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Indiana State Climate Office

Monthly Weather Report

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<http://www.iclimete.org>

October 2007 Climate Summary

Summary

There are two significant weather and climate events that stand out amongst the rest of the day-to-day conditions in October: the severe thunderstorms in the middle of the month and the decreasing drought. The thunderstorms that rolled through between the 16th and 19th were quite severe and produced heavy rains, strong winds, hail, and even tornadoes. Luckily, the storms were associated with a fast moving system so the most severe storms didn't hang around for long. Rain was prominent in October but it was not always severe. Over 90% of the state received 100% or more than normal, the only exception being a few counties in the extreme northeast. The persistent moist conditions helped to finally alleviate the drought that the state – most notably the south – was feeling. As you can see from the U.S. Drought Monitor images below, the drought steadily decreased after those severe storms passed.

Statewide temperatures were again well above normal. The average temperature for October 2007 was 60.1°F, which is 6.1°F above normal. The east central region of Indiana was the month's warmest, coming in at an average of 59.7°F which is 7.0°F above normal. The southwest was the least above normal at 62.1°F, or 5.4°F above normal.

All climate divisions received above normal precipitation for the month, the south in particular. The weather pattern that brought excessive rain to the north in August shifted further south and brought extreme rain to regions that really needed it. Indiana in general received 131% of the normal rainfall for the month. The southeast saw 5.05 inches, which is 169% of normal (+2.07 inches).

The October rain brought the year-to-date much closer to normal. The state has received 98% of the normal rainfall after 10 months. All climate divisions have seen at least 86% of the normal.

The abnormally warm conditions through the summer and early autumn have kept the annual statewide temperature above normal. The state's average temperature through October is 56.8°F, which is 1.8°F above normal. Per climate models, expect temperatures to remain above normal through the end of 2007. The opposite will be true for precipitation. A strengthening La Niña in the Pacific Ocean will keep precipitation below normal for Indiana

October 1st – 8th

October started with a synoptic low pressure system that passed directly over the state, resulting in a warm and moist conditions during the 1st and 2nd. The way the system progressed left the southwest and south central counties dry but resulted in rainfall totals increasing towards the north. Northern counties received close to one inch of rain from this system. Temperatures soared as high as 12°F above normal.

On the 3rd a second disturbance crossed Indiana. This cold front lowered temperatures slightly but they remained at least 5°F above normal throughout the entire state. A majority of the state experienced showers but nowhere received more than ½ inch of rain. Lingering showers touched parts of the east central and southern counties on the 4th but left only a trace amount of precipitation.

High pressure pushing south from Nova Scotia into the eastern U.S. helped bring dry conditions for the entire state for the first time on the 5th. The high pressure also brought an increase in temperatures and numerous records from the 5th through the 8th. Average daily highs over this four day period were more than 17°F higher than normal for the entire state. Steuben County experienced temperatures more than 23°F above normal and Indianapolis, Fort Wayne, and South Bend set multiple records over this period for extreme highs, warm lows, and warmest day in October in recorded history. Temperatures inched close to 90°F, rare for early October. A few scattered showers did pop up on the 6th but again resulted in only trace amounts of rain.

October 9th – 12th

A third system passed over Indiana on the 9th cooling the state. Temperatures dropped from more than 17°F above normal to a more reasonable 8°F above normal, still unusually warm. The disturbance brought more rain to Indiana, which lingered into the 12th as a result of a fourth system that followed the third. Accumulations over the period were not excessive, with a maximum close to 0.55 inches in LaPorte and Porter counties. The fourth system flipped the temperatures. Unseasonably warm quickly became unseasonably cool. In two days temperatures fell more than 30°F. On the 8th temperatures were in the mid- to upper-80s but by the 10th highs were now in the low- to mid-60s. Northern and central counties remained about 11°F below normal from the 10th through the 12th.

October 13th – 15th

A temporary dry spell occurred in the middle of the month. From the 13th through the 15th the state so little – if any – rainfall. Temperatures began to warm on the 13th and were above normal again by the 15th. North central and northeastern counties were more than 10°F above normal, a swing of about 20°F in three days.

