



USDA, National Agricultural Statistics Service

Indiana Crop & Weather Report

USDA, NASS, Indiana Field Office
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CROP REPORT FOR WEEK ENDING JULY 16

AGRICULTURAL SUMMARY

Winter wheat harvest continues to make good progress for the entire state, according to the Indiana Field Office of USDA's National Agricultural Statistics Service. Many parts of the state received a much needed rain just as the corn began to tassel. Soybean plant development continues to vary but have seen improvements due to rainfall.

FIELD CROPS REPORT

There were 3.7 days suitable for field work. **Corn condition** is rated 65 percent good to excellent compared with 39 percent last year at this time. Forty-three percent of the corn acreage has **silked** compared to 59 percent last year and 46 percent for the 5-year average. **Soybean condition** is rated 61 percent good to excellent compared with 43 percent last year. Thirty-three percent of the soybean acreage is **blooming** compared to 60 percent last year and 47 percent for the 5-year average.

Harvest of winter wheat is 94 percent complete compared to 96 percent last year and 91 percent for the 5-year average. By area, wheat harvest is 88 percent complete in the north, 96 percent in the central, and 99 percent in the south. **Second cutting of alfalfa hay** is 70 percent complete.

Major activities during the week included: attending county fairs, spraying chemicals, baling hay and straw, double cropping after wheat and mowing roadsides and ditches.

LIVESTOCK, PASTURE AND RANGE REPORT

Pasture condition is rated 10 percent excellent, 61 percent good, 24 percent fair, 4 percent poor and 1 percent very poor. No reports of any livestock issues.

CROP PROGRESS TABLE

Crop	This Week	Last Week	Last Year	5-Year Avg
Percent				
Corn Silked	43	13	59	46
Corn in Dough	2	NA	4	3
Soybeans Blooming	33	12	60	47
Soybeans Podding	5	NA	11	11
Winter Wheat Harvested	94	70	96	91
Alfalfa Second Cutting	70	53	78	64

CROP CONDITION TABLE

Crop	Very Poor	Poor	Fair	Good	Excellent
Percent					
Corn	1	6	28	53	12
Soybeans	2	7	30	53	8
Pasture	1	4	24	61	10

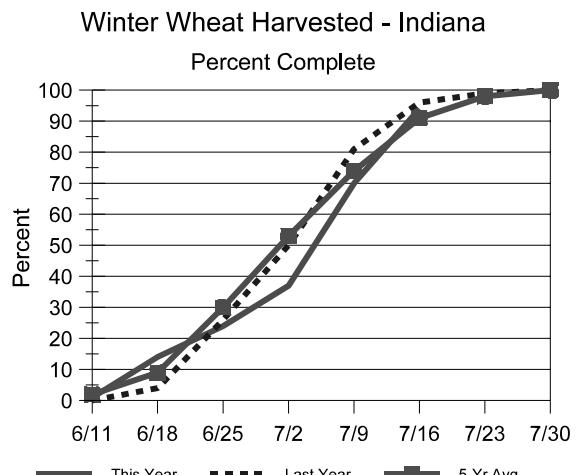
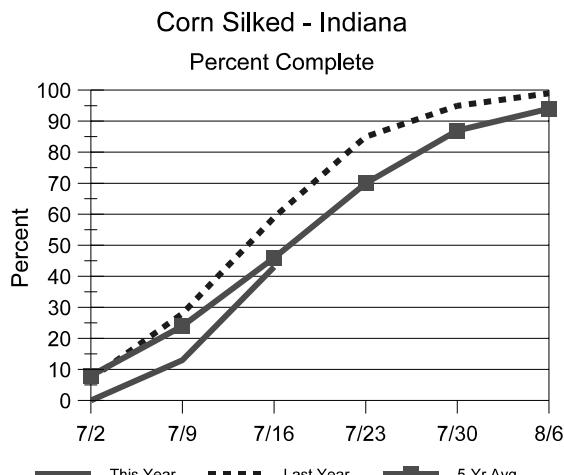
SOIL MOISTURE & DAYS SUITABLE FOR FIELDWORK TABLE

	This Week	Last Week	Last Year
Percent			
Topsoil			
Very Short	1	4	16
Short	7	19	34
Adequate	68	70	47
Surplus	24	7	3
Subsoil			
Very Short	1	3	18
Short	9	15	38
Adequate	77	74	44
Surplus	13	8	0
Days Suitable	3.7	5.9	3.7

CONTACT INFORMATION

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Crop Progress



Other Agricultural Comments And News

Tassel Emergence & Pollen Shed

- Corn produces individual male and female flowers on the same plant.
- The tassel represents the male flower of the corn plant.

