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## Indiana State Climate Office

### Monthly Weather Report



<http://www.iclimat.org>

**Nov 9, 2016**

## October 2016 Climate Summary

### Month Summary

October was the 9<sup>th</sup> month so far this year to average above normal in temperature. It was the warmest October in 9 years. A light first fall freeze occurred only in northern Indiana this month. With no killing freezes nearly all unharvested summer crops reached maturity safely. Rainfall favored northern and central Indiana while it was quite dry in the south. An abnormal dryness rating was removed, then reintroduced into more than a dozen counties near the Ohio River. Two EF-0 tornadoes were confirmed in St Joseph county on October 12<sup>th</sup>. A week later 3" diameter hail ravaged southeast Indiana while wind gusts damaged spots in southwest and south central Indiana.

The October state average temperature of 59.6°F was 5.6°F above normal. Like September this notches the month into the 6<sup>th</sup> warmest slot of the record books. Some recent warmer Octobers were in 1963 when a 60.8°F average was good for 3<sup>rd</sup> place. Nearly as warm at 60.2°F was October 2007 which came in at 5<sup>th</sup> warmest. The warmest October on record was a 60.9°F average in 1947 that was repeated in 1971. The day split in October 2016 was 5 days of below normal temperature, 24 days above normal, and 2 days at normal. There were 9 days when the mean daily temperature was at least 10°F warmer than normal and 1 day at least 20°F warmer than normal. On no days was the daily average at least 10°F cooler than normal. The highest temperature of the month was 89°F on October 7<sup>th</sup> at Vincennes 5ne and the coolest 30°F on October 25<sup>th</sup> at South Bend Michiana Airport.

October state precipitation averaged 2.58" which is 0.32" below normal. This ties October 1927 as the 55<sup>th</sup> driest October on record. Some recent drier Octobers include last year with 2.42", the 48<sup>th</sup> driest on record. In 2008 its 2.23" average fell into the 42<sup>nd</sup> driest spot. A meager 1.17" state average in 2010 came in as 13<sup>th</sup> driest. The driest October on record was in 1908 when just 0.31" was recorded. The heaviest one day precipitation among cooperative stations in October 2016 was 3.96" on October 20<sup>th</sup> at North Vernon 2ese. The highest among CoCoRaHS stations was 4.15" that same day at Oolitic 2.2n. The largest month total precipitation in the cooperative network was 5.25" at Shakamak State Park. In the CoCoRaHS network the heaviest was 6.45" at Jasonville 4ene. Widespread precipitation fell on about 11 days this month.

Regionally October 2016 precipitation was near 110% of normal in northern Indiana, right about normal in central Indiana, but just 65% of normal across the south. Normal October precipitation ranges from 2.7" in northeast and east central Indiana to 3.0" in the southwest and south central parts of the state.

## October 1<sup>st</sup> – 8<sup>th</sup>

Indiana temperatures ramped up the first 7 days of October, then tumbled as the only front this interval passed through on the eighth day. Rainy weather to start the month departed and the remaining 6 days trended drier except in northern Indiana. Abnormally dry soil ratings were removed from Indiana in the US Drought Monitor. The break from rain showers was welcomed by farmers in the midst of harvest season.

At the end of September a closed low pressure system in the upper atmosphere was left stranded over Indiana far south of the storm track. With no jet stream in the vicinity to move it along, this feature was still in place on October 1<sup>st</sup>. At ground level two low pressure troughs over Illinois and Indiana produced pesky intermittent rain showers with isolated heavy spots throughout the day.

The state temperature opened the month at 1°F below normal, the coldest day of the 8 day interval. The upper closed low drifted to Michigan on October 2<sup>nd</sup>. High pressure in the Gulf states traveled north into Missouri and started a gradual warmup in Indiana. The state temperature rose to 2°F above normal. The next day the closed upper low was finally picked up by the jet stream and rushed to New York. As it did Indiana skies cleared and a widespread warm sector formed over the country east of the Rocky Mountains. Back in Indiana the state temperature lifted to 4°F above normal.

Over the next 2 days high pressure over Maine spread south to Georgia and intensified along the coast. Meanwhile a developing core of low pressure moving into Manitoba also strengthened and advanced a cold front into Minnesota and Iowa. Temperatures soared in the tightening warm sector. On October 4<sup>th</sup> the Indiana state temperature bounced to 8°F above normal, then to 12°F above normal the next day.

On October 6<sup>th</sup> the Manitoba low zipped northeast to Hudson Bay and occluded as colder air wrapped around its vortex. Fronts south of the occlusion barely moved, settling over Wisconsin and Iowa. The Indiana state temperature ahead of the fronts climbed yet more to 15°F above normal. The Atlantic ridge broke down in far southeastern states as Hurricane Matthew edged closer to the Florida coastline.

