respectively).

Among the 65 respondents who had experience with cover crops, 42 had seeded the cover crop following corn silage (occasionally grain) harvest, with another 10 reporting seeding the cover crop between tasseling and harvest. This is noteworthy because growers seeding a cover crop this late are severely limited in choice of cover crop species; only rye is recommended for late seeding in order to establish sufficient winter ground cover. Indeed, 55 of these growers reported using winter rye as their cover crop. Red clovers (8 growers), wheat (7), oats (6) and ryegrass (2) were also used. (Some growers had tried more than one species)

One of the more encouraging results of this survey was that, as a group, growers recognized the same advantages and disadvantages that researchers see in using cover crops and cultivation. The most frequently cited benefits of using cover crops were: erosion prevention (87), improvement of soil structure or tilth (38), weed suppression (31), increasing soil organic matter (27), addition of nutrients from green manure (24), and taking up leftover nitrogen (12). Additional benefits included the extra crop or pasture (10), improved driving surface for harvest (4), conserving water (2), and wildlife food (1). Ten respondents wrote "none" under benefits. Disadvantages were primarily time (69) and cost (42). Growers also cited diffi-

culty in establishing the cover crop (36), herbicide treatment limitations (12), competition with corn, especially in dry years (12), as well as planting delays in spring (from additional plowing and soil moisture) (15), the need for machinery (5), and the fact that the cover crop can act as an insect reservoir (1).

Cultivation Responses

Extension agents report that one-fifth (20%) of corn growers use cultivation on about 12% of the corn acres. They estimate that another 15% of growers have some interest in using cultivation, and some suggest that this figure has grown in the past few years. Among grower survey respondents, 28% (40) report using cultivation yearly, and another 11% (15) report using cultivation every other year. Nearly one-fifth (18%) have used cultivation "occasionally" - again, these growers often said that they had used it years ago and have since stopped. Over two-fifths (43%, 60 growers) said they "never" cultivate. Among those who do not regularly cultivate, 4 reported that they intend to cultivate soon, 40 that they had "some interest," and 26 that they had "no interest." Surprisingly, the average proportion of a farm's corn acreage which was cultivated did not vary much with farm size, nor did the proportion of farmers cultivating vary with farm size.

Among those growers who reported cultivating regularly, the vast majority reported using a "conventional, shovel-type" cultivator (63), with a few growers reporting using high-residue cultivators (5), tine weeders (6), rotary hoes (8), rolling cultivators (2), ridge tiller (1), and a Bezzerides cultivator (1). Most surprising, given the extensive research showing that reduced herbicides may be used with cultivation without yield loss, was the fact that 68 of 94 growers reported using broadcast, full-rate herbicides when they cultivate (9 reported using a banded herbicide, 5 a reduced-rate broadcast herbicide, and 12 using no herbicide). Several possible reasons include (1) growers do not know that banding works or mechanically how to do it, (2) growers are hiring custom herbicide applicators (and are perhaps using cultivation to control escapes or resistant weeds), or (3) growers are reluctant to trust that they will be able to cultivate when necessary (due to weather or haying season), and use the broadcast herbicide as insurance. There is a potential for growers to save some money on herbicide use, especially if growers can be better shown the mechanics and advantages of banding herbicides.

Among the **advantages** of cultivation reported by growers, soil improvements and weed control were the primary categories. Specifically growers listed: weed control (41), less herbicide use and cost (59) (most, 46/59, of those listing this advantage were not among those who cultivate while using a full-rate broadcast herbicide), loosening soil (24), aeration of soil (25), breaking soil crusts (13), improved water infiltration (9), control or prevention of herbicide-resistant weeds (9), herbicide incorporation (6), and several other benefits including increased yields (9), environmentally friendly (7), the ability to sidedress nitrogen at cultivation (18), and "gives you a good look at the field" (2).

Disadvantages were: time (often, hours spent during haying season) (96), cost, including both equipment, fuel, and labor, (49), crop stand loss (16), timing due to weather and crop size (24), the lack of residual weed control (7), the promotion of a new flush of weeds (3), spreading perennial weeds (2), bringing up rocks (4), drying out soil (2), and erosion (7). While all of these disadvantages are problems, the primary one, time, can be mitigated by use of a banded herbicide, which makes it possible, in many or most cases, to cultivate only once, and to cultivate successfully during a wider time frame.

Directions for Extension Education

With this information about growers' attitudes and difficulties with cover cropping and cultivation, adjustments can be made in the focus of extension education programs to mitigate the problems inherent in each of these practices. For example, since difficulty in establishment of cover crops is a frequently cited problem, equipment for cover crop seeding during corn growth could be demonstrated during twilight grower meetings. Also, emphasis on the benefits and potential of cover crops may encourage growers to make cover crop establishment a higher priority, given that time is the most frequently cited disadvantage. Schemes for using cover crops which might later be harvested can also help mitigate the problem of cost, the second most frequently cited disadvantage of cover cropping.