October 16th – 19th

A fifth disturbance entered the state in the afternoon on the 16th. This system would bring heavy rains and thunderstorms to much of the state through the 17th. However, the system was moving very quickly and rainfall accumulations were small. The sixth disturbance of the month would be much more intense. This system entered Indiana on the 18th. It was a strong and well defined synoptic low that produced heavy rains, severe thunderstorms, hail, and even tornadoes across the Mid-West from the 18th through the 19th. The storms reached their peak intensity while over western counties. Rainfall totals there reached as high as 2.70 inches. The entire state received at least 0.8 inches over this four day period. Vigo, Sullivan, Knox, and Gibson counties saw more than 3.00 inches.

The 18th by far saw the most extreme thunderstorms the state would experience this month. There were reports of at least six tornadoes across four counties.

Tornadoes in Indiana on October 18th, 2007

Location	County	Intensity	Damage
5 miles northwest of Sidney	Kosciusko	N/A	N/A
1 mile north of Ambia	Benton	N/A	None reported
6 miles east-northeast of Charlestown (near Bull Creek Road)	Clark	EF3	N/A
2 miles southeast of Inwood	Marshall	EF1	Buildings, trees, power lines damaged or destroyed
7 miles north of Etna Green	Kosciusko	EF3	Buildings, trees, power lines damaged or destroyed
Nappanee	Elkhart	EF3	Over 100 homes & several buildings destroyed; multiple minor injuries

*NOTE: The Enhanced Fujita (EF) Scale is now used to determine tornado intensity (replacing the Fujita Scale). The EF Scale is considered to be more accurate in determining a tornado's intensity because it takes into account more variables than the original Fujita Scale, such as building codes and original building integrity. For reference, an EF3 tornado achieves wind gusts of 136-165 mph.

These were very destructive storms that also included heavy rains, strong winds, and large hail in addition to the tornadoes.

October 20th – 22nd

High pressure moved from the Gulf Coast northeastward and brought dry conditions to the state once again. This high pressure over the Tennessee Valley resulted in above normal temperatures across the state once again. Much of Indiana was more than 8°F above normal on the 20th and 21st, as temperatures rose into the mid- to high-70s. A slight cooling would occur on the 22nd as a new system lingered to the west.

October 23rd – 28th

System number seven dropped temperatures and rain for the entire state. Residents would feel high temperatures in the low-to mid-50s from the 23rd through the 25th. While the system brought a majority of the rainfall on the 23rd and 24th, showers lingered through the 28th. The main system brought more than 0.40 inches of rain to every area of the state on the 23rd and 24th. The heaviest rain occurred in the extreme south central and southeastern counties, where close to 3.00 inches fell in this time period. Temperatures would remain below normal.

October 29th – 31st

High pressure returned to Indiana behind the seventh disturbance and with it came slightly warmer temperatures. This warming brought temperatures back to normal, a range between 60-68°F from northern to southern regions. The area of high pressured dominated for the final few days of October, leaving the state dry.

October Summary Temperature

Region	Temperature	Normal	Deviation
Northwest	59.0	52.9	6.1
North Central	58.7	52.2	6.5
Northeast	58.6	51.8	6.8
West Central	59.9	54.1	5.8
Central	60.0	53.5	6.5
East Central	59.7	52.7	7.0
Southwest	62.1	56.7	5.4
South Central	61.5	56.0	5.5
Southeast	61.2	55.2	6.0
State	60.1	54.0	6.1

Precipitation

Region	Precipitation	Normal	Deviation	Percent of Normal
Northwest	3.75	2.92	0.83	128
North Central	3.71	2.95	0.76	126
Northeast	2.77	2.70	0.06	102
West Central	4.00	2.90	1.10	138
Central	3.22	2.82	0.40	114
East Central	2.94	2.73	0.21	108
Southwest	4.61	3.04	1.56	151
South Central	4.22	3.02	1.20	140
Southeast	5.05	2.98	2.07	169
State	3.80	2.90	0.90	131

Autumn-To-Date (September & October)

Temperature

Region	Temperature	Normal	Deviation
Northwest	63.3	58.6	4.7
North Central	62.8	58.0	4.8
Northeast	62.4	57.6	4.9
West Central	64.7	59.9	4.8
Central	64.5	59.3	5.2
East Central	64.0	58.5	5.5
Southwest	67.3	62.4	4.9
South Central	66.6	61.6	5.0
Southeast	66.2	60.9	5.2

State	64.7	59.7	5.0
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Precipitation