On October 7<sup>th</sup> the mature Hudson Bay low transferred its energy to a Lake Superior low center. Cold air began to whip around the Lake Superior low, forcing a cold front to Illinois and Missouri. Indiana was still in the collapsing warm sector ahead of the cold front with no change in its very warm state temperature.

Finally on October 8<sup>th</sup> the Lake Superior low forged ahead to Lake Ontario, dragging the first cold front of the month through Indiana. The state was no longer within the shrinking warm sector. The state temperature plunged to 1°F above normal to close out the 8 day interval.

Over the 8 days the state temperature averaged to 7°F above normal. Usually at the start of October the daily maximum temperature should range between 66°F in far northern Indiana to 74°F in the southwest corner of the state. Daily minimums normally vary between 46°F and 49°F north to south across the state. The warmest daily maximum temperature among cooperative network stations was 89°F at Vincennes 5e on October 7<sup>th</sup>. The coolest daily minimum among stations in this same network was 37°F at West Lafayette 6nw on October 8<sup>th</sup>.

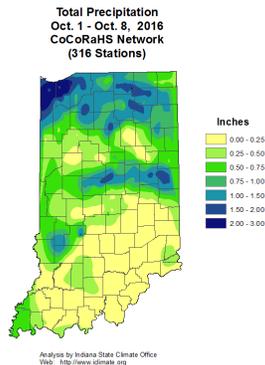
Most rain fell early in the 8 day interval largely in response to the sluggish upper atmospheric closed low system sitting over the Great Lakes since late September. This positioning also meant that the heaviest showers of the interval fell over northern Indiana with amounts decreasing southward. This trend was obvious from the 8 day rain map. Totals in 8 days ranged from 1" to 3" generally north of a Morocco to Decatur line. Another band of heavier totals lay across central Indiana generally from Lebanon to Winchester. Less than an inch fell mostly elsewhere with the lighter sums under a half inch across southern Indiana.

Regionally about 0.9" of precipitation fell across northern Indiana, 0.4" in central, and 0.2" over southern Indiana during the 8 days. These amounts equate to normal across northern Indiana, 40% of normal in central, and 25% of normal over southern Indiana.

Daily rainfall amounts were heavy in spots as recorded the mornings of October 1<sup>st</sup> and 7<sup>th</sup>. On October 1<sup>st</sup> 1.94" was collected by the CoCoRaHS observer near Gosport while 1.90" was measured by the Millersburg volunteer. On October 7<sup>th</sup> in northwest Indiana 2.03" and 1.86" were noted by two volunteers in Crown Point while 1.99" was recorded in Winfield. Over the 8 day interval 2.94" was tallied in Crown Point while three Valparaiso observers had 2.80", 2.76" and 2.60". A Highland gage summed 2.72".

For the first time since May 31<sup>st</sup> no Indiana land was rated short of soil moisture according to the US Drought Monitor edition of October 4<sup>th</sup>. The last abnormally dry regions of the state were upgraded from the D0 category to normal soil moisture status. In the previous edition of the US Drought Monitor 15% of Indiana land, including roughly all of Noble county and land south of a Princeton to Madison line with exception of Posey county, was rated as abnormally dry.

According to the October 11<sup>th</sup> edition of the USDA Indiana weekly crop and weather report, drier weather helped accelerate harvest progress. Some crops need more dry time before harvest can begin. Harvest progress had caught up to last year. Corn and soybeans have been reported as near 90% mature and safe from frost. Livestock were in good condition with some still grazing pastures.



## October 9<sup>th</sup> – 15<sup>th</sup>

Below normal rainfall continued in October as few fronts have passed through Indiana so far this month. A warming trend the first half of the week yielded to much cooler weather later. The transition between the warm and cool segments spawned two EF-0 tornadoes on October 12<sup>th</sup> in St Joseph county. Rainfall this week did slow harvest progress a bit. Nearly all corn and soybean crops have reached maturity and were safe from frost. There were no abnormally dry soil areas in Indiana according to the US Drought Monitor.

A weak stationary front in west central Indiana extended from an Illinois low pressure center. The state temperature stood at 1°F above normal on October 9<sup>th</sup>. The front disappeared from the weather map the next day as a ridge moved to the eastern Great Lakes, pumping warmer southerly winds into Indiana. The building of a huge warm sector covering the east half of the country was underway, centered around a Manitoba low pressure system. The Indiana state temperature increased to 4°F above normal.

The Manitoba low raced to Hudson Bay on October 11<sup>th</sup> but its cold front lagged behind and became stationary, delayed by low centers in South Dakota riding the front. Meanwhile the Great Lakes ridge moved east to the Atlantic coast states. This positioning intensified the flow of warm air into Indiana, raising the state temperature to 6°F above normal.

On October 12<sup>th</sup> the stationary front reverted to a cold front which advanced into Wisconsin, Iowa, and Missouri. Indiana and states between this cold front and the Atlantic coast ridge were squeezed between the two weather systems. Air temperatures increased in a less stable atmosphere to 8°F above normal. Showers and severe weather were triggered in the northern part of the state.

