

# Pest & Crop

May 5, 2000 - No. 7

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## Insects, Mites, and Nematodes

**Is 2000 the Year of the Black Cutworm?** - (John Obermeyer, Rich Edwards, and Larry Bledsoe) -

- Many factors affect black cutworm
- There is more to a black cutworm outbreak than moth arrival and numbers
- Life cycle and development information of the black cutworm helps us to better time our scouting trips

Black cutworm wreaked havoc in many corn fields last spring, will 2000 be an outbreak year? Many factors determine whether or not black cutworm becomes a threat to Indiana's corn crop. Variables such as moth arrival, moth numbers, temperature, early weed growth, past cropping history, tillage or herbicide timing, planting date, corn emergence, natural moth and larval mortality, and impact of beneficial insects influence black cutworm populations. Is the stage set for a cutworm outbreak? Yes and No!

How does moth arrival this year compare to last? So far, by the efforts of pheromone trap cooperators that are scattered throughout the state, we know that the black

cutworm moths have arrived and are comparable to last year (see "Black Cutworm Trap Comparison 1997 - 2000"). History tells us that the late April moth arrival are the ones that account for most of the damage.

The moths have arrived and have presumably mated and laid eggs, did the females find attractive laying sites in your fields? The trend of using post-applied herbicides with little to no soil residual has provided ample winter annual growth, which the moths prefer for egg laying. Also, corn following soybean is more likely to have damage than continuous corn.

How soon before corn planting were fields tilled or burned down? Research has shown that black cutworms will starve when destruction of egg laying sites occurred 2-3 weeks before corn emergence. Planting directly into winter annuals with a burn-down herbicide may force the cutworms to feed on corn seedlings.

How well have the black cutworms survived this spring? A killing frost may kill moths and freshly laid eggs. Most freezing temperatures this spring have been



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scattered, mostly in low lying areas. Heavy, driving rains may drown young larvae, most areas of Indiana have not received enough moisture.

Is your corn emerging or in the seedling stage at approximately 300 heat units (base 50°F) from the time of intensive moth captures? Refer to this week's "Weather Update" for heat unit accumulations and article, "You Can Track Heat Units for Black Cutworm in Your Area." The corn that was planted early to mid April may be out of harm's way. Corn that is being planted the second week of May might be at the right stage of growth for damage. Typically, corn in the 4-leaf stage and beyond is not affected economically by the cutworm's third instar, when they begin to cut plants.

Our continual, unwavering, and steadfast recommendation is to not treat corn fields with an insecticide for black cutworm before or at planting. Rather, scout emerged fields at the time when damage should be present and determine if a foliar insecticide is needed. Watch for black cutworm management guidelines in an upcoming issue of *Pest&Crop*.

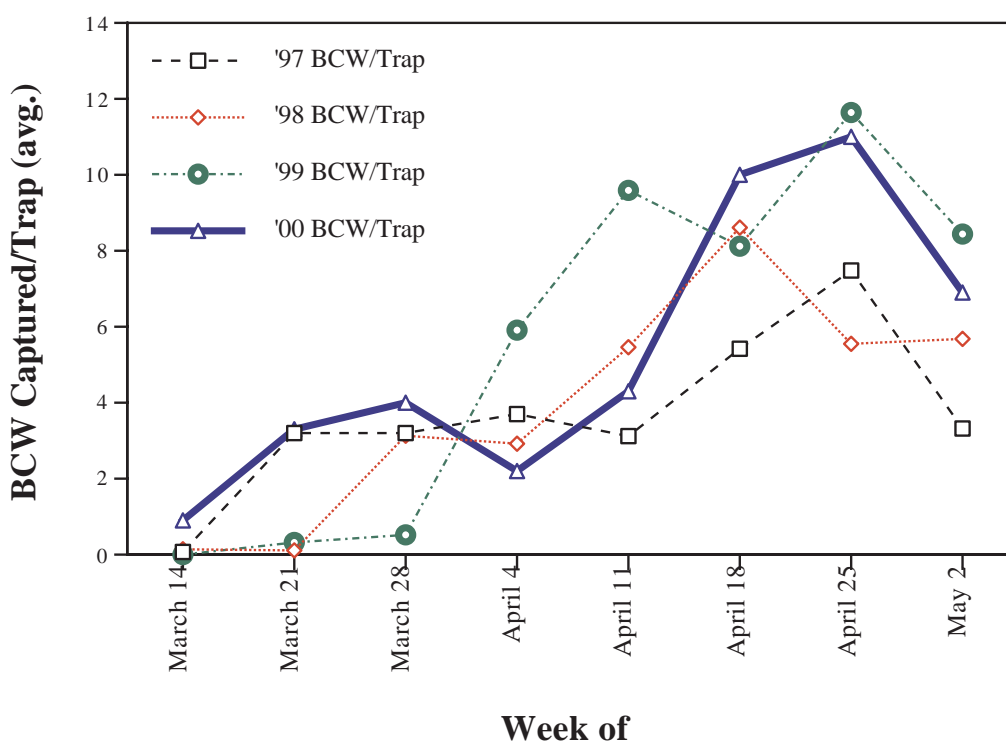
**Stalk Borer Hatch, Migration, and Damage** - (Rich Edwards, John Obermeyer and Larry Bledsoe) -

