

Pest & Crop

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In This Issue

Insects, Mites, and Nematodes

- New Wheat Variety Improves Management of Hessian Fly
- Black Light Trap Catch Report

Editorial

- Do GMO's Cause Global Warming??

Agronomy Tips

- Watch for Poor Kernel Set in Corn
- Yield Monitor Calibration Tips

Bits & Pieces

- Purdue University Hands-on Post Harvest Training and Recertification Workshop

Weather Update

- Temperature Accumulations

Insects, Mites, and Nematodes

New Wheat Variety Improves Management of Hessian Fly - (Roger Ratcliffe and Rich Edwards) -

- Seed of new variety will be available for planting in fall 2000
- Planting after the fly-free date is a key management strategy for reducing Hessian fly problems
- Highest levels of infestation occur in Southwest Indiana

As reported in 1999, a new soft red winter wheat variety resistant to Hessian fly biotype L (designated as INW9811 by Purdue University) is available to Indiana wheat growers. Although many wheat varieties grown in Indiana have the H5 or H6 genes for Hessian fly resistance, INW9811 is the only variety resistant to biotype L, which is predominant in fly populations throughout the state. INW9811 was developed in cooperation with the USDA and released by Purdue in 1998 through the licensing program.

INW9811 has performed well in field trials conducted by Ag. Alumni Seeds across the southern cornbelt and in Indiana. A comparison of yield of INW9811 with Madison, AP Foster, Pioneer 2540, Patterson and Clark at four locations are shown on the next page.

INW9811 is early, heads 1 day later than Clark, and has resistance to glume blotch, leaf blotch, soilborne mosaic and wheat yellow mosaic viruses. It has excellent soft wheat milling and baking qualities.

INW9811 has demonstrated excellent resistance to field populations of the Hessian fly from Illinois, Indiana, northern Alabama and Arkansas, southern Delaware and Maryland, and eastern North Carolina that have a high frequency of biotype L.

Commercial seed of INW9811 will be available for planting the fall of 2000. Parties interested in further information can contact Jon Stafford, Purdue Ag. Alumni Seeds, West Lafayette, IN. The toll-free number is 800-822-7134.



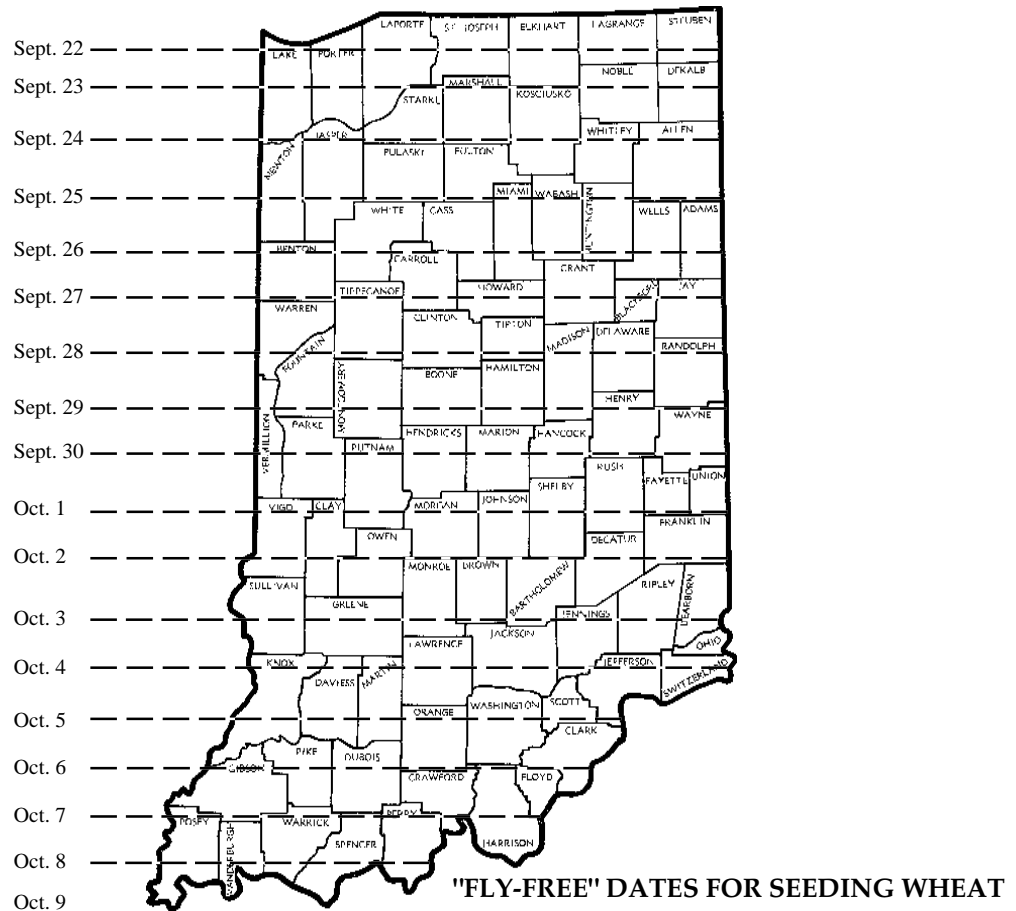
Comparison of Yield of INW9811.

