Pest & Crop

May 4, 2001 - No. 7

In This Issue

Insects, Mites, and Nematodes

Black Cutworm Damage Noted in Southern Indiana – (*John Obermeyer, Rich Edwards, and Larry Bledsoe*) –

- First cutworm reports begins the monitoring season for Indiana
- Southern and Central Indiana should be looking for leaf feeding and initial cutting
- Scouting guidelines and rescue insecticides given
- Rotary hoe may improve control where soils are dry

Gary Michel, Warrick County CES, and Gene Flaningam, southwestern Indiana consultant, informed us on May 1 that small black cutworm are beginning to damage corn. This signals the beginning of the cutworm season for Indiana and as heat units accumulate and cutworm development progresses the potential for damage will move northward. The early arriving moths (March) and subsequent flights apparently survived the frosts, were able to established in weedy fields, and are now feeding. The underlying theme of all this is that it is now time to scout for cutworms in southern and central Indiana.

Black cutworm moths are particularly fond of winter annuals, such as chickweed and mustards, for egg laying. Fields that were weedy before or at planting are at the highest risk for cutworm damage. This includes fields that were treated at planting with a soil insecticide. Remember, corn and soybean are not the preferred food of the black cutworm. It just so happens, these are normally the only plant remaining by the time the larvae have hatch.

Scout by inspecting 20 consecutive plants in each of 5 areas of a field (100 plants) for cutworms and feeding activity. Count and record the number of plants cut or damaged and determine the percentage of plants affected. Also collect black cutworm larvae and determine the average instar stage. While sampling, also record how many leaves are fully unrolled (the collar of the leaf is visible on a fully unrolled leaf). Control of black cutworm may be necessary if 3 to 5% of the plants are damaged and the average larval instar is from 4 to 6. Use the following management guidelines and instar guide. Suggested foliar insecticides for control of economic infestations are listed below.

To increase the probability that adequate control will be achieved when dry soil conditions are noted, a rotary hoe may prove useful. This should stir up the soil and increase the likelihood that the cutworms will come into contact with the insecticide. Additionally, the use of a higher rate of the insecticide in 20 gallons or more water per acre may help the level of control. On no-till fields, where hoeing is not possible, applying the insecticide in the early evening may increase control, as the worms more toward the soil surface during the nighttime hours.

Black Cutworm Management Guidelines

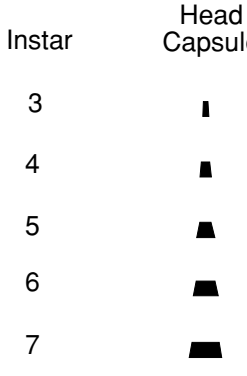
Average Instar of BCW	Number of Plant Leaves Fully Emerged 6 or more	5	4	3	2	1
4.0	1%+	2%+	2%+	2%+	3%+	4%+
5.0	2%+	3%+	4%+	4%+	6%+	25%+
6.0	4%+	7%+	9%+	17%+	Don't	Don't
7.0	6%+	15%+	50%+	Don't	Don't	Don't

1. Look down the column at the left labeled "Average Instar of BCW" until you find the average instar of BCW found in the field. This column is called the Instar Row.

2. Look across the top of the table and find the number that best represents the "Number of Plant Leaves Fully Emerged" for the plants inspected. A leaf is fully emerged if the leaf collar is visible. The column of figures below this is called the Leaf Column.

3. Follow the Instar Row and the Leaf Column to the place where they intersect. This figure is the control threshold. If the percentage of cut or damaged plants in the field equals or exceeds this number, treatment may be advisable.

Black Cutworm Instar Guide



How to use the instar guide: Immobilize the larva by holding it with a forceps, by placing it in alcohol, or by grasping it tightly behind the head. Hold the larva flat against the paper and move it down until the head just fits inside one of the "keystone" figures. That is the most probable instar for that larva.