- This year's stalk borers come from eggs laid last fall
- Grassy-type plants and some broadleaf weeds can attract egg-laying moths
- Scouting and control measures, if needed, should be timed with degree-day accumulations
- Scouting and management guidelines are given

Stalk borer infestations may occur in fields where similar cropping or weed growth patterns occur. There is often a history of stalk borer damage in these fields. This happens due to the attractiveness of stalk borer moths in the fall to certain plants for egg deposition. Plants favored for egg laying include grassy-type cover crop species (rye, wheat, etc.) and weeds (foxtails, giant ragweed, etc.) within fields, and grassy-type plants in waterways, ditches, fence rows, etc. The fall-laid eggs remain in the egg stage throughout the winter. In the spring, the larvae hatch and begin their search for suitable plants to feed on. Stalk borer larvae are easily identified by the purple band or "saddle" around the middle of their bodies and the white longitudinal stripes at their anterior (front) and posterior (rear) ends.

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## Black Cutworm Trap Comparison 1997 - 2000



As the name implies, these larvae bore into the stem of their host plants and feed within, although small larvae may feed on the leaves or in the whorl of corn plants before tunneling into the plant. In corn, infestations are usually not noted until the borers are already in the stalks. The first sign of damage is often "dead hearted" plants, with the center leaves wilting. Unfortunately, once inside the plant, stalk borers are well protected from insecticides. Thus, managing stalk borers can be difficult. A method that could assist one in determining if the application of a control is needed is to follow degree-day accumulations to determine when scouting for larvae should occur. According to the Iowa State University stalk borer developmental model, approximately 10 to 50% of the larvae will move out of the plants they initially infest after hatch once 1,400 to 1,700 degree days (base 41°F) have accumulated. Therefore, it is recommended that fields be scouted at 1,300 to 1,400 degree-days. For information on when this will occur in your region of Indiana, refer to the "Weather Update."

The initial hatch of the larvae occurs at about 600 degree days (base 41°F), which should now be occurring in all areas of Indiana except the northern most counties. Normally, the first host is the cover crop or grassy-type weeds located near the egg-laying site. However, they may also attack corn, if present. This is referred to as the initial infestation, and if on small corn, the corn is normally able to out grow the damage. As noted above, the later larval infestation, which occurs during the period from 1,400 to 1,700 degree-days, is when corn can be severely damaged by the larger larvae.

If stalk borers or their damage are observed in a cover crop or on grassy-type weeds in the field prior to cover crop or weed destruction, or during early post

weed control, an insecticide for the borers can be applied as part of a herbicide application (check labels for use and compatibility information). Additionally, if stalk borers are noted in the whorls or on the leaves of corn, a spot treatment with an insecticide in the infested area and adjacent areas should prevent the infestation from spreading. Remember that stalk borer will move from one plant to another, if their host is killed or if they kill and/or outgrow their present host plant. The borers are susceptible to insecticides when they are moving from plant to plant or are in the corn whorl.