Variety	Sullivan IN	Ursa IL	Centralia IL	Columbia MO	Yield Ave.
Madison	74.6	60.6	82.0	62.8	70.0
AP Foster	76.5	65.8	75.7	55.1	68.3
Pio. 2540	59.5	64.0	80.4	67.2	67.8
INW9811	73.8	61.8	69.4	62.5	66.9
Patterson	76.9	52.6	74.7	57.8	65.6
Clark	66.0	47.2	78.2	58.6	62.5
	71.0	56.6	74.9	59.9	65.6

Although Hessian fly populations remain low throughout Indiana, the potential for flies to infest fall-planted winter wheat still exists, especially in the southwestern counties. Much of the fall fly population can be avoided by planting after the fly-free date. This is key to avoiding subsequent infestation by the spring brood. Additionally, it has been shown that following the fly-free date will help reduce wheat disease problems and reduce winter kill from excessive growth. To determine the fly-free date for your area of the state, refer to the enclosed map. Crop rotation, where wheat following wheat is avoided, also is one of the key management strategies for reducing Hessian fly problems. The Hessian fly passes the summer in the stubble of the current wheat crop. Plowing the stubble results in the destruction of the pest. Volunteer wheat, the wheat seedlings

sprouting in the fall from grain left in the field during threshing, germinates and begins growing just in time for the fall emergence of the Hessian fly. These plants are readily infested resulting in a rapid build-up of the population. The use of resistant varieties, in combination with the above pest management strategies, increases the chance for a fly-free crop.

Specific characteristics and yield potential of varieties presently grown in Indiana can be determined by consulting Purdue Station Bulletin "Performance of Public and Private Small Grains in Indiana - 1998", web access: <http://shawdow.agry.purdue.edu/agronomy/ext/smgrain/variety/sm~var.htm> or talk to your seed dealer.



**Black Light Trap Catch Report
(Ron Blackwell)**

County/Cooperator	8/22/00 - 8/28/00							8/29/00 - 9/5/00						
	VC	BCW	ECB	GC	CEW	FAW	AW	VC	BCW	ECB	GC	CEW	FAW	AW
Clinton/Blackwell	0	0	78	0	48	0	0	2	1	13	1	98	1	6
Dubois/SIPAC	0	15	29	21	82	4	48	0	24	70	3	121	1	42
Jennings/SEPAC	0	0	17	20	10	2	6	0	0	52	3	7	3	2
LaPorte/Pinney Ag Center	1	1	152	3	28	4	4	0	0	67	0	40	2	4
Lawrence/Feldun Ag Center	1	9	21	4	76	4	66	0	2	59	3	85	8	12
Randolph/Davis Ag Center	0	1	29	4	13	3	11	3	7	18	2	8	4	16
Tippecanoe/P.J. Boeve			330							112				
Whitley/NEPAC	3	1	201	7	12	8	11	0	0	37	2	13	4	5

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

Editorial

Do GMO's Cause Global Warming??

After reading recent articles indicating that Bt corn kills monarch butterfly larvae and genetically modified herbicide-tolerant crops may severely reduce certain bird populations by destroying their sources of food, I got to thinking about all the World's ills and have come to the conclusion that most of what is wrong with our planet is the direct result of people fooling around with "genes." Yes, messing around in places they shouldn't! Until we started fooling around with gene transfer and such we didn't have the type of hurricanes that we've experienced over the past several years. Whoever heard of rampant forest fires in the West until we started moving genes from one place to another. And what about that drought in the South? Could it be linked to genetically modified organisms (GMO's)? El Niño, well it could be the big kahuna of this gene transfer stuff! Yes, all this sounds pretty ridiculous doesn't it, yet some of what I've seen published fits right in with the statements I've made.