High pressure in the Rocky Mountains moved to Iowa the next day, forcing the cold front through Indiana and eastward. The state temperature dropped sharply to 1°F below normal and rainfall spread throughout the state. The Iowa high center accelerated east to New York on October 14<sup>th</sup>, pushing the cold front well off the Atlantic coast. Rain showers nearly ended over Indiana. The state temperature had already bottomed at 1°F below normal, marking the coldest day of the week.

The ridge over New York reached New England the next day, quickly setting up a new backflow of warm southerly air into Indiana. The state temperature rebounded to 4°F above normal to wrap up the week. A new warm air sector had already taken shape over the east half of the country, repeating the warm weather cycle once again.

Overall for the week the Indiana state temperature averaged to 3°F above normal. Typically by the middle of October the daily maximum temperature should vary between 63°F and 71°F north to south across Indiana. Daily minimums normally range from 44°F in far northern Indiana to 46°F in the southwest corner of the state. The warmest daily maximum temperature this week among stations in the cooperative network was 84°F at Tell City on October 9<sup>th</sup>. The coolest daily minimum among stations in this same network was 34°F at Brookville on October 11<sup>th</sup>.

The week began dry but ended with 4 days of rain as cooler air took over the state. The only day when rain was recorded statewide was seen in the morning report of October 13<sup>th</sup>. Regionally for the week about 0.4" was noted across northern Indiana, about 0.2" in central, and 0.1" in southern Indiana. These amounts equate to about 80% of normal in the north, 30% of normal in central

sections, and just 10% of normal in the south. The weekly precipitation map showed more than a half inch of rain fell generally north of a Fowler to Auburn line and a second band generally along a Clinton to Fort Wayne line. Totals were much lighter across the southern half of the state south of this band. The heaviest single day amounts were measured the morning of October 13<sup>th</sup> with 1.02” west of South Bend, 0.91” and 0.88” just outside Laporte, and 0.90” at Granger. Some of the largest weekly totals were 0.91” and 0.72” in Granger and 0.90” in Laporte.

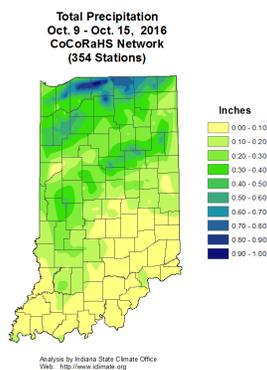
Late on October 12<sup>th</sup> a microburst occurred in St Joseph county with the passage of the cold front. Embedded within the microburst were two tornadoes.

The first tornado was on the ground for 1.3 mile and rated an EF-0 with 65 mph winds. There were no injuries or deaths. Near the end of the tornado path a swath of corn was damaged.

The second tornado in St Joseph county was also rated an EF-0 with maximum wind speeds to 65 mph. The touchdown was very brief at just 70 yards in length. No injuries or deaths were reported. Observed damage included tilting of large trees with some limbs down. One large tree limb fell on to a shed and lifted it up on to its side. A tree fell on a car. There was some damage to shingles at a residence as well.

Thunderstorm winds not associated with the tornadoes caused other damage including downed trees and fences. About 2,000 customers lost power when 4 utility poles and lines were ripped down in St Joseph county. Some residents had uprooted trees and downed limbs in their neighborhoods. In Elkhart county large limbs were snapped off.

Rainy weather in late week slowed soybean harvest progress around Indiana. When cooler temperatures arrived some areas experienced their first scattered autumn frost. Livestock were in good condition and had begun building their winter coats. Hay cutting was nearly complete. The field corn crop was reported as 97% mature while beans were rated at about 95% done. With a delayed first frost in many areas the freeze risk to premature field crops has been minimal this year.



## October 16<sup>th</sup> – 22<sup>nd</sup>

Unseasonably warm weather early this week turned sharply colder in mid-week. Daily average temperatures plummeted 24°F over the latter 5 days. Rainfall was light while the weather was warm but became heavy in spots and spanned statewide as cooler air took over. When the cool air arrived very large hail and wind damage impacted southern Indiana. Rainfall continued to be sparse in far southern counties this month, prompting the US Drought Monitor to reassign a dry rating to this region. The heavy rainfall during the cold frontal passage interrupted harvest progress in some areas this week.

On October 16<sup>th</sup> the state temperature registered a very mild 11°F above normal. Southerly winds on the west side of a mid-Atlantic ridge transported warm Gulf coast air to Indiana. A cold front was poised to enter Indiana but the ridge strengthened the next day and reversed the cold front progress into a warm front headed for northern Michigan. Coupled with a cold front in Minnesota the reversed front defined a new warm sector that dominated most of the east half of the country. Indiana was well inside this warm sector and the state temperature soared to 18°F above normal.