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| Alfalfa Weevil Larval Survey - 5/1/00<br>(Ron Blackwell) |                   |                                 |                    |                     |
|----------------------------------------------------------|-------------------|---------------------------------|--------------------|---------------------|
| County<br>(Fields)<br>Sampled                            | Stem Ht.<br>(in.) | Predominant<br>Larval<br>Instar | Total #<br>Larvae* | %<br>Tip<br>Feeding |
| Elkhart                                                  | 15.4              | 3rd                             | 3                  | 12%                 |
| Elkhart                                                  | 15.2              | 3rd                             | 6                  | 24%                 |
| Marshall                                                 | 14.6              | 2nd                             | 40                 | 44%                 |
| Marshall                                                 | 13.9              | 2nd                             | 21                 | 36%                 |
| Marshall                                                 | 15.0              | 3rd                             | 14                 | 32%                 |
| St. Joseph                                               | 11.6              | 4th                             | 50                 | 52%                 |
| St. Joseph                                               | 13.8              | 3rd                             | 13                 | 28%                 |
| St. Joseph                                               | 13.2              | 2nd                             | 13                 | 40%                 |
| *Number per 25 stems, extracted by Berlese funnel.       |                   |                                 |                    |                     |

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| Black Light Trap Catch Report<br>(Ron Blackwell)                                                                                                                                                                                                                             |                   |     |     |    |     |     |    |                  |     |     |    |     |     |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----|-----|----|-----|-----|----|------------------|-----|-----|----|-----|-----|----|
| County/Cooperator                                                                                                                                                                                                                                                            | 4/18/00 - 4/24/00 |     |     |    |     |     |    | 4/25/00 - 5/1/00 |     |     |    |     |     |    |
|                                                                                                                                                                                                                                                                              | VC                | BCW | ECB | GC | CEW | FAW | AW | VC               | BCW | ECB | GC | CEW | FAW | AW |
| Clinton/Blackwell                                                                                                                                                                                                                                                            | 0                 | 1   | 0   | 0  | 0   | 0   | 2  | 2                | 6   | 0   | 0  | 0   | 0   | 3  |
| Dubois/SIPAC                                                                                                                                                                                                                                                                 | 1                 | 2   | 0   | 0  | 0   | 0   | 9  | 0                | 0   | 0   | 0  | 0   | 0   | 7  |
| Jennings/SEPAC                                                                                                                                                                                                                                                               | 0                 | 0   | 0   | 1  | 0   | 0   | 1  | 0                | 0   | 0   | 0  | 0   | 0   | 0  |
| Lawrence/Feldun Ag Center                                                                                                                                                                                                                                                    | 0                 | 5   | 0   | 0  | 0   | 0   | 17 | 0                | 0   | 0   | 0  | 0   | 0   | 5  |
| Randolph/Davis Ag Center                                                                                                                                                                                                                                                     | 0                 | 0   | 0   | 0  | 0   | 0   | 2  | 1                | 0   | 0   | 0  | 0   | 0   | 2  |
| Whitley/NEPAC                                                                                                                                                                                                                                                                | 1                 | 2   | 0   | 0  | 0   | 0   | 37 | 0                | 2   | 0   | 0  | 0   | 0   | 4  |
| BCW = Black Cutworm                      ECB = European Corn Borer                      GC = Green Cloverworm                      CEW = Corn Earworm<br>AW = Armyworm                              FAW = Fall Armyworm                              VC = Variegated Cutworm |                   |     |     |    |     |     |    |                  |     |     |    |     |     |    |