You may recall that the problem with the President and his Whitehouse aid started about the time that GMO's became available. Could they be linked? Or could he be the missing link? I'm sure someone must be conducting some kind of thorough research study on this Presidential-phenomenon. From the newspaper stories I've read, it sure seems possible that the President was fooling around with some of those genes. Of course, my conclusions aren't based on much research and real thought. At least I'm willing to admit that this is the case. Did you know that I could get hit by a car and die? Yes it does happen to people. About 1 in 50,000. Am I going to stop walking? Don't think so! In fact, walking is good

for me. You say good for me, but I could get hit by a car. Hmm! 1 in 50,000! Hmm! Am I willing to take the risk or shall I just stay at home? Home's nice you know, but I'll take my chances!

Folks, as much as anyone else, I want to get as much information as I can about the things in life that may impact me. However, I want it to be based on good science that is real world science, and that which is factually reported and carries some common sense conclusions and recommendations along with it. And not just based on sensationalism! I guess part of what I'm saying is that I don't think killing monarch butterfly larvae in the lab or producing a computer model that predicts the demise of certain birds where genetically modified herbicide-tolerant crops are grown necessarily relates to what happens in the "real world." It tells us something and that's what we as scientists work hard to do. It is a piece of the puzzle, but until that last piece is in place one cannot conclude that killing monarch butterfly larvae in the lab or predicting that certain birds will disappear due to the genetically modified herbicide-tolerant crops is what happens in the real world. Who knows, maybe the impact in the field is even greater than in the lab. However, only well designed and carried out field research will provide the answers. Based on my many years of working with insects and being around herbicides and weeds, I don't think things will be worse or even match what lab studies may show and computer models may predict. But if they do, then let's see the data and we'll move on from there. Give me something I can hang my hat on! That'll really get my attention and the attention of a lot of rational people. Enough said! C. Richard Edwards, Professor of Entomology, Purdue University

Agronomy Tips

Watch for Poor Kernel Set in Corn—(Peter Thomison, C.O.R.N., Sept. 11-17, 2000)

I've received several reports recently related to poor kernel set, along with some ear samples documenting the severity of the problem. In the worse cases, the ears contained just a few scattered kernels or were totally barren of kernels. The ears were also characterized by tight husks, with silks bunched up inside the husks at the tip of the ear. In sampled problem fields, over 10% of the plants were affected. Although a number of factors can cause incomplete kernel set, including drought conditions during pollination, pollen feeding and silk clipping insects, nutrient deficiencies, leaf blights, etc., the kernel set problem described above, is most likely due to a phenomenon commonly referred to as "silk balling." Silk balling describes a type of silk elongation and emergence failure caused by the silks simply "balling up" or "knotting up" inside the husk leaves. For more information on silk balling, consult the July 24, 2000 issue: <<http://www.ag.ohio-state.edu/~corn/archive/2000/jul00/0024.html>> for an article that contained a good overview of silk balling written by Dr. Bob Nielsen at Purdue.

The cause of this problem is not clear, but seems related to cold nights during silk emergence/pollen shed. Early silk growth may have been slowed during cold periods followed by rapid elongation as conditions warmed that could have resulted in the silk balling problem. Hybrids usually vary in the severity of this problem, as those with relatively tight husks seem to display the most silk balling. I have observed silk balling in Ohio during previous cool summers, 1992 and 1994, and the 2000 growing season has also been unusually cool. In Ohio, temperatures in July ranged from 2.5 degrees below average for the week ending July 2, to nearly 7 degrees below average for the week ending July 23. As for differences among hybrids this year, in the cases I've heard about the problem has been limited to specific hybrids with other hybrids growing in near proximity not showing silk balling or abnormal kernel set.

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Yield Monitor Calibration Tips—(Nathan Watermeier, C.O.R.N., Sept. 11-17, 2000)

When harvest time approaches it can become time consuming and discouraging to calibrate yield monitors on combines. Improperly calibrated yield monitors can essentially generate useless or difficult to interpret data. However, taking the time and patience to calibrate a yield monitor properly can go a long ways when it comes time to make important decisions from your yield data.

In order to maximize the benefits of your yield monitoring equipment here are a few tips you should know about before you head to the field. For more information see: Yield Monitor Calibration Tips, Making the Most From your Data: <<http://precision.ag.ohiostate.edu/library/ymonitor.html>>.