Region	Precipitation	Normal	Deviation	Percent of Normal
Northwest	5.25	6.14	-0.89	86
North Central	5.62	6.25	-0.63	90
Northeast	4.63	5.90	-1.26	79
West Central	6.43	5.93	0.50	108
Central	5.76	5.81	-0.05	99
East Central	5.61	5.52	0.09	102
Southwest	7.52	6.18	1.34	122
South Central	7.38	6.13	1.25	120
Southeast	7.95	5.95	2.00	134
State	6.23	5.99	0.24	104

Annual-to-Date

(January through October)

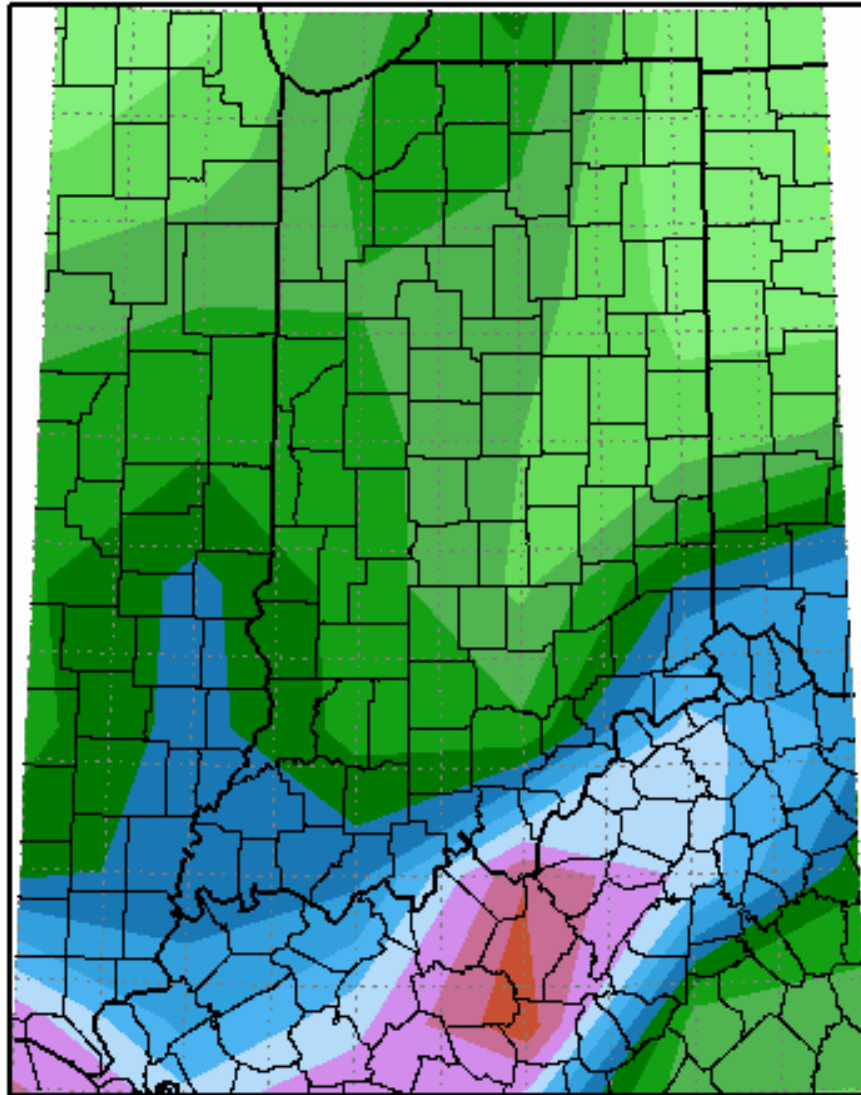
Temperature

Region	Temperature	Normal	Deviation
Northwest	54.8	53.4	1.4
North Central	54.4	52.9	1.5
Northeast	54.2	52.5	1.7
West Central	56.7	55.0	1.7
Central	56.5	54.5	2.0
East Central	55.7	53.7	2.0
Southwest	60.4	58.1	2.3
South Central	59.5	57.5	2.0
Southeast	58.5	56.6	1.9
State	56.8	55.0	1.8

Precipitation

Region	Precipitation	Normal	Deviation	Percent of Normal
Northwest	35.65	32.20	3.45	111
North Central	35.04	32.25	2.79	109
Northeast	33.14	31.04	2.10	107
West Central	32.68	34.67	-1.99	94
Central	33.73	34.12	-0.39	99
East Central	34.07	33.00	1.07	103
Southwest	33.01	37.75	-4.74	87
South Central	32.85	38.06	-5.21	86
Southeast	33.34	37.01	-3.67	90