The Atlantic ridge weakened some on October 18<sup>th</sup> and allowed the Minnesota cold front to advance to an original location over Illinois and Missouri. Indiana was still heating up in the warm sector ahead of the cold front. The state temperature peaked at 20°F above normal.

The next day the cold front finally passed through Indiana, slowing down at the Ohio River. A cooling trend began that would continue to the end of the week. The state temperature fell to 16°F above normal.

The Ohio River cold front did stall there on October 20<sup>th</sup>. Meanwhile a new reinforcement cold front had dipped south from Canada. This front also stalled as a stationary front, this one in northern Indiana. The state was squeezed between two stationary fronts. Severe weather erupted the evening before in southern Indiana as the squeeze was forming. The state temperature nosedived to 7°F above normal.

High pressure in the Dakotas weighed in and forced the two stationary fronts to merge on October 21<sup>st</sup>. The merged front advanced to Virginia as a cold front. Storminess was leaving Indiana. Cold air was still pouring into the state behind the cold front and dragged the state temperature down to normal.

On October 22<sup>nd</sup> the cold front pushed well east off the Atlantic coast. High pressure from central Canada settled overhead Indiana and extended south to Texas, drawing still colder air into Indiana. The state temperature ended the week at 4°F below normal, the coldest day of the week.

Over the full week the Indiana state temperature averaged to 10°F above normal. Typically in this third week of October Indiana daily maximum temperatures would range from 61°F in far northern Indiana to 69°F in the southwest corner of the state. Daily minimums normally vary between 42°F and 44°F north to south across the state. The warmest maximum temperature of the week among stations in the cooperative network was 88°F at Terre Haute on October 18<sup>th</sup>. The coolest minimum temperature among stations in this same network was 32°F at Purdue University Airport on October 22<sup>nd</sup>.

Rainfall was recorded on all but one day this week. Precipitation fell statewide according to the CoCoRaHS morning reports of October 20<sup>th</sup> and 21<sup>st</sup> during the cold frontal passage.

On the weekly state rainfall map a heavy rain band fell west to east across the southern edge of central Indiana. More than 2.5" fell mostly along a Greene county to Jennings county line and from Clay to Marion counties. The heaviest band exceeded 4" in Greene, Monroe, and Morgan counties. About 2" was noted along a Vigo to Adams county line northeast across the state. Counties along the Ohio border between Adams and Ohio counties also had more than 2". Southwest Indiana was mostly missed again with less than 0.5" generally in Gibson, Pike, Vanderburgh, and Warrick counties.

Yet rainfall was heavy in spots. In morning CoCoRaHS reports on October 20<sup>th</sup> the Oolitic observer captured 4.15" while outside Bloomington 3.94" was received. Near Jasonville 3.46" fell while Clay City had 3.43" and northeast of Indianapolis 3.40" was collected. For the week some of the heaviest totals were 4.67" near Jasonville, 4.62" in the Bloomington vicinity, 3.87" at Castleton, 3.75" in Gosport, and 3.74" west of Indianapolis. Regionally on average about 1.3" fell across northern Indiana, 2.1" in central areas, and 1.7" across the south. These amounts equate to about 180% of normal in the north, 320% of normal in central Indiana, and 190% of normal across the south.

In the same storm system that generated tornado warnings but no touchdowns on October 19<sup>th</sup>, hail and damaging winds occurred in a west to east band across southern Indiana. Damage was reported from Sullivan and Knox counties in southwest Indiana to Ripley, Dearborn, and Ohio counties in the southeast.

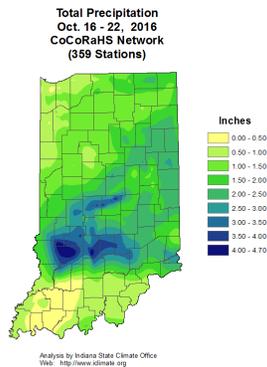
Moderate hail between 1.00" and 1.25" was reported in Sullivan, Knox, and Jackson counties. Very large hail struck along the Ohio border. In Dearborn county hail sizes ranged from 2.50" to 3.00". In adjacent Ohio county hail stone diameters ranged from 2.00" to 3.00". Hail shattered windows and windshields.

Wind gusts in Sullivan county removed a shed roof and dropped it a quarter mile away. In Lawrence county a barn was damaged, trees ripped down, and power lines taken out. Power was lost to many homes and businesses. Damage was estimated to be the worst in Ripley and Dearborn counties. A tree was toppled onto a home in Ripley county and streets were flooded in torrential rainfall. Trees were also destroyed in Dearborn county. A softball press box was destroyed and large limbs snapped in Ohio county, causing power outages for some residents. In adjacent Switzerland county fallen trees ripped down power lines and house gutters.