Before Operation

1. Become familiar with your yield monitoring equipment. Information provided by your dealer or manufacturer through onsite support, training sessions, users manuals and videos are all ways to learn about your equipment. Each yield monitor has a specific way to be calibrated which is outlined in the manufacturers calibration procedures manual.
2. Back up any data from the PCMCIA memory cards if you have not done so already from the previous season. After the previous harvest data is backed up delete the files from the memory card.
3. Check all cables, connections, and sensors for wear or damage from mice.
4. Inspect the flow sensor. Look for wear on the grain elevator and missing or worn paddles. Check to make sure that the spacing between the paddles and the top of the elevator meets the manufacturers requirements.

During Operation, Prior To Calibration

1. Check to see if you are receiving good differential correction from either Coast Guard, WAAS, or your satellite subscription provider. If you have a satellite subscription make sure it is renewed so you will not be caught in the middle of the field during harvest with out service.
2. Make sure to set row width according to number of rows for a row crop header and about a foot less than the width of a cutting platform header.
3. Make sure the combine sensors are working properly. Engage the separator and observe the elevator speed on the monitor. Put the combine in drive and make sure the ground speed indicator is working. Check the header stop height.
4. Before calibrating loads make sure you will be using accurate scales to weigh the grain. Certified scales or calibrated weigh wagons are recommended. If you are using weigh wagons it is recommended to leave the wagon in one location in the field. Moving the weigh wagon through a field causing it to shake and

bounce can throw off the calibration of the weigh wagon. Make sure you are also using the same scales throughout calibration.

During Calibration

1. Harvest calibration loads at different flow rates. Yield will vary throughout the field. Adjusting flow rates will improve accuracy. When calibrating loads it is recommended to use loads between 5,000 to 8,000 pounds. This helps reduce variability with excess grain that may be in the combine.
2. Gather loads in well represented areas of the field. Avoid starting calibration loads on turn rows, weed patches, or areas of major topography changes in the field. Hill sides and rolling ground can impact calibration load data because of how the grain impacts the flow sensor. If you are unable to avoid topographical changes make sure you get a good representation of loads going up and down hill and side to side of a hill.
3. It is recommended to calibrate for each type of grain for each year. The dynamics of the combine changes from wear and tear and can influence the outcome of your yield data. On occasion you should also calibrate for different varieties of grains. For example, calibrate for regular corn and high oil corn separately due to the differences in test weight and moisture characteristics of the grain.
4. Calibrate for different moisture levels per type of grain. For example, calibrate differently for corn below 22% moisture versus corn above 22% moisture.

During Harvest

1. Correct any malfunctions or errors indicated by the yield monitor. This can include moisture and flow sensors not working properly and loss of DGPS signal. Make sure the monitor is actually collecting data. Sometimes one can manually switch off data collection on the monitor and forget to turn it back on.
2. If you have a long harvest season it would be wise to do periodic calibration loads through the season to check or improve accuracy. It is suggested to recalibrate if you see more than 5 percent differences in error, 5 lb/bu differences in test weight, or temperature changes greater than 10 degrees.
3. If significant changes are made to the elevator chain, paddles, or flow sensor during harvest you will need to recalibrate. Tightening the elevator chain, replacing old paddles or changing the gap of the flow sensor to the paddles changes the outcome of the previous calibration.
4. If you run into problems with the monitoring equipment during harvest check through the trouble shooting information in the operators manual. Contact technical support if you are unable to solve the problem.

For more tips about yield monitor calibration contact your yield monitor manufacturer or local dealer. Additional resources, information and news about precision agriculture can be found at The Ohio State University's Precision Ag Web Site <<http://precision.ag.ohiostate.edu>>.



Purdue University Hands-on Post Harvest Training and Recertification Workshop – (Linda Mason) –

The Purdue University Hands-on Post Harvest Training and Recertification Workshop will be held in November on three different dates and locations. Please choose the location and date that is best for you from the following:

November 13, 2000, Post Harvest Education & Research Center, Agronomy Research Center, Hwy. 52 North, West Lafayette, IN

November 14, 2000, Southwest Purdue Ag Center, 4369 N. Purdue Rd., Vincennes, IN

November 16, 2000, Northeast Purdue Ag Center, 4821 E 400 S, Columbia City, IN

Session Content:

- Session 1: Mycotoxin Analysis
- Session 2: Aeration and Grain Temperature Management
- Session 3: Pests ID – Who & Why Do You Fumigate?
- Session 4: Grain Fumigation & Safety
- Session 5: Fumigant Reregistration Updates

