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Pest&Crop newsletter

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VIDEOS: Delayed Planting Considerations for Corn and Soybean

(John Obermeyer)

Though we have had significant planting progress with a brief respite in rain, showers are once again returning to the state. The following videos may help answer questions with yet to be planted fields:

Part 1 of 3: Historical Indiana Planting Dates and Yield Trends

YouTube link: https://youtu.be/rUhfkWcNXOQ

Part 2 of 3: Late Corn Planting Considerations

YouTube link: https://youtu.be/qlrn42V8dyI

Part 3 of 3: Late Soybean Planting Considerations

YouTube link: https://youtu.be/Lwr9kIOE84o

Indiana Climate Weather Report

(Austin Pearson)

As we close the doors on May for the year, one of the biggest stories throughout the month was the precipitation. The entire state was above normal. Northwestern Indiana was 3.41” above normal and southeastern Indiana was 0.18” above normal for the month (Figure 1). Temperatures were near normal in the northern and above normal in the central and southern tiers of the state. Some stations in Central Indiana recorded rainfall on 24 out of 31 days.

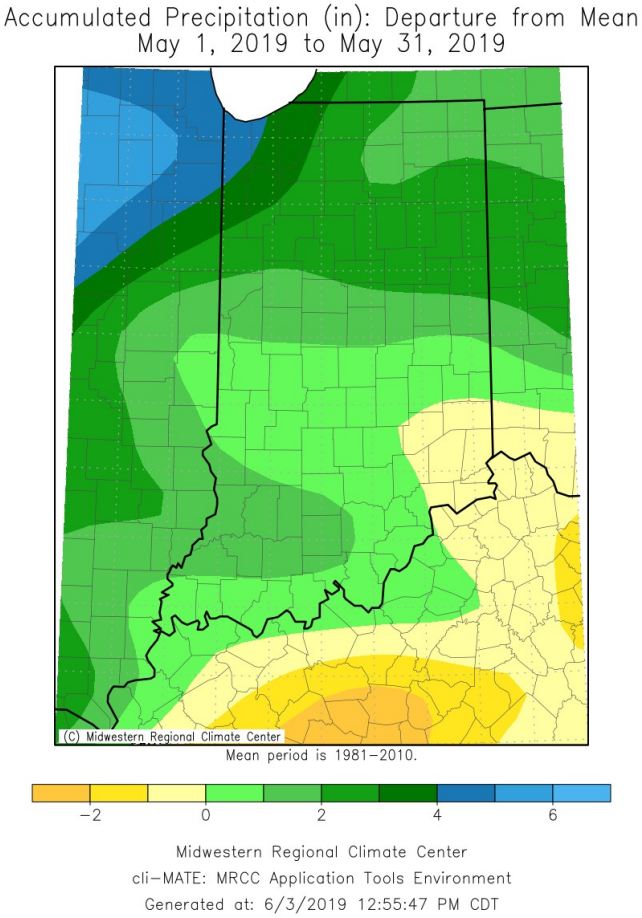

Figure 1: Indiana Precipitation – Departure from Mean May 2019

The good news is that many areas saw dry conditions set in the last week of May and beginning of June and helped alleviate some of the saturated soils. This actually provided a very limited window of opportunity for the agriculture industry. Unfortunately, the weather looks to turn off wet again with 1 to 4 inches of rainfall projected through June 10th. The wet pattern looks to continue through the first three weeks of June with higher confidence in below normal temperatures and above normal precipitation (Figure 2 & 3).