Cultivation's largest disadvantage, time commitment during haying season, has already been shown to be less dire a problem than previously imagined. On-station research shows that, with a banded herbicide, a single cultivation may be performed at any of several times, while still maintaining maximum yields. Further education about banding, which is not widely used, may help to make cultivation more economical, especially for growers who already have access to cultivation equipment.

Insect Management

Spring Insect Alert

Elson J. Shields
Department of Entomology

With the Spring of 1997 still young, many of the season's insect problems can be anticipated, detected early by scouting, and managed in a timely manner. Early detection of insect problems before economic losses occur is the key to successful insect management. Proper sampling plays a critical role in the decision about the economics of each insect management option. Listed below are a number of common insects which require management each year in numerous fields around New York.

Alfalfa Insects

Alfalfa Snout Beetle: If you have areas of winter kill in your alfalfa, get out the shovel and dig dead plants within the killed area and live plants around the fringes of the dead area. If plants within and adjacent to the killed area have severed tap roots (between 2-6 inches) and have roots with scaring and spiral grooves the size of a pencil or larger, call your county extension agent. You may have alfalfa snout beetle infesting your farm. This is a very serious insect and we are very interested to know about new infestations. Alfalfa farmers outside the infested areas need to be especially vigilant for the spread of this pest. This insect has been spread with the movement of drainage equipment, farm equipment, hay, soil and gravel, and bee hives used for pollination.

Alfalfa Weevil: Alfalfa weevil is an insect pest of first cutting. The adult weevils enter the field from adjacent wooded areas and field margins and begin laying eggs in alfalfa fields starting in late April. The new larvae usually hatch in early to mid May and larvae begin feeding on the young alfalfa leaves located in the terminal. Maximum larval feeding damage occurs around the time of first cutting. Leaf loss from larval feeding results in protein loss in the hay crop. The presence of this insect in your alfalfa fields is easily detected by following the sampling guidelines in the 1997 Cornell Recommends for Integrated Field Crop Management (p. 57). These guidelines also help to determine if the alfalfa weevil infestation in your field has the potential to be economically damaging.

If a potential economically damaging alfalfa weevil population is detected, the population can be reduced below economic levels by either early harvest or the timely application of insecticide. Early harvest is the preferred option if damaging populations of alfalfa weevil are detected within 10 days of the normal harvest. However, if the normal harvest is more than 10 days away, the application of insecticide is usually chosen to prevent damaging the alfalfa stand from early harvest.

Usually this insect is held below economic levels by biological control but individual economic "hot spots" occur every year. Alfalfa stands containing less than 50% alfalfa will not give economic returns if sprayed with insecticide and serve as important reservoirs for biological control organisms. Protecting these important biological control reservoirs pays benefits by encouraging the biological control of alfalfa weevil and reducing the amount of insecticide needed for alfalfa weevil control.

Potato leafhopper: Potato leafhopper will be arriving from the south around Memorial Day and is usually a pest of second and third cuttings. This insect is particularly a pest of new seedings. Insect feeding damage causes both yield and quality losses. Since insect damage occurs during July and August, yield losses and leaf yellowing associated with insect feeding is usually blamed on dry weather conditions. Insect populations can easily be estimated with the use of an insect sweep net following the guidelines in the 1997 Cornell Recommends for Integrated Field Crop Management (p. 58). If economically damaging populations are detected in alfalfa fields, the timely application of insecticide is usually the management option recommended. Please refer to the extension publication "Sampling and Management of Potato Leafhopper in Alfalfa Grown in the Northeastern United States" Fact Sheet 500 for more information.

Corn Insects

Seed Corn Maggot: Missing corn plants and loss of corn stand is typical of seed corn maggot damage. If your corn stand is thinner than expected or has areas of missing plants and you did not mix a seed treater containing insecticide with the corn seed in your planter box, seed corn maggot may be responsible for your stand loss. The location of the missing plant should be carefully dug and examined for the presence of a corn seed and the presence of a seed corn maggot larvae or damage. To prevent stand losses, all corn fields in New York should be planted with the use of an insecticide seed treater. Profitable corn production is difficult to achieve if corn stands cannot be established at the desired levels. Please refer to the 1997 Cornell Recommends for Integrated Field Crop Management for more information (p. 37).

Corn Rootworm: In many continuous corn fields, corn rootworm is a common pest at economic levels. In most years, approximately 50% of the con-

Acetochlor Registration is Denied by NY State DEC

RESIDUE

Russell R. Hahn,
Dept. of Soil, Crop and Atmospheric Sciences

Applications submitted by Monsanto and Zeneca to register acetochlor in New York State have been denied. Acetochlor is the active ingredient in Harness® Herbicide from Monsanto and in Surpass® Herbicide from Zeneca. The decision was based on identified risks associated with the potential use of this corn herbicide and the lack of compelling benefits resulting from the proposed use of Harness® and Surpass® in NY State.

DEC's review of acetochlor identified oncogenic effects, potential groundwater contamination resulting from degradates of acetochlor, and toxicity to nontarget aquatic plants due to acetochlor runoff to surface water as risks associated with this herbicide.