Insecticides Suggested for Foliar Application to Control Cutworms in Corn

Material	Amount Per Acre and Formulation*
chlorpyrifos (Lorsban)[1]	1 – 2 pt. 4E
esfenvalerate (Asana XL)[1]	5.8 – 9.6 fl. oz. EC
lambda-cyhalothrin (Warrior T)[1]	1.92 – 3.20 fl. oz. CS
methyl parathion (Penncap–M)[1,2]	4 pt. FM
permethrin (Ambush)[1]	6.4 – 12.8 fl. oz. EC
(Pounce)[1]	4 – 8 fl. oz. 3.2EC

* Under dry conditions and where rotary hoeing may be needed to increase cutworm control, use the higher insecticide rate.
[1] Restricted Use Insecticide
[2] Bee Caution

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Armyworm Can March Through Corn - (*John Obermeyer Rich Edwards, and Larry Bledsoe*) -

- Significant moth flights have been noted
- Moths lay eggs on grassy crops and weeds
- Corn can be quickly consumed when grass cover crop is destroyed

For the last couple of weeks, several pest managers have noticed armyworm moths flying at night. Black light traps have confirmed these observations, identifying some heavy catches. Because spring flying armyworm moths prefer to lay their eggs on dense grassy vegetation, special attention should be given to corn no-tilled into "grassy" fields.

Corn that has been no-tilled into or is growing adjacent to a grass cover crop (especially rye) should be inspected immediately for armyworm feeding. Larvae will move from the dying grasses to emerging/emerged corn. Armyworm feeding gives corn a ragged appearance, feeding from the leaf margin toward the midrib. Damage may be so extensive that most of the plant, except the midrib and stalk, is consumed. A severely damaged plant may recover if the growing point has not been destroyed. As their name implies, the larvae can appear to march in unison like an army across a field while devouring plants.

If more than 50% of the plants show armyworm feeding and live larvae less than 1-1/4 inches long are numerous in the field, a control may be necessary. Larvae greater than 1-1/4 inches will soon be pupating and controls are futile since the damage has already been done. If armyworms are detected migrating from border areas or waterways within fields, spot treatments in these areas are possible if the problem is identified early enough.

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Severe Alfalfa Weevil Feeding Damage Continues in Northern Indiana – (*John Obermeyer Rich Edwards, and Larry Bledsoe*) –

Surveys of northern Indiana counties on May 2 show that alfalfa weevil feeding continues at high levels. Tip feeding percentages reached as high as 100% (range 40 to 100%). Refer to the "Alfalfa Weevil Larval Survey."

Pest managers in all areas of northern Indiana should be evaluating their alfalfa fields, if they have not already done so, as soon as possible. Accelerated heat unit accumulations over the last week have really boosted this pest's development and subsequent damage. At this time, alfalfa fields with an average of 60% or greater tip feeding should be treated with an insecticide. Refer to *Pest&Crop* #5, for insecticides to control alfalfa weevil. Careful consideration should be given to days of residual needed and/or harvest restrictions of products when choosing products and rates to apply.

Alfalfa Weevil Larval Survey
5/2/01
(Ron Blackwell)

County (Fields) Sampled	Stem Ht. (in.)	% Tip Feeding
LaPorte	19.2	44%
LaPorte	16.3	100%
LaPorte	16.6	64%
LaPorte	17.1	48%
Marshall	13.5	72%
Marshall	18.2	40%
Marshall	20.1	48%
Marshall	15.7	68%

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Bean Leaf Beetle – (*John Obermeyer*) – Although we haven't received any calls concerning this soybean pest, we know the beetles are now active. As soybean emerges, pest managers should be on the lookout for this insect. Please refer to *Pest&Crop* # 2 for the article, "Potential for Problems with Bean Leaf Beetle Highly Variable."