Schedule of the Day:

- | | |
|--------------|-------------------------------|
| 7:30 am | Registration, Coffee & Donuts |
| 1 am – 12 pm | Sessions Begin |
| 12 pm – 1 pm | Lunch (on your own) |
| 1 pm – 3 pm | Sessions Continue |
| 3 pm | Complete Certification Forms |

Instructors:

- Dr. Charles Woloshuk, Dept. of Botany and Plant Pathology
- Dr. Dirk Maier, Dept. of Agricultural and Biological Engineering
- Dr. Linda Mason, Dept. of Entomology

Co-Organizers

- Indiana Grain and Feed Association
- Purdue Cooperative Extension Service

A pre-registration fee of \$70.00 is due by November 5, 2000. On-site registration is \$80.00. Registration is limited and pre-registration is recommended.

The Pre-Registration form is available on the web: <<http://www.entm.purdue.edu/entomology/ext/index.htm>>.

Hope you see you there!!!



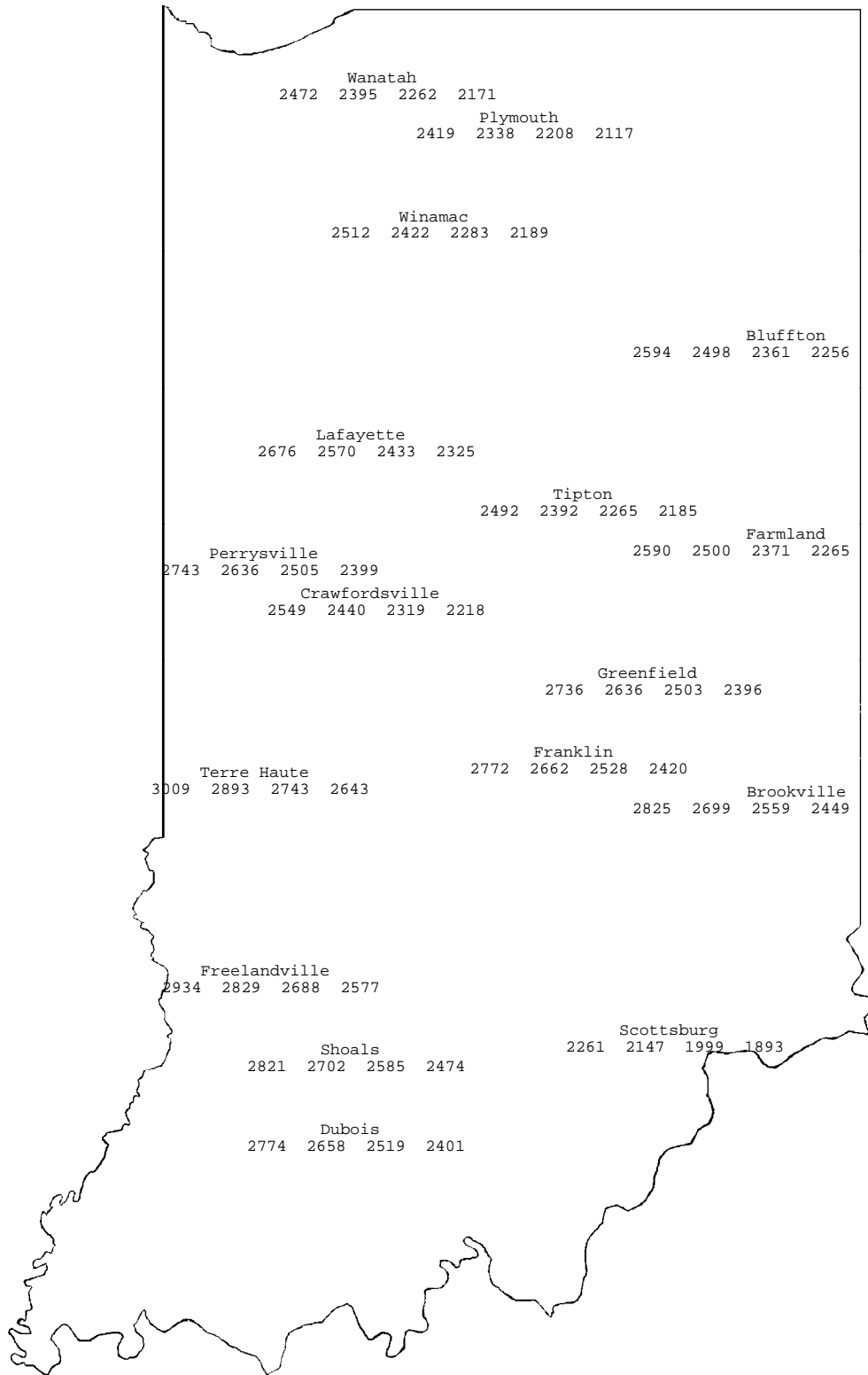
Weather Update

Temperature Accumulations from Jan. 1 to September 13, 2000

MAP KEY			
Location			
GDD(4)	GDD(10)	GDD(60)	GDD(90)