Far southern Indiana did not generally benefit from heavy rains as areas to the north did. The US Drought Monitor edition of October 18<sup>th</sup> reinstated an abnormally dry D0 soil rating along the Ohio River that had been removed at the start of October. The D0 category was returned to all or nearly all of 14 counties and portions of 4 other counties. The net impact was that 15% of total Indiana land area was designated in the D0 category while the remaining 85% was rated in normal soil moisture status for this time of year.

Harvest was well along at the start of the week when very warm weather prevailed. Then rainfall during the cool down interrupted the Indiana harvest. There was some worry that the wetness could damage crops still in the field. Yet wet weather is helpful to winter wheat germination and livestock grazing of lush pastures. The October 24<sup>th</sup> edition of the USDA Indiana Crop and

Weather bulletin estimated that 70% of summer crops were harvested and safe from a killing freeze. Soybean harvest was put on hold due to the rain. Some corn was damaged by wind gusts. Mold and ear rot were continuing problems.



## October 23<sup>rd</sup> – 31<sup>st</sup>

Temperatures were near normal the first 6 days of this final October interval before warming up to close out the month. Moderate rainfall was recorded only in the October 27<sup>th</sup> morning report. All other days were dry or received light rain. There was no severe weather. Soils became drier along the Ohio River with moderate D1 category drought introduced into several counties there. Crop harvest conditions were variable across Indiana according to the USDA Indiana Crop and Weather Report and generally less than ideal. The report noted that fall harvest is about 80% complete.

Weather system activity has increased over Indiana this second half of October. Wave pulses riding on a mostly zonal upper atmospheric wind pattern were generally the cause.

A high pressure center over Mississippi reached north to Indiana, bringing sunny skies and light winds to the state and placing the daily average temperature at 3°F above normal on October 23<sup>rd</sup>. A storm system in Minnesota traveled east the next day, dragging with it a cold front through Indiana before slowing as a stationary front over the Ohio River. The state temperature cooled a bit to 1°F above normal. Strong high pressure in the Great Plains expanded into Indiana on October 25<sup>th</sup>, reverting the stationary front into a cold front which advanced to the Gulf states. Cold air poured into Indiana and lowered the state temperature to 3°F below normal, the coldest day of the interval. The cold front moved offshore into the Atlantic the next day. The Indiana high center tagged behind the front into North Carolina, setting up a backflow of warmer air to Indiana. The state temperature lifted to 1°F above normal. Rain fell across the north half of the state.

A new storm system moved from Iowa to Michigan on October 27<sup>th</sup>. Its warm front raced quickly across Indiana, followed immediately by its paired cold front which dipped into southern Indiana. The state temperature returned to normal as moderate rain fell across northern and central Indiana. The next day the cold front reached the Gulf states where it halted as a stationary front. High pressure behind the front drifted to Ohio and set up a warm return flow into Indiana. The state

temperature rose to 3°F above normal. Rain had covered the north half of the state and was now ending.

On October 29<sup>th</sup> the Ohio high center continued on to North Carolina, forcing the stationary front into the Atlantic. The leading warm front of the next storm system in the Dakotas zipped across Indiana and into Ontario. The state temperature responded and jumped to 10°F above normal. The next day the trailing cold front of the Ontario storm moved into central Indiana, triggering showers in the northern tier of counties. This front slowed and transformed into a stationary front when it had passed halfway through the state. The state temperature peaked at 11°F above normal, the warmest day of the 9 day interval. On Halloween high pressure west of the Indiana front pushed east through Michigan and kicked the Indiana stationary front south into Tennessee. This opened the door to cool Canadian air which flowed into Indiana. The state temperature fell to 4°F above normal to close out October.

Over the 9 days the Indiana state temperature averaged to 3°F above normal. Typically in late October the daily maximum temperature should range between 58°F and 66°F north to south across the state. Daily minimums normally vary from 40°F in far northern Indiana to 43°F in the southwest region of the state. The warmest temperature in the cooperative station network over the 9 days was 84°F at several locations on October 30<sup>th</sup> and 31<sup>st</sup>. The coolest temperature among stations in this same network was 30°F at the South Bend Michiana Airport on October 25<sup>th</sup>.

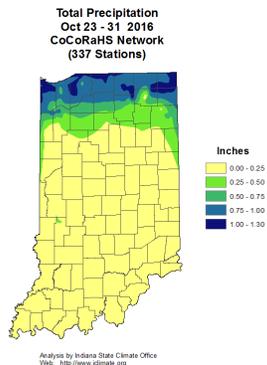
Light rain fell on 5 of 9 days with moderate rain in the morning report of October 27<sup>th</sup> as the warming trend began. Rain did not fall statewide on any day. The rainfall pattern was tilted heavily to northern Indiana according to the weekly rainfall map. More than 0.25" fell generally north of a Morocco to Decatur line with heavier amounts trending strongly to the Michigan border. In the northern tier of Indiana counties total rainfall was in the range of 1.0" to 1.3". Less than 0.25" was very common elsewhere across the state. Regionally about 0.55" fell on average in northern Indiana, 0.15" across the central part of the state, and just a few hundredths across the south. These amounts equate to about 80% of normal in the north, 25% of normal in central, and just 5% of normal in southern Indiana. A few spots with the heaviest rainfall recorded the morning of October 27<sup>th</sup> included Syracuse with 1.04", and the vicinities of New Carlisle and Angola with 1.00" according to CoCoRaHS observers in those communities. The heaviest rainfall totals over the 9 day interval were 1.36" in Dyer, 1.21" at Syracuse, 1.18" in Millersburg, 1.17" outside of Angola, and 1.13" in Highland.