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Black Light Trap Catch Report
(Ron Blackwell)

County/Cooperator	4/17/01 - 4/23/01							4/24/01 - 4/30/01						
	VC	BCW	ECB	GC	CEW	FAW	AW	VC	BCW	ECB	GC	CEW	FAW	AW
Clinton/Blackwell	0	0	0	0	0	0	1	1	1	0	0	0	0	3
Dubois/SIPAC	0	0	0	0	0	0	10	1	1	1	0	0	0	6
Jennings/SEPAC	0	0	0	0	0	0	5	0	0	0	0	0	0	3
LaPorte/Pinney Ag Center	3	0	0	0	0	0	17	0	1	0	0	0	0	32
Lawrence/Feldun Ag Center	3	3	0	1	0	0	249	0	1	0	0	0	0	11
Randolph/Davis Ag Center	0	1	0	0	0	0	60	1	0	0	0	0	0	18
Tippecanoe/TPAC	3	0	0	0	0	0	14	1	1	0	0	0	0	10
Whitley/NEPAC	4	2	0	0	0	0	670	1	0	0	0	0	0	332

BCW = Black Cutworm ECB = European Corn Borer GC = Green Cloverworm CEW = Corn Earworm
AW = Armyworm FAW = Fall Armyworm VC = Variegated Cutworm

Black Cutworm Adult Pheromone Trap Report
Week 1 = 4/19/01 - 4/25/01 Week 2 = 4/26/01 - 5/2/01
(Ron Blackwell)

County	Cooperator	BCW Trapped		County	Cooperator	BCW Trapped	
		Wk 1	Wk 2			Wk 1	Wk 2
Adams	Roe/Price Ag Services	8	1	Lake	Lake/Kliene (2)	3	9
Bartholomew	Ludwig/Growers Service	0	0	Marshall	Barry/Marshall Co. Coop	2	9*
Benton	Schellenberger/Jasper Co. Co-op	6	9	Parke	Hutson/Parke Co. Extension	2	0
Clay	Kramer/PK Agronomics	11*	0	Parke	Hutson/Parke Co. Extension	8	0
Clay	Smith/Growers Coop (Bzl)	5	2	Porter	Mueller/Agriliance	0	1
Clay	Smith/Growers Coop (CC)	6	0	Putnam	Nicholson Consulting	16*	1
Clay	Smith/Growers Coop (BG)	2	0	Randolph	Jackson/Davis-Purdue Ag Center (S)	2	1
Clinton	Blackwell/Purdue	47*	48*	Randolph	Jackson/Davis-Purdue Ag Center (N)	5	1
Decatur	Miers Farm/Pioneer	0	6	Rush	Peggs/Pioneer	17*	4
Elkhart	Kauffman/Crop Tech (1)	2	6	Sullivan	Smith/Growers Coop (W)	8	2
Elkhart	Kauffman/Crop Tech (2)	4	1	Sullivan	Smith/Growers Coop (E)	13*	0
Fayette	Schelle/Falmouth Farm Supply	0	0	Sullivan	Smith/Growers Coop (NL)	3	0
Gibson	Hirsch Farms	1	0	Sullivan	Smith/Growers Coop (Crle)	0	0
Hamilton	Dobbins/FMC (1)	15	26*	Tippecanoe	Obermeyer/Purdue	25*	37*
Hamilton	Dobbins/FMC (2)	8	22*	Vermillion	Hutson/Vermillion Co. Extension	6	0
Hamilton	Mroczkiewicz/Novartis	1	0	Vermillion	Hutson/Vermillion Co. Extension	10*	0
Henry	Schelle/Falmouth Farm Supply	8	0	Vigo	Smith/Growers Coop	5	0
Jasper	Manning/Jasper Co. Extension (W)	7	1	Warren	Schellenberger/Jasper Co. Co-op	9	5
Jasper	Manning/Jasper Co. Extension (S)	6	4	Washington	Ballard/Floyd Co. Extension	3	0
Knox	Smith/Growers Coop (Edwdsprt)	7	0	White	Reynolds/Orville Redenbacher 1P	20*	0
Knox	Smith/Growers Coop (Vncnns)	4	0	White	Reynolds/Orville Redenbacher 2K	10*	0
Johnson	Truster/Ag Excel Inc.	2	13*	Whitley	Walker/NEPAC	0	12*
Lake	Lake/Kliene (1)	3	7				

* = Intensive Capture.... An intensive capture occurs when 9 or more moths are caught over a 2-night period.