Total Precipitation in Inches October 1, 2007 to October 31, 2007

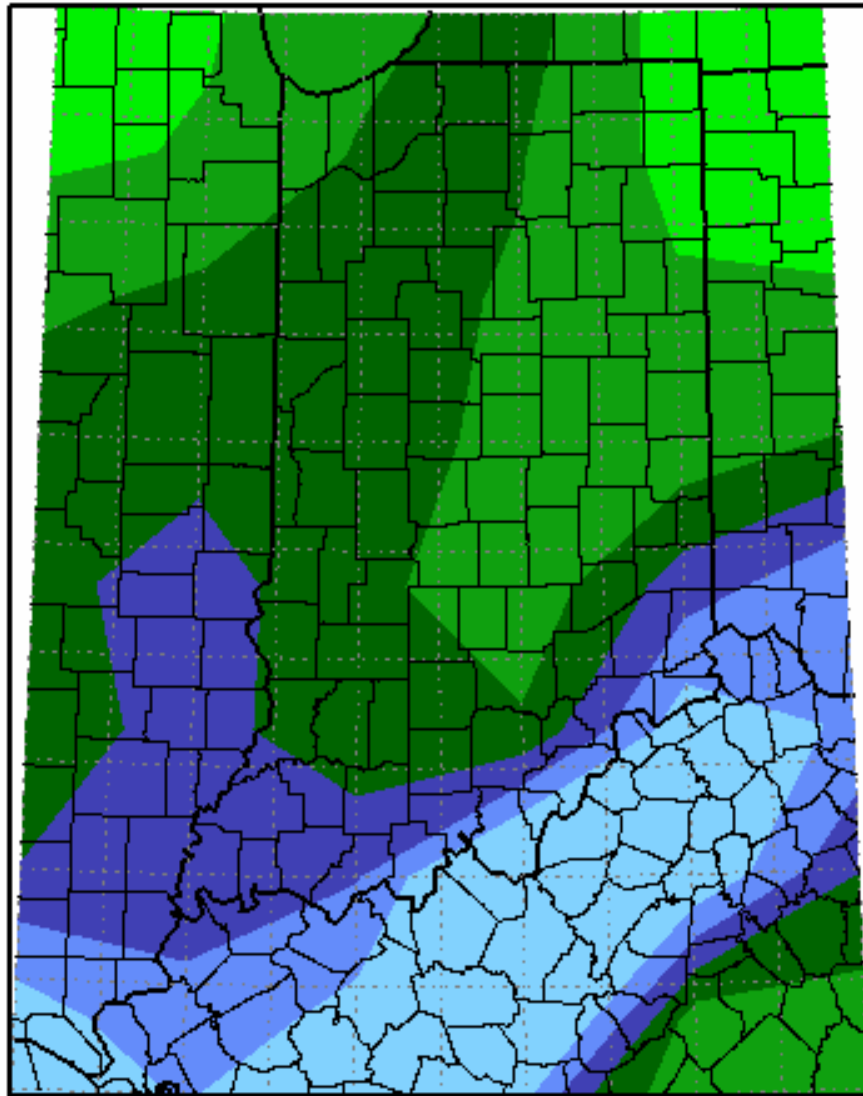


Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

**Total Precipitation Percent of Mean
October 1, 2007 to October 31, 2007**

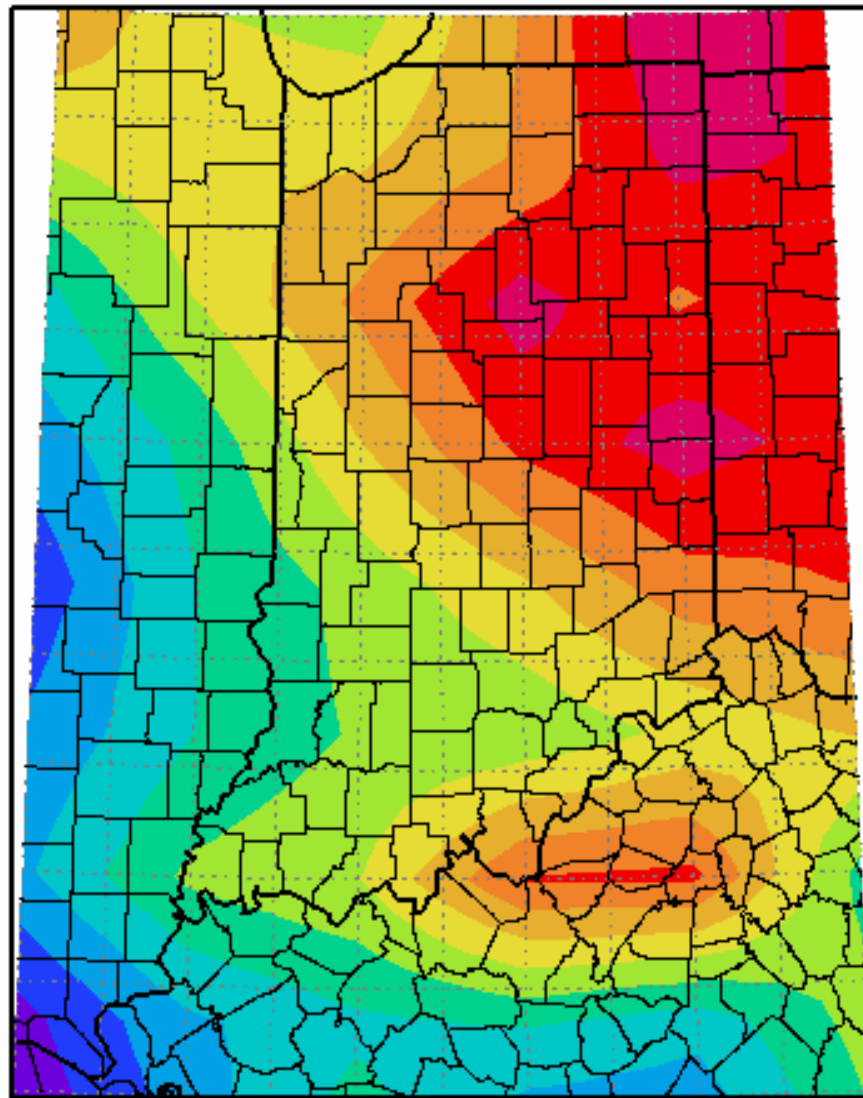


Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

Average Temperature Departure from Mean in Degrees F
October 1, 2007 to October 31, 2007



Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

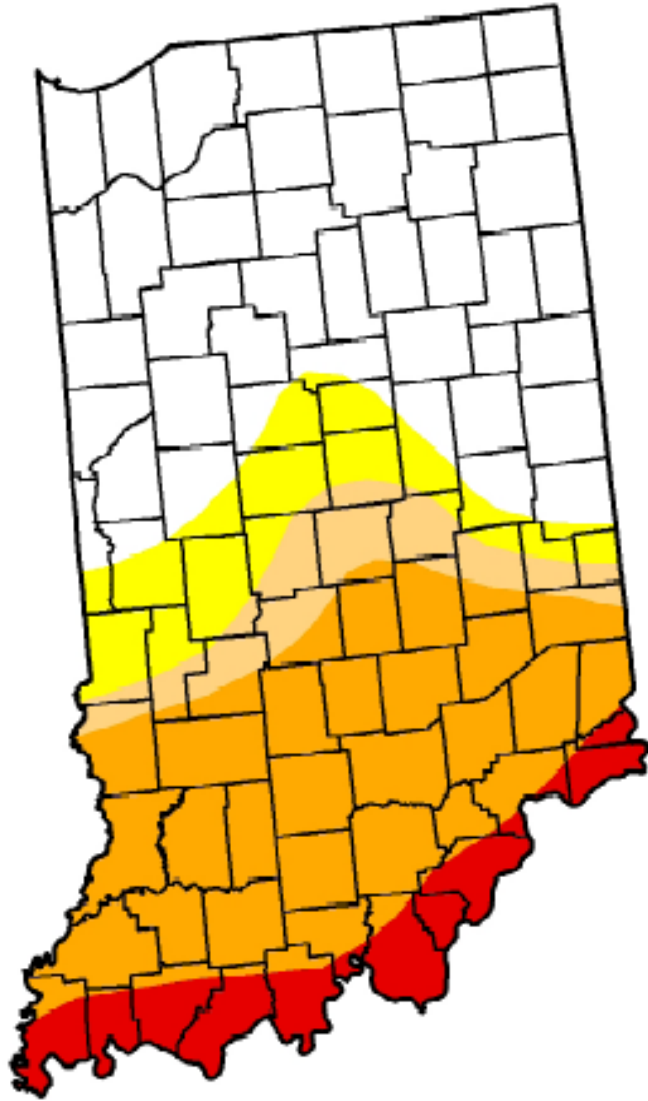
Drought Summary from the U.S. Drought Monitor