**Black Cutworm Adult Pheromone Trap Report**  
 Week 1 = 4/20/00 - 4/26/00 Week 2 = 4/27/00 - 5/3/00  
 (Ron Blackwell)

| County      | Cooperator                   | BCW Trapped |      | County     | Cooperator                         | BCW Trapped |      |
|-------------|------------------------------|-------------|------|------------|------------------------------------|-------------|------|
|             |                              | Wk 1        | Wk 2 |            |                                    | Wk 1        | Wk 2 |
| Adams       | Roe/Price Ag Services        | 1           | 12   | Lake       | Lake/Kliene (2)                    | 4           | 5    |
| Benton      | Manning/Jasper Co. Extension | 8           | 0    | LaPorte    | Garrison/Pioneer                   | 11          | 14   |
| Bartholomew | Ludwig/Growers Service       | 21*         | 0    | Marshall   | Garrison/Pioneer (1)               | 26*         | 18*  |
| Clay        | Kramer/PK Agronomics (1)     | 6           | 0    | Marshall   | Barry/Marshall Co. Coop            | 7           | 0    |
| Clay        | Kramer/PK Agronomics (2)     | 0           | 7    | Porter     | Mueller/Land O' Lakes              | 10          | 2    |
| Clay        | Smith/Growers Coop (Bzl)     | 9*          | 0    | Putnam     | Nicholson Consulting               | 6           | 0    |
| Clay        | Smith/Growers Coop (CC)      | 0           | 0    | Randolph   | Jackson/Davis-Purdue Ag Center (N) | 9           | 5    |
| Clay        | Smith/Growers Coop (BG)      | 1           | 0    | Randolph   | Jackson/Davis-Purdue Ag Center (S) | 9           | 5    |
| Clinton     | Blackwell/Purdue             | 33*         | 33*  | Rush       | Peggs/Pioneer                      | 17          | 2    |
| Decatur     | Miers/Pioneer                | 8           | 0    | Sullivan   | Smith/Growers Coop (W)             | 0           | 0    |
| Elkhart     | Kauffman/Crop Tech (1)       | 11          | 0    | Sullivan   | Smith/Growers Coop (E)             | 0           | 0    |
| Elkhart     | Kauffman/Crop Tech (2)       | 6           | 0    | Sullivan   | Smith/Growers Coop (NL)            | 0           | 0    |
| Fayette     | Schelle                      | 19*         | 1    | Tippecanoe | Obermeyer/Purdue                   | 123*        | 57*  |
| Gibson      | Hirsch Farms                 | 5           | 0    | Tipton     | Johnson/Pioneer                    | 2           | 0    |
| Gibson      | Shupe/Gibson Co. Coop (1B)   | 1           | 0    | Tipton     | Sybouts/Top Ag (DP)                | 5           | 16*  |
| Gibson      | Shupe/Gibson Co. Coop (2H)   | 0           | 0    | Tipton     | Sybouts/Top Ag (E)                 | 15          | 5    |
| Hamilton    | Mroczkiewicz/Novartis        | 8           | 13   | Vigo       | Smith/Growers Coop                 | 2           | 3    |
| Henry       | Henry/Schelle                | 11          | 2    | Washington | Ballard/Floyd Co. Extension        | 0           | 0    |
| Jasper      | Manning/Jasper Co. Extension | 8           | 0    | White      | Reynolds/Orville Redenbacher 1K    | 0           | 0    |
| Johnson     | Truster/Ag Excel Inc.        | 11*         | 2    | White      | Reynolds/Orville Redenbacher 2P    | 12*         | 0    |
| Lake        | Lake/Kliene (1)              | 16*         | 4    | Whitley    | Walker/NEPAC                       | 18*         | 0    |

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

## Pest Management Tips



**Integrated Pest Management**  
 Purdue University

### You Can Track Heat Units for Black Cutworm in Your Area – (John Obermeyer and Rich Edwards) –

- Heat unit information, by Indiana station, is available on the Web
- Follow the steps below to accumulate heat units (base 50°F) for black cutworm development

We are often asked how to track heat units for black cutworm development from the time of an intensive moth flight (9 or more moths are caught over a 2-night period). This helps one to better time scouting visits to corn fields during this busy time. Of course, we already do this for seventeen weather stations in every issue of the *Pest&Crop* (see "Weather Update"). There are limitations, one being the time from when the heat unit accumulations are computed (Wednesday) from the time you are able to view this newsletter (Thursday on the Web or a mailed copy on Saturday or Monday). The other, those monitoring their own pheromone traps may have received an intensive capture differently from our cooperators.

Follow these steps for current heat unit accumulations (base 50°F) in your area:

- 1) Open the *Indiana Climate Page*, Web address: <http://shadow.agry.purdue.edu/sc.index.html>
- 2) Once there, click on the "DAILY Search" button.
- 3) Now you can select any Indiana county by clicking on it.
- 4) The next screen will ask for a "Start Date" (for black cutworm, it would be at the time when a local pheromone trap caught 9 or more moths in two nights). You might find it useful to refer to the "Black Cutworm Adult Pheromone Trap Report" in previous issues of the *Pest&Crop*. The "End Date" should be the current date. The "Daily station elements" must be chosen, click the box for "base 50" under "Heat Units (insects/fruit)" and then request a "Search."
- 5) One or more weather stations with data may appear next. Choose the station closest to your location and sum the daily heat units to obtain a total.
- 6) When accumulated heat units (base 50°F) are approaching 300, scout fields immediately! At this point, developing larvae are large enough to begin cutting corn seedlings.