Agronomy Tips

Wheat Condition Update – (*Charles W. Mansfield and Ellsworth P. Christmas*) -

- Freeze injury did occur!

Two weeks have now past since the cold temperatures of April 17 and 18 and it is evident that some damage did occur to wheat in southern Indiana. We do not think that the damage is widespread but is isolated to those varieties that broke dormancy first and/or to the low areas within a field. The symptoms present in the fields typical of the freeze injury described in the April 20 issue (No. 5) of the *Pest&Crop* newsletter.

Additionally, some wheat fields, on the sands in the Vincennes area, are showing symptoms of moisture stress as a result low rainfall in the past month. Other problems with wheat identified in the last two weeks include severe heaving in some fields, nitrogen deficiency, and one or more of the viral diseases

Is That a Cutworm? - (*John Obermeyer, Rich Edwards, and Larry Bledsoe*) -

- Several bug-like creatures may be found while digging in the soil, but most are non-economic
- Millipedes, ground beetle adults and larvae, crane fly larvae, and "baby" earthworms are addressed below
- Pest managers need to be able to recognize pests and their damage

Often when pest managers are in hot pursuit of black cutworm larvae they dig up a variety of critters, most being innocuous. There is no comprehensive picture journal to reference these "bugs," although the *Field Crops Pest Management Manual* (IPM-1)* covers many of them. The difficulty is that there are hundreds upon thousands of animal species that may utilize the soil of a cornfield for all or a short period of their life. Most have nothing to do with the growing of corn. Listed below are some possibilities as you dig this spring.

Millipedes: These multi-legged, two pair of legs per body segment, wireworm-like arthropods have become more prevalent with the adoption of no-till. When found, their numbers are often high. Millipedes typically feed as scavengers, feeding on dead or decaying matter. Occasionally they have been documented as pests of corn. If very dry conditions exist early in the season, millipedes will feed on corn seedlings, apparently seeking moisture.

Millipedes

Ground beetles: If it's fast moving and shiny, chances are that you've seen a ground beetle scurry by. These beetles range in size from about 1/4 to 1 inch long. Their color is typically light brown to black. The darker colored beetles will appear bright green to blue as sunshine reflects off their hardened outer wings. Fortunately, nearly all ground beetles are beneficial, feasting on many critters in the field. One exception, the seedcorn beetle, will feed on corn seed and seedlings. Usually this is only a problem when the seed sits for long periods of time in cold, wet soils before emerging.

Ground Beetle

Ground beetle larvae: Yes, these are the immatures of the ground beetle. They are often confused with wireworm. However, unlike the wireworm they move quickly on the ground and through the soil. Closer inspection, if you are fast enough to catch one, will reveal well developed and sharp mouth parts. Yes, you guessed it again, these larvae are beneficial, feeding most often on soft bodied insects. Even the immature of the seedcorn beetle is a beneficial.

Ground Beetle Larva

Crane fly larvae: Often referred to as "leatherjackets," these strange looking, overgrown maggots are often confused with the black cutworm. They are the immatures of the crane fly, the one often miss identified as "giant mosquitoes." Pest managers can easily distinguish them from cutworms by their legless bodies. These maggots are harmless to the corn. They feed on decaying plant matter in the soil.

Cranefly Larvae

Juvenile earthworms: Experienced and inexperienced field personnel alike are not surprised to find earthworms in the soil. However, when one sees "baby" earthworms for the first time it can be confusing. Small, skinny, and almost translucent, these juvenile earthworms are often referred to as "giant nematodes." Where there is one, there are often many. Obviously, their presence is a sign of good soil health.

Juvenile Earthworm

This list could go on. The important thing for pest managers is not so much that they can identify the obscure critters, but rather the actual pests and their damage. Happy Scouting!

*Order information for IPM-1: Agricultural Communication Service, Media Distribution Center, 301 S 2nd Street, Lafayette, IN 47901-1232, PH: 1-888-398-4636.

Bug Scout

Don't you think that's carrying the "Protect Your Wildlife" idea a bit too far?