Below is a drought summary for the state of Indiana from the U.S. drought monitor. Areas in white are not experiencing any drought. Yellow areas are abnormally dry, but not entirely considered a drought. Drought begins when the moisture levels become more severe, with beige, orange, red, and brown indicating increasing levels of drought (moderate, severe, extreme, and exceptional, respectively). The table below indicates how much of the state is not under drought conditions, and also how much of the state is under drought conditions from its respective column upwards.

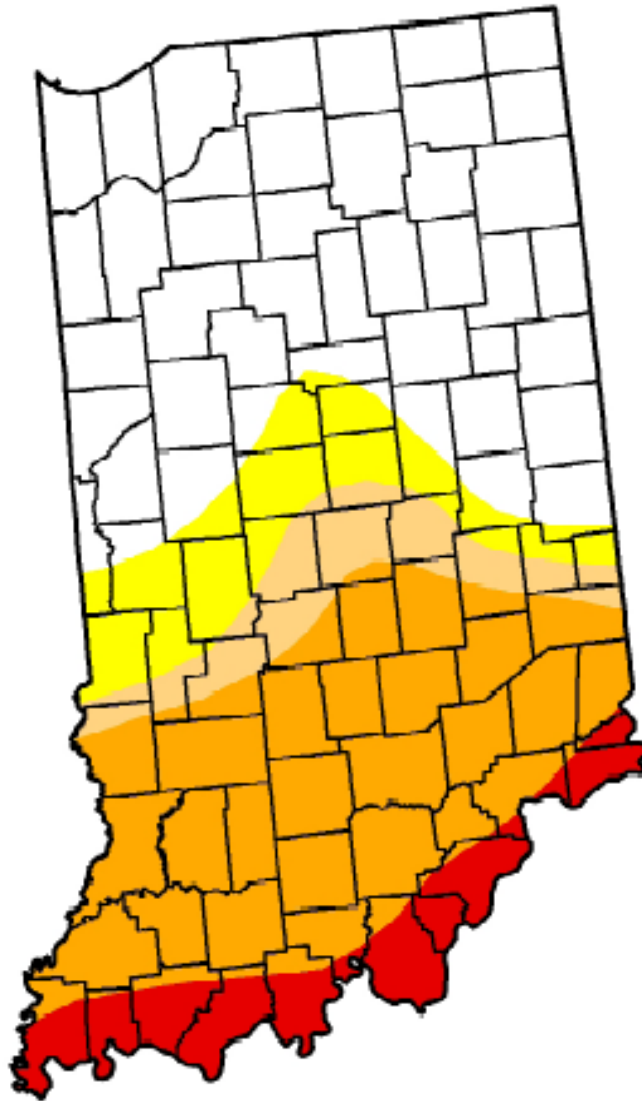
For example, October 16th has 46.15% of Indiana under no drought, and 53.86% of Indiana under at *least* D0 through D4 drought status. This is followed by 47.06% as D1 through D4 status. To obtain the amount that is D0 status, simply subtract the D1-D4 column from the D0-D4 column, thus giving you the percentage of area with abnormally dry conditions. Please note, however, that these areas are not exact, and much of this drought map has been created from reports throughout the state and estimation, so use this information as a general view rather than for specifics.