GDD(4) = Growing Degree Days from April 14 (4% of Indiana's corn planted), for corn growth and development
 GDD(10) = Growing Degree Days from May 1 (10% of Indiana's corn planted), for corn growth and development
 GDD(60) = Growing Degree Days from May 5 (60% of Indiana's corn planted), for corn growth and development
 GDD(90) = Growing Degree Days from May 12 (90% of Indiana's corn planted), for corn growth and development

4" Bare Soil Temperatures 9/13/00

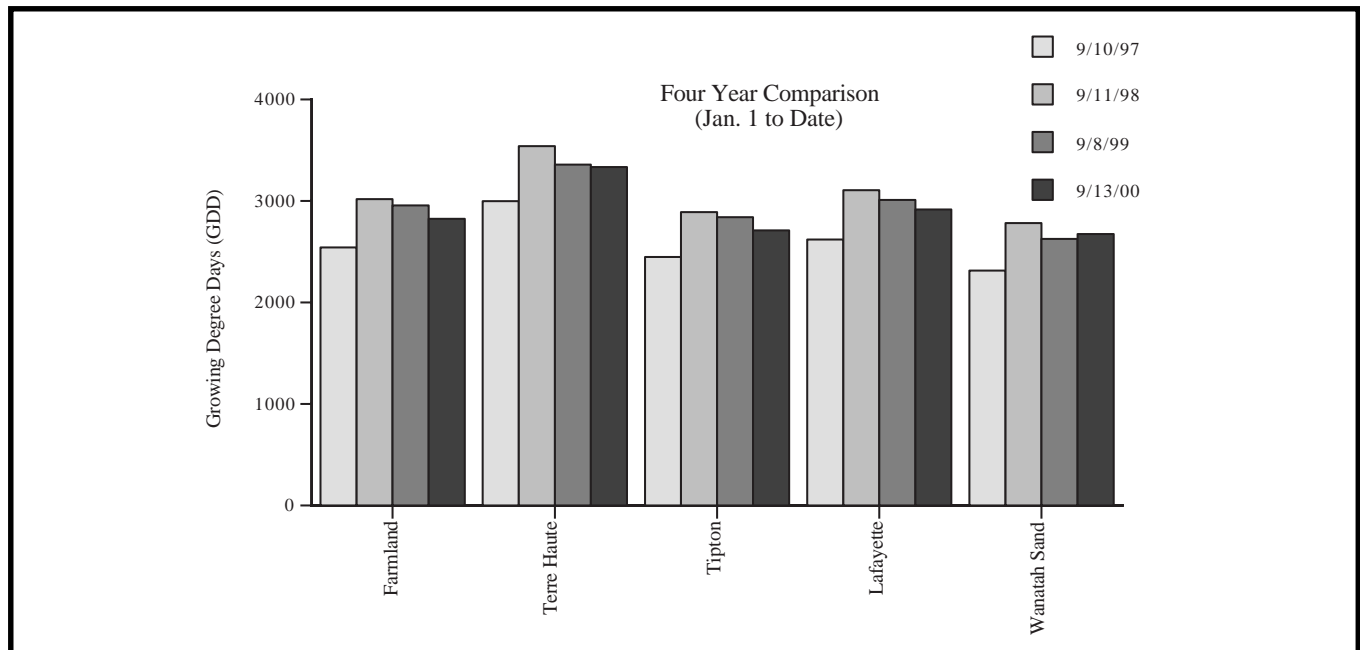


Location	Max.	Min.
Whitford Mills	69	62
Wanatah	76	63
Columbia City	71	57
Winamac	73	60
Bluffton	65	64
W Laf Agro	70	60
Tipton	72	60
Farmland	69	62
Perrysville	75	69
Crawfordsville	72	69
Liberty	72	62
Trafalgar	73	63
Terre Haute	76	70
Oolitic	76	71
Vincennes	76	65
Dubois	87	62

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