Acetochlor products are classified as "Restricted Use" pesticides due to oncogenecity. EPA has classified acetochlor a B_2 carcinogen (probable human carcinogen) based on sufficient evidence from animal studies and inadequate data from human epidemiologic studies.

Acetochlor product labels contain "Environmental Hazards" statements indicating that acetochlor has the properties of a compound that may contaminate groundwater and surface water. DEC conducted three leaching simulations using the LEACHM model with Riverhead sandy loam and Howard gravelly loam. The results indicated that the levels of acetochlor in groundwater would likely remain below applicable drinking water standards or trigger values, however the level of degradates (oxanilic acid, sulfonic acid, and thioacetic acid sulfoxide) would have the potential to pose a significant threat to groundwater resources of NY State. Initial data from groundwater studies on a clay loam soil in Ohio and a loamy sand in Wisconsin appear to confirm the modeling results.

Finally, aquatox modeling conducted by DEC predicted environmental concentrations of acetochlor sufficient to cause toxicity to representative aquatic plants. These results are supported by the results from the Acetochlor Registration Partnership surface drinking water monitoring program from 1995 and 1996. Detectable levels of acetochlor were found in about 30% of these samples.

(Spring Insect Alert, continued)

tinuous corn fields in New York have a high enough population of corn rootworm to warrant the application of a soil insecticide for rootworm control. In the majority of cases, soil insecticide for rootworm control is applied during the planting process. The recommended soil insecticides for use at planting are Counter 20 CR, Force 1.5 G, Force 3.0 G and Lorsban 15 G. Lorsban is only recommended if the soil pH is less than 7.5. Soil insecticide can also be applied during cultivation if the correct insecticide is selected and the cultivation/insecticide application occurs before the corn reaches the 6 leaf stage. The recommended soil insecticide for application at cultivation is Furadan 4F. During application, the insecticide spray should be directed at the base of the plant in front of the cultivation shovel and lightly covered with soil. Before applying insecticides, always read the label.

To determine if continuous corn has the potential risk for an economically damaging rootworm population, corn fields need to be scouted for the adult beetles during and shortly after pollination. If this scouting has not been conducted during the previous late summer period, it is very difficult to determine which fields have the potential risk to develop an economically damaging population. Please refer to the extension publication "Sampling and Management of Corn Rootworm in New York Field Corn" Fact Sheet 501 for more information about sampling procedures and 1997 Cornell Recommends for Integrated Field Crop Management for management decisions and current insecticide recommendations (p. 35-36).

Black Cutworm: Black cutworm usually migrates into New York during mid-April from the southern parts of the US. Arriving moths usually lay their eggs on winter annual weeds or cover crops present in agricultural fields in late April. When these fields are spring tilled in preparation for corn planting, the black cutworm larvae survive on the dying weeds and cover crop until the new corn seedlings emerge. The larvae then begin to feed on the young corn plants. Plant cutting by the black cutworm larvae begins when the larvae reach the 4 larval stage and continues until pupation into moths. Detection of an infestation requires scouting the field for damage and the presence of cutworm larvae. Since the final larval stage cuts the most plants, early detection of cutworm larvae reduces the loss of stand from this insect. Treatment with insecticide is usually suggested if 5% or more of the plants have been cut and cutworm larvae are present. Please refer to the 1997 Cornell Recommends for Integrated Field Crop Management for more information (p. 37).

Calendar of Events

June 5	Small Grain Field Day, Aurora, NY
July 2	Cornell Weed Day, Valatie, NY
July 11	Musgrave Farm Field Day, Aurora, NY
July 13-16	Northeastern Branch ASA Meeting, University of Maryland, College Park, MD
July 15-16	Cornell Weed Days, Aurora and Freeville, NY
August 1	CCA National and State Exams, Cortland, NY
August 9-13	American Phytopathological Society Annual Meeting, Rochester, NY
Oct. 14-17	Field Crop Dealer Meetings
Oct. 26-31	American Society of Agronomy Meetings, Anaheim, CA

What's Cropping Up? is a bimonthly newsletter distributed by the Department of Soil, Crop and Atmospheric Sciences at Cornell University. The purpose of the newsletter is to provide timely information on field crop production and environmental issues as it relates to New York agriculture. Articles are regularly contributed by the following Departments at Cornell University: Soil, Crop and Atmospheric Sciences, Plant Breeding, Plant Pathology, and Entomology. **To subscribe, send a check for $8.00 along with the form at the right.**

What's Cropping Up? - Subscription

Name:

Affiliation:

Address:

City: State: Zip:

Make check payable to: **CORNELL UNIVERSITY** and return to:

Department of Soil, Crop and Atmospheric Sciences - Extension
144 Emerson Hall, Cornell University, Ithaca, NY 14853

Cornell Cooperative Extension

Dept. of Soil, Crop and Atmospheric Sciences
144 Emerson Hall
Cornell University
Ithaca, NY 14853

Helping You Put Knowledge to Work