The abnormally dry D0 area that was reinstated by the US Drought Monitor in mid-October was expanded slightly in the November 1<sup>st</sup> edition. New areas of D0 expansion included parts of Posey, Gibson, Dubois, Knox, Martin, Lawrence, and Clark counties. All of Pike and Scott counties are now included. A large portion of previous abnormally dry D0 counties were downgraded to a moderate drought D1 rating including most of Vanderburgh, Warrick, Spencer, Dubois, Perry, Crawford, Orange, Harrison, Floyd, and parts of Pike, Washington, and Jefferson counties. The net result was that 10% of all Indiana land area has been converted to moderate drought D1 status, 9% has been retained or added to abnormally dry D0 status, leaving 81% of the state rated in normal soil moisture status for this time of year.

According to the October 31<sup>st</sup> edition of the USDA Indiana Crop and Weather report, weather impacts near the end of October were variable at best but undesirable for almost everyone. Cool and wet conditions dominated northern Indiana while warm and dry weather was in control across

southern Indiana. This led to variable pasture condition but overall livestock were in good shape. Corn and soybean harvest was near the 80% completion mark for the season but soybean harvest was hampered by spots of too much rain and dew condensation.

While the first freeze of autumn 2016 has already occurred in northern Indiana, no counties have experienced a growing season ending killing freeze as of the end of October. If this trend continues Indiana harvest will have finished and all crops will be safe from freeze damage.



## October 2016

Region	Temperature	Temperature	
		Normal	Deviation
Northwest	57.6	52.9	4.7
North Central	57.2	52.2	4.9
Northeast	56.6	51.8	4.8
West Central	59.8	54.1	5.7
Central	59.4	53.5	5.9
East Central	58.8	52.7	6.1
Southwest	62.8	56.7	6.0
South Central	62.2	56.0	6.2
Southeast	61.4	55.2	6.2
<b>State</b>	59.6	54.0	5.6

Region	Precipitation	Precipitation		
		Normal	Deviation	Percent of Normal
Northwest	2.88	2.92	-0.04	99
North Central	3.23	2.95	0.28	110
Northeast	3.11	2.70	0.41	115
West Central	2.72	2.90	-0.18	94
Central	2.97	2.82	0.15	105
East Central	2.89	2.73	0.16	106
Southwest	1.51	3.04	-1.53	50
South Central	1.89	3.02	-1.13	63
Southeast	2.13	2.98	-0.85	71
<b>State</b>	2.58	2.90	-0.32	89

## Autumn so far (Sep - Oct)

Region	Temperature	Temperature	
		Normal	Deviation
Northwest	63.2	58.6	4.5
North Central	62.7	58.0	4.7
Northeast	62.1	57.6	4.5
West Central	65.0	59.9	5.1
Central	64.5	59.3	5.3
East Central	64.1	58.5	5.6
Southwest	67.4	62.4	5.0
South Central	66.9	61.6	5.2
Southeast	66.3	60.9	5.4
<b>State</b>	64.7	59.7	5.0