	D0 Abnormally Dry	D1 Drought - Moderate	D2 Drought - Severe	D3 Drought - Extreme	D4 Drought - Exceptional	
Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
10/30/07	87.53	12.47	0.00	0.00	0.00	0.00
10/23/07	60.43	39.57	22.46	0.00	0.00	0.00
10/16/07	46.15	53.86	47.06	40.43	17.06	0.00
10/09/07	46.15	53.86	44.10	37.59	7.78	0.00
10/02/07	46.15	53.86	44.10	37.59	7.78	0.00

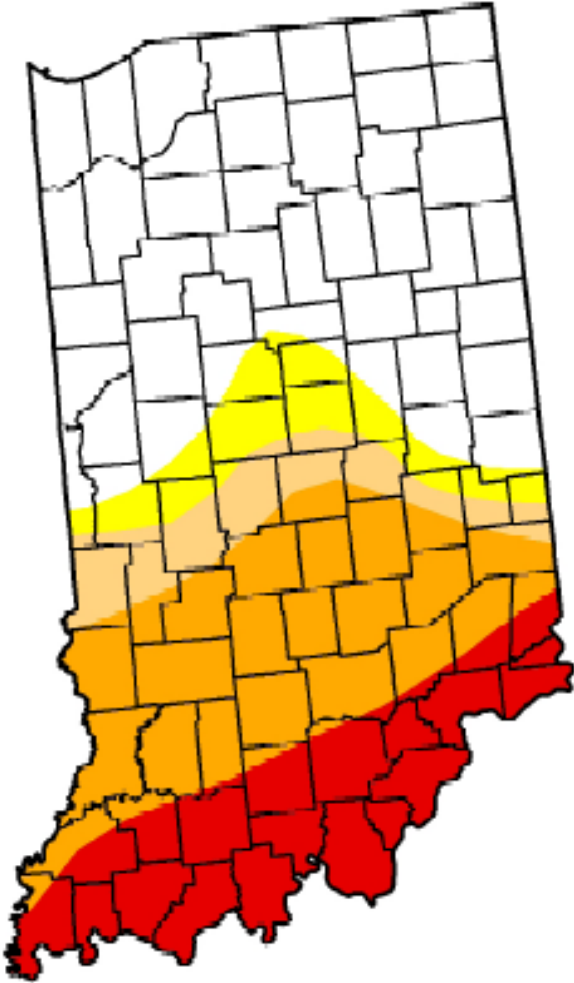
October 2nd Drought Summary



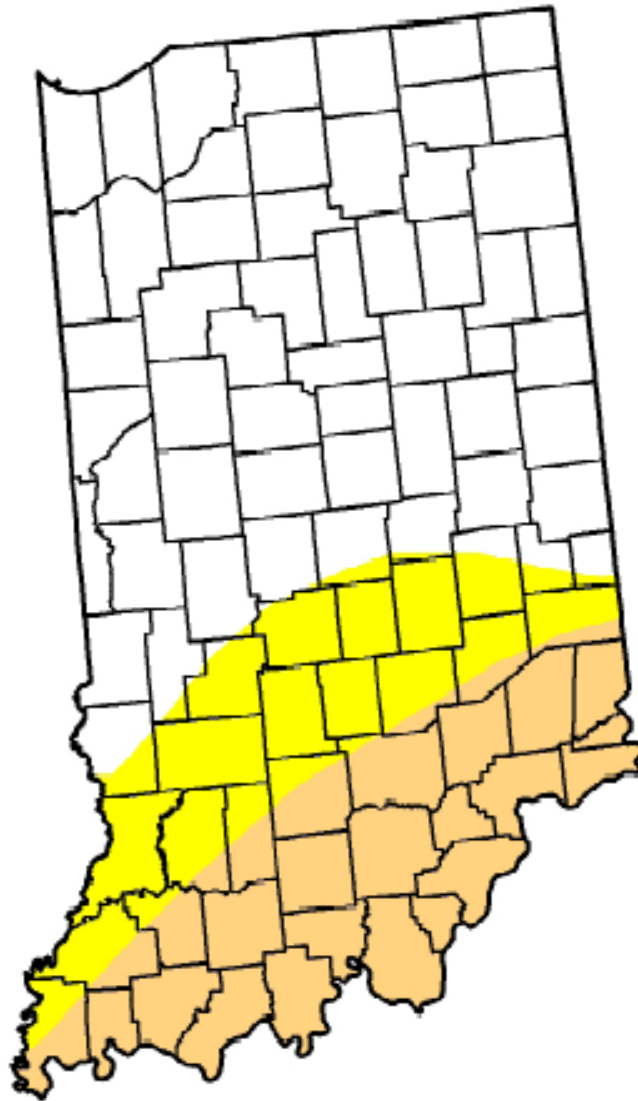
October 9th Drought Summary



October 16th Drought Summary



October 23rd Drought Summary



October 30th Drought Summary