# Weather Update

Temperature Accumulations from Jan. 1 to May 3, 2000

## MAP KEY

Location  
HU41 HU48 HU50 GDD(5) GDD(35)

HU41 = heat units at a 41°F base from Jan. 1, egg hatch at approx. 600, larval movement from grasses to corn at approx. 1,400

HU48 = heat units at a 48°F base from Jan. 1, for alfalfa weevil development (begin scouting at 250)

HU50 = heat units at a 50°F base from date of intensive moth capture, for black cutworm development (larval cutting begins about 300)

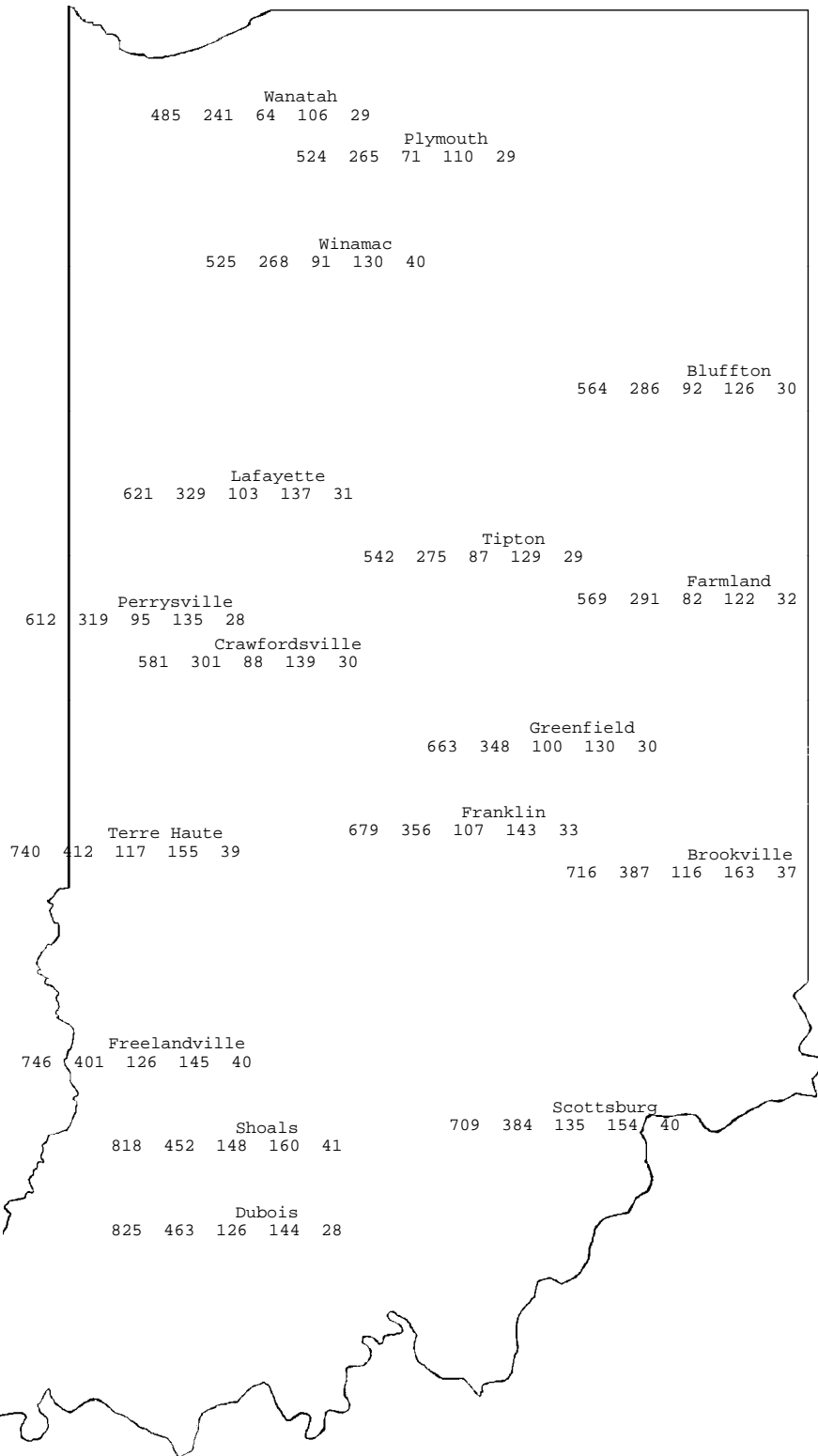
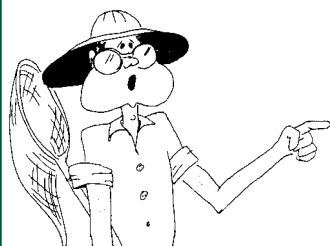
GDD(5) = Growing Degree Days from April 15 (5% of Indiana's corn planted), for corn growth and development