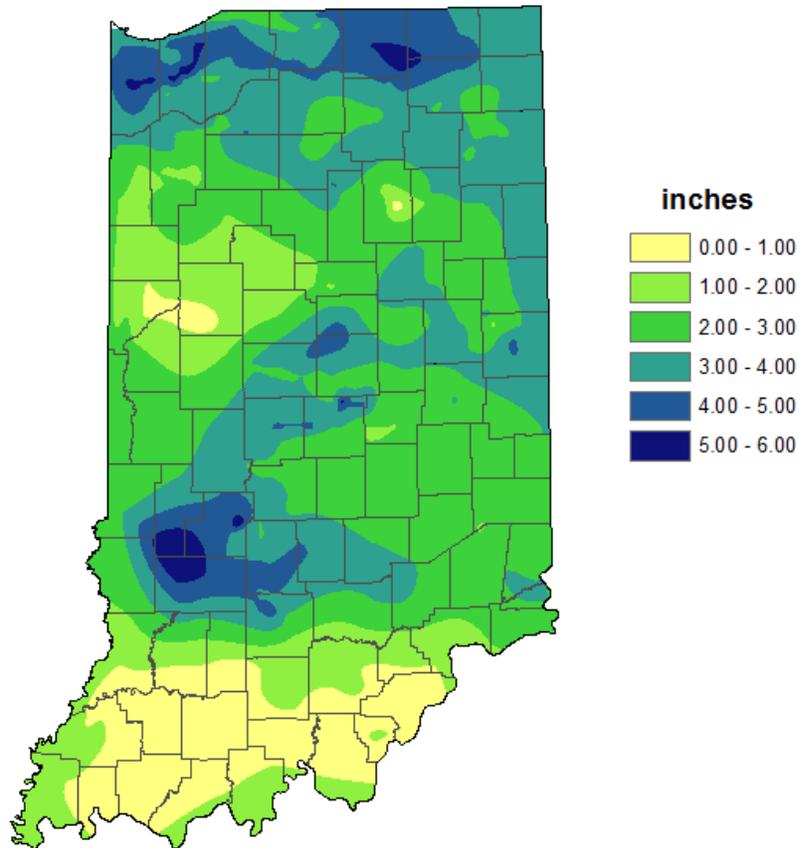
Region	Precipitation	Precipitation		
		Normal	Deviation	Percent of Normal
Northwest	6.73	6.13	0.60	110
North Central	7.12	6.25	0.87	114
Northeast	7.00	5.90	1.11	119
West Central	6.42	5.93	0.49	108
Central	7.14	5.81	1.33	123
East Central	6.28	5.52	0.76	114
Southwest	4.60	6.18	-1.57	75
South Central	4.67	6.13	-1.45	76
Southeast	5.64	5.95	-0.31	95
<b>State</b>	6.20	5.99	0.21	103

## 2016 Annual so far (Jan - Oct)

<b>Region</b>	<b>Temperature</b>	<b>Temperature</b>	
		<b>Normal</b>	<b>Deviation</b>
Northwest	55.5	53.3	2.2
North Central	55.2	52.8	2.4
Northeast	55.1	52.4	2.6
West Central	57.5	54.9	2.6
Central	57.4	54.5	3.0
East Central	56.9	53.6	3.3
Southwest	60.4	58.0	2.4
South Central	60.0	57.4	2.5
Southeast	59.3	56.6	2.7
<b>State</b>	57.6	54.9	2.6

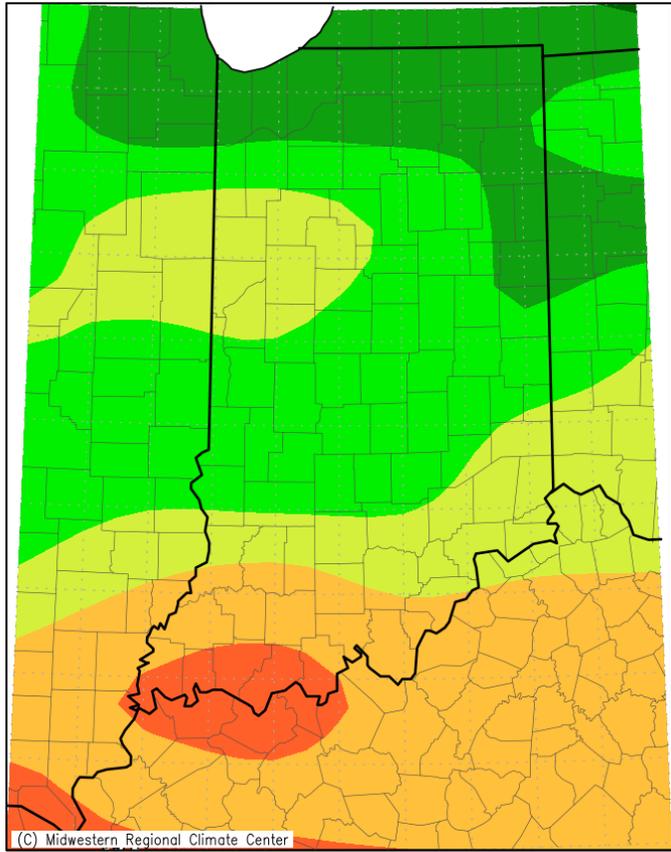
<b>Region</b>	<b>Precipitation</b>	<b>Precipitation</b>		
		<b>Normal</b>	<b>Deviation</b>	<b>Percent of Normal</b>
Northwest	37.28	32.23	5.05	116
North Central	34.63	32.27	2.36	107
Northeast	31.80	31.05	0.75	102
West Central	36.70	34.67	2.03	106
Central	41.53	34.13	7.40	122
East Central	36.20	33.01	3.19	110
Southwest	41.95	37.76	4.19	111
South Central	44.09	38.06	6.03	116
Southeast	40.93	37.01	3.92	111
<b>State</b>	38.70	34.54	4.16	112