Weather Update

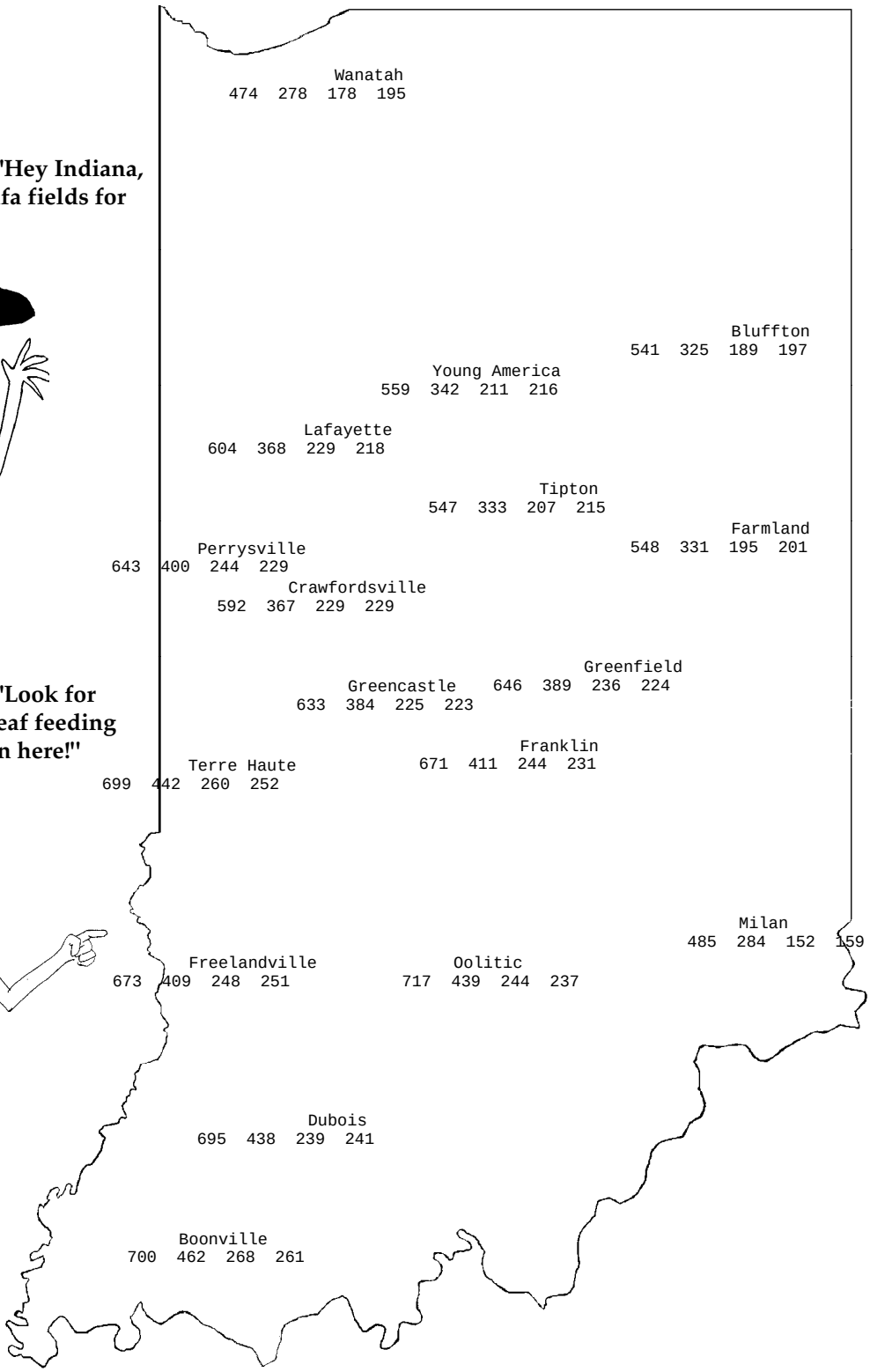
Temperature Accumulations from Jan. 1 to May 2, 2001

MAP KEY			
Location			
HU 41	HU48	HU50	GDD(3)

HU41 = heat units at a 41°F base from Jan. 1, egg hatch begins by 600
HU48 = heat units at a 48°F base from Jan. 1, for alfalfa weevil development (begin scouting at 200)
HU50 = heat units at a 50°F basefrom date of intensive moth capture, for black cutworm development (larval cutting begins about 300)
GDD(3) = Growing Degree Days from April 14 (3% of Indiana's corn planted), for corn growth and development

Bug Scout says, "Hey Indiana, check those alfalfa fields for weevil damage!"