GDD(35) = Growing Degree Days from April 30 (35% of Indiana's corn planted), for corn growth and development

**Bug Scout says, "Hey northern Indiana, check that alfalfa for weevil feeding!"**



**Bug Scout says, "Black cutworm leaf feeding may be seen down here!"**



## 4" Bare Soil Temperatures 5/3/00

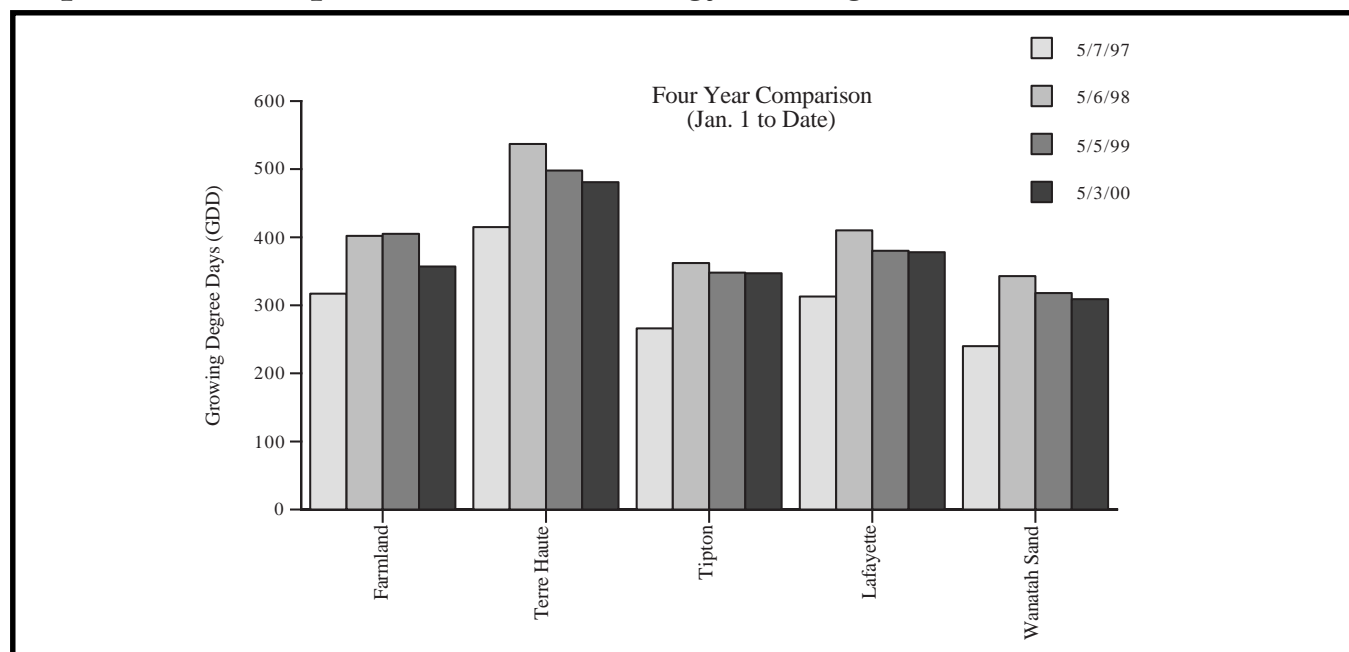
| Location       | Max. | Min. |
|----------------|------|------|
| Wtfd Mills     | 63   | 54   |
| Wanatah        | 71   | 52   |
| Columbia City  | 65   | 50   |
| Winamac        | 72   | 49   |
| Bluffton       | 56   | 55   |
| Tipton         | 68   | 55   |
| Farmland       | 54   | 50   |
| Perrysville    | 68   | 59   |
| Crawfordsville | 62   | 54   |
| Liberty        | 71   | 50   |
| Trafalgar      | 72   | 56   |
| Terre Haute    | 68   | 56   |
| Oolitic        | 65   | 58   |
| Vincennes      | 71   | 54   |
| Dubois         | 82   | 57   |

## Pest Management and Crop Production Newsletter

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