**Total Precipitation  
October 2016  
CoCoRaHS network  
(357 stations)**



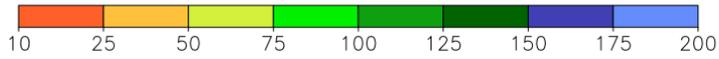
Analysis by Indiana State Climate Office  
Web: <http://www.iclimate.org>

Accumulated Precipitation: Percent of Mean  
October 1, 2016 to October 31, 2016



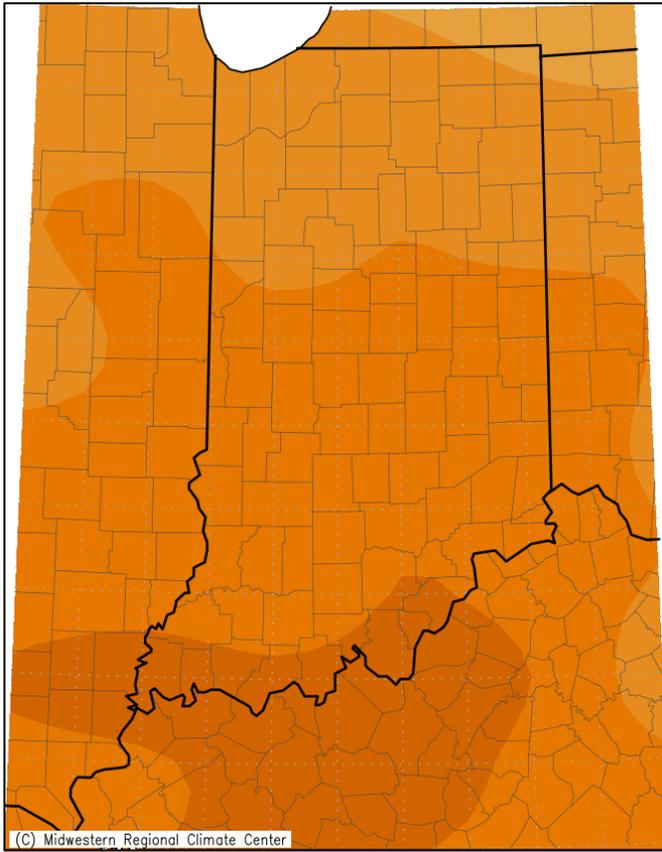
(C) Midwestern Regional Climate Center

Mean period is 1981-2010.



Midwestern Regional Climate Center  
cli-MATE: MRCC Application Tools Environment  
Generated at: 11/7/2016 10:46:08 AM CST

Average Temperature (°F): Departure from Mean  
October 1, 2016 to October 31, 2016



Mean period is 1981-2010.



Midwestern Regional Climate Center  
cli-MATE: MRCC Application Tools Environment  
Generated at: 11/7/2016 10:47:10 AM CST

## *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 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 what percentage of the state is drought free, and how much of the state is in drought by degree of severity (D1 - D4 category).

Statistics type: Categorical Percent Area
Indiana

### Percent Area in U.S. Drought Monitor Categories

Show 25 entries

Search:

Week	None	D0	D1	D2	D3	D4
2016-11-01	81.07	9.36	9.57	0.00	0.00	0.00
2016-10-25	85.86	14.14	0.00	0.00	0.00	0.00
2016-10-18	84.71	15.29	0.00	0.00	0.00	0.00
2016-10-11	100.00	0.00	0.00	0.00	0.00	0.00
2016-10-04	100.00	0.00	0.00	0.00	0.00	0.00

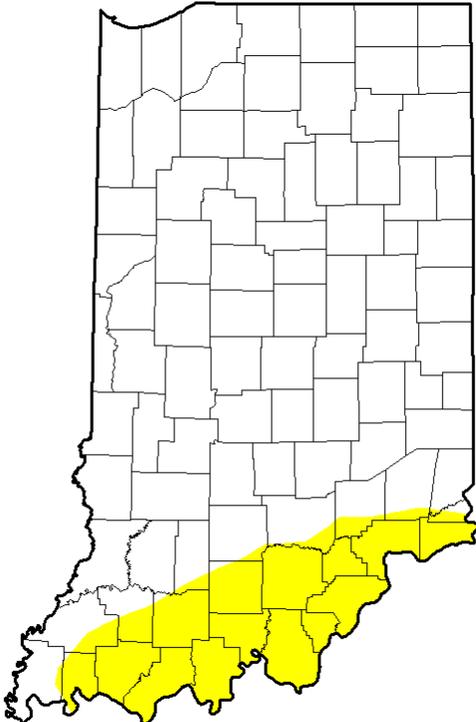
*Oct 4<sup>th</sup> Drought Summary*



*Oct 11<sup>th</sup> Drought Summary*



*Oct 18<sup>th</sup> Drought Summary*



*Oct 25<sup>th</sup> Drought Summary*