Bug Scout says, "Look for black cutworm leaf feeding and cutting down here!"



4" Bare Soil Temperatures 5/2/01

Location	Max.	Min.
Whitford Mills	64	58
Wanatah	75	61
Columbia City	67	59
Bluffton	61	60
W Laf Agro	73	62
Tipton	62	56
Farmland	72	56
Crawfordsville	68	60
Trafalgar	72	60
Liberty	68	58
Terre Haute	68	62
Vincennes	72	57
Oolitic	65	60
Dubois	88	62

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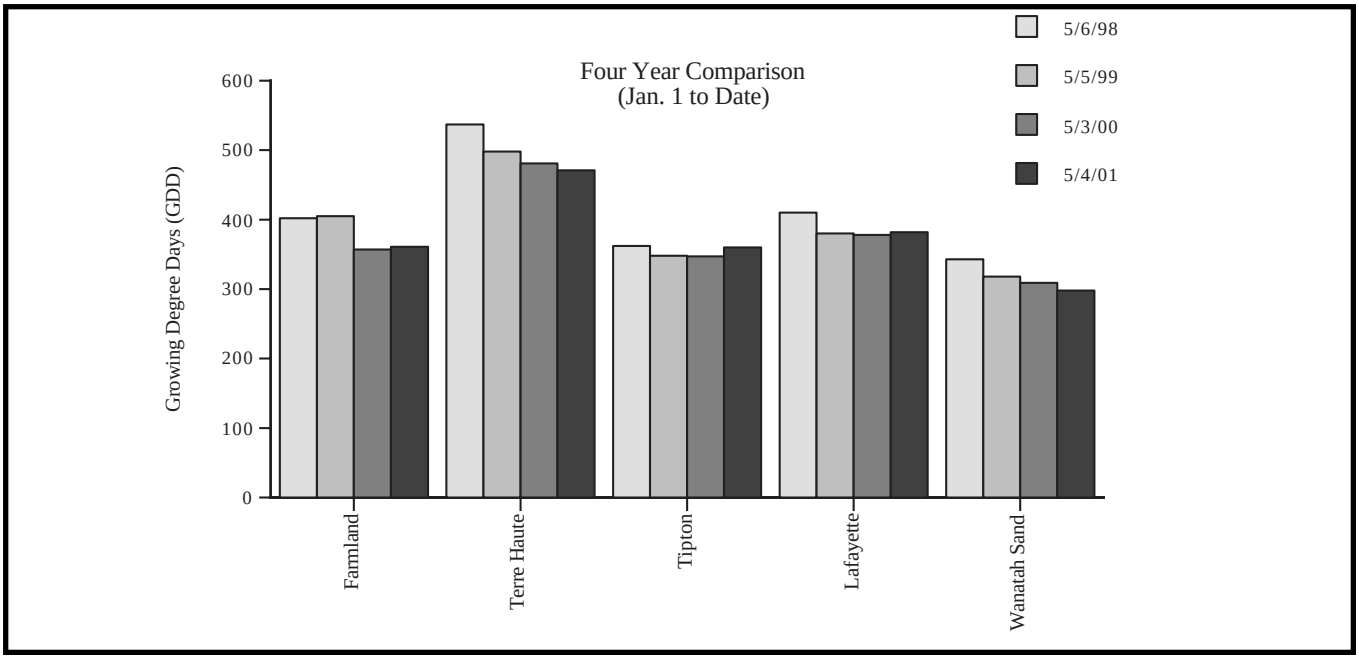

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