Over the next several weeks, the Indiana corn crop will move into the critical flowering stages of pollen shed and silk emergence. Success or failure during this period of the corn plant's life will greatly influence the potential yield at harvest time.

As important as this process is to the determination of grain yield, it is surprising how little some folks know about the whole thing. Rather than leaving you to learn about such things "in the streets", I've developed this article and the accompanying one on silking (Nielsen, 2005b) that describe the ins and outs of sex in the corn field.

Remember that corn has both male flowers and female flowers on the same plant (a flowering habit called monoecious for you trivia fans.) Interestingly, both flowers are initially bisexual (aka "perfect"), but during the course of development the female components (gynoecia) of the male flowers and the male components (stamens) of the female flowers abort, resulting in tassel (male) and ear (female) development.

Technically, growth stage VT occurs when the last branch of the tassel emerges from the whorl (Ritchie et al., 1993). Portions of the tassel may be visible before the maximum leaf stage (final visible leaf collar) has occurred. Plant height is nearly at its maximum at growth stage VT. Pollen shed may begin before the tassel has completely emerged from the whorl.

The corn plant is most vulnerable to hail damage at growth stage VT since all of its leaves have emerged. Complete (100%) leaf loss at growth stage VT will usually result in complete (100%) yield loss by harvest. Even if pollination is successful, the ear shoots will usually die because few leaves remain to produce the necessary carbohydrates (by photosynthesis) to complete grain fill.

An individual tassel produces approximately 6,000 pollen-bearing anthers, although hybrids can vary greatly for this number. The anthers are those 'thingamajigs' that hang from the tassel during pollination. Under a magnifying lens, anthers look somewhat like the double barrel of a shotgun. Approximately 1,000 individual spikelets form on each tassel and each one bears two florets encased in two large glumes. Each floret contains three anthers. An anther and its attached filament comprise the stamen of the male flower.

As these florets mature, elongation of the filaments helps exert the anthers from the glumes. Pollen is dispersed through pores that open at the tips of the anthers. Pollen shed usually begins in the mid-portion of the central tassel spike and then progresses upward, downward and outward over time. Anthers typically emerge from the upper floret of the pair first, while those from lower floret typically emerge later the same day or on following days. Spent anthers eventually drop from the tassel and are sometimes mistaken for the pollen when observed on the leaves or ground.

The yellow or white "dust-like" pollen that falls from a tassel represents millions of individual, nearly microscopic, spherical, yellowish - or whitish translucent pollen grains. Estimates of the total number of pollen

(Continued on Page 4)

Weather Information Table

Week ending Sunday July 16, 2006

Station	Past Week Weather Summary Data								Accumulation				
	Air Temperature				Precip.	Avg 4 in	Soil Temp	April 1, 2006 thru July 16, 2006		GDD Base 50°F	Days	Total	DFN
	Hi	Lo	Avg	DFN				Total	Days				
Northwest (1)													
Chalmers_5W	91	64	77	+3	1.25	3		16.14	+2.89	37	1449	-69	
Francesville	91	66	76	+4	4.37	5		20.14	+6.69	43	1394	+10	
Valparaiso_AP_I	92	66	75	+3	2.47	5		9.88	-4.30	33	1433	+85	
Wanatah	91	62	74	+3	3.12	3	81	12.59	-1.05	36	1287	+4	
Winamac	91	66	76	+3	2.96	3	76	14.16	+0.71	34	1404	+20	
North Central (2)													
Plymouth	91	67	76	+3	1.68	2		11.87	-2.21	39	1321	-122	
South_Bend	90	65	75	+3	3.11	2		13.03	-0.14	40	1395	+64	
Young_America	90	66	76	+3	1.15	2		16.95	+4.05	42	1472	+63	
Northeast (3)													
Columbia_City	91	63	75	+3	1.95	3	73	14.38	+1.12	43	1309	+45	
Fort_Wayne	92	63	77	+3	1.61	3		16.64	+4.43	43	1437	+38	
West Central (4)													
Greencastle	91	61	75	-1	0.60	3		16.03	+1.18	41	1447	-163	
Perrysville	92	63	77	+3	1.48	3	78	13.66	-0.83	41	1634	+129	
Spencer_Ag	92	61	76	+1	2.34	4		18.39	+3.06	49	1542	+40	
Terre_Haute_AFB	93	62	77	+2	1.35	3		13.04	-1.43	41	1682	+74	
W_Lafayette_6NW	91	66	77	+4	1.62	3	80	15.08	+1.77	43	1525	+112	
Central (5)													
Eagle_Creek_AP	92	67	78	+3	1.76	3		17.40	+3.93	46	1659	+68	
Greenfield	91	64	76	+2	1.90	4		19.60	+5.05	49	1466	-46	
Indianapolis_AP	92	65	77	+2	2.62	3		17.57	+4.10	47	1669	+78	
Indianapolis_SE	90	66	76	+0	1.59	4		17.83	+3.97	46	1448	-120	
Tipton_Ag	90	64	76	+3	1.58	2	79	17.97	+4.63	50	1359	-6	
East Central (6)													
Farmland	90	63	76	+4	0.74	4	78	16.64	+3.18	49	1321	-1	
New_Castle	91	63	75	+3	0.67	3		16.41	+1.74	45	1388	+36	
Southwest (7)													
Evansville	92	65	79	+2	4.99	4		18.85	+4.49	40	1986	+96	
Freelandville	93	66	78	+2	0.46	2		11.98	-2.83	37	1796	+127	
Shoals	91	61	77	+2	1.76	3		19.48	+3.56	41	1707	+109	
Stendal	93	67	79	+3	4.02	4		20.93	+4.94	41	1979	+217	
Vincennes_5NE	92	66	78	+3	1.25	3	77	19.21	+4.40	47	1828	+159	
South Central (8)													
Leavenworth	91	64	77	+3	2.58	5		22.57	+6.48	52	1743	+145	
Oolitic	91	60	76	+2	2.36	5	77	16.46	+1.37	43	1537	+19	
Tell_City	91	61	78	+1	3.14	4		21.82	+5.72	43	1980	+200	
Southeast (9)													
Brookville	95	63	77	+4	2.00	2		16.35	+1.96	40	1581	+160	
Greensburg	90	66	78	+4	1.59	3		18.08	+3.46	44	1664	+175	
Scottsburg	91	65	78	+3	2.15	5		21.65	+6.81	48	1739	+83	

DFN = Departure From Normal (Using 1961-90 Normals Period).

GDD = Growing Degree Days.

Precipitation (Rainfall or melted snow/ice) in inches.

Precipitation Days = Days with precip of .01 inch or more.

Air Temperatures in Degrees Fahrenheit.

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Tassel Emergence & Pollen Shed (Continued)

grains produced per tassel range from 2 to 25 million. Each pollen grain contains the male genetic material necessary for fertilizing the ovary of one potential kernel.

The outer membrane of a pollen grain is very thin. Once dispersed into the atmosphere, pollen grains remain viable for only a few minutes before they desiccate. Yet, with only a 15 mph wind, pollen grains can travel as far as 1/2 mile within those couple of minutes.

Therein lies the concern of the potential for pollen "drift" from a transgenic corn field to an adjacent non-transgenic corn field and the risk of transgenic "contamination" of grain intended for non-transgenic markets. The good news is that recent research suggests that the overwhelming majority of a corn field's pollen load is shed in the field itself.

All of the pollen from a single anther may be released in as little as three minutes. All the anthers on an individual tassel may take as long as seven days to finish shedding pollen, although the greatest volume of pollen is typically shed during the second and third day of anther emergence. Because of natural field variability in plant development, a whole field may take as long as 14 days to complete pollen shed.

Peak pollen shed usually occurs in mid-morning. Some research indicates that pollen shed decreases after

temperatures surpass 86°F. A second "flush" of pollen often occurs in late afternoon or evening as temperatures cool. Pollen shed may occur throughout most of the day under relatively cool, cloudy conditions.

Weather conditions influence pollen shed. If the anthers are wet, the pores will not open and pollen will not be released. Thus, on an average Indiana summer morning following a heavy evening dew, pollen shed will not begin until the dew dries and the anther pores open. Similarly, pollen is not shed during rainy conditions. Cool, humid temperatures delay pollen shed, while hot, dry conditions hasten pollen shed.

Extreme heat stress (100° F or greater) can kill corn pollen, but fortunately the plant avoids significant pollen loss by virtue of two developmental characteristics. First of all, corn pollen does not mature or shed all at once. Pollen maturity and shed occur over several days and up to two weeks. Therefore, a day or two of extreme heat usually does not affect the entire pollen supply. More importantly, the majority of daily pollen shed occurs in the morning hours when air temperature is much more moderate.

A listing of "Related References" for this article can be viewed at: http://128.210.99.160/entomology/ext/targets/p&c/PandC16_2006.pdf, page 8.

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