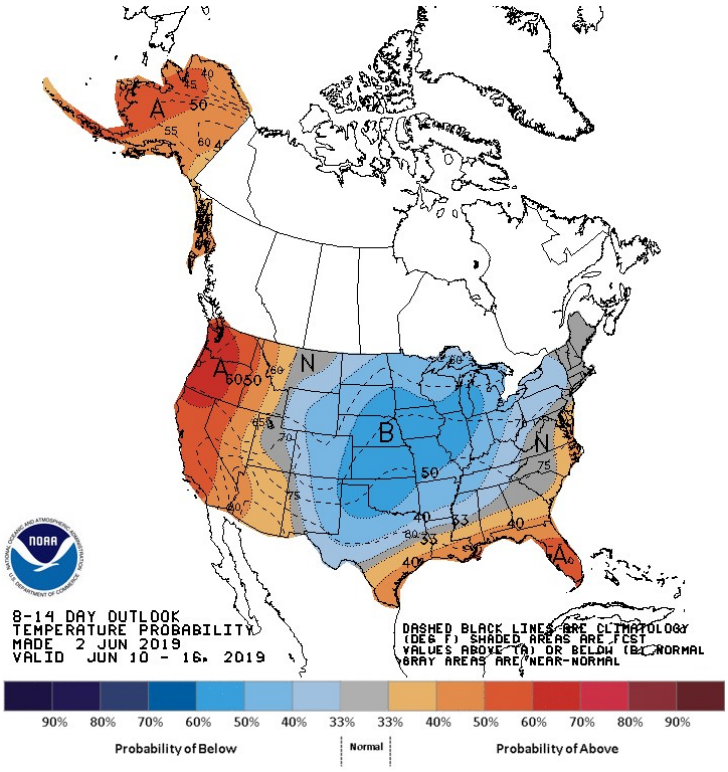

Figure 2: 8-14 Day Temperature Outlook

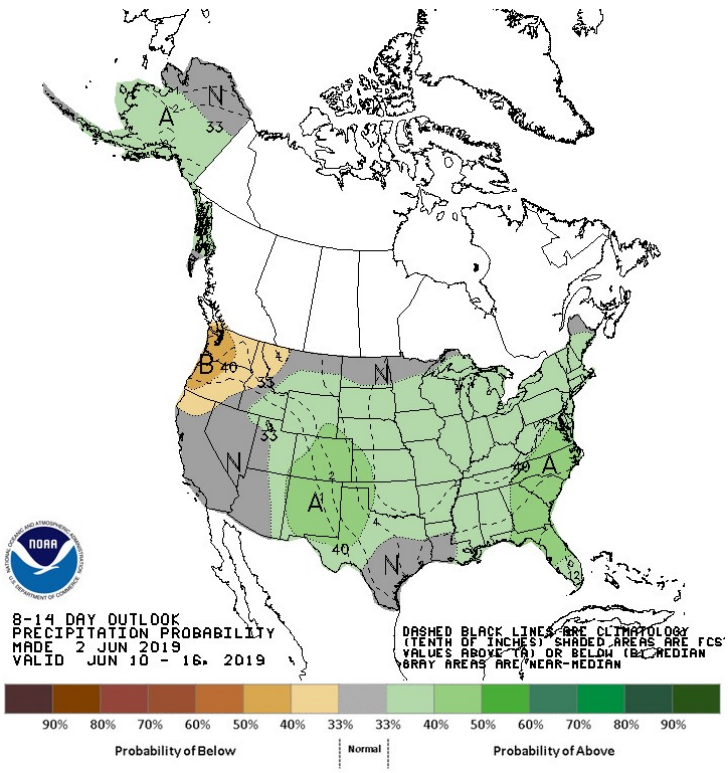

Figure 3: 8-14 Day Precipitation Outlook

Taking this forecast into consideration, it is extremely important to keep an eye on vegetation as conditions may be favorable for disease development. Purdue Extension has various publications about disease management that may be utilized to assist with various diseases. For the row crop industry, producers should already be contacting insurance agents and agronomists to decide on their plan of action for the 2019 growing season. Hybrid maturities will definitely need to be reduced in the central and northern sections of the state. Dr. Bob Nielsen, Purdue Extension Corn Specialist, has a great article about decisions for late planted corn and can be found here: https://www.agry.purdue.edu/ext/corn/news/articles_19/LatePlantedCorn.html

Early Emerged, and Isolated Soybean, Should Be Checked for Bean Leaf Beetle Damage

(John Obermeyer)

A few soybean fields were planted early, and they are not only emerged, but well into the V-growth stages. Producers are just now finding that these “islands” of legumes have become a trap-crop for bean leaf beetle activity early this season; it certainly shows their flying, and locating, ability. From surprised producer’s descriptions of damage, the beetles have been feeding for some time. Though these overwintering adults will soon taper off in numbers, as they naturally die-off, some have chosen to protect the remainder of the crop to avoid replanting. With this crazy, delayed spring, replanting is not an option for many.

Cotyledon and unifoliate leaf damage from bean leaf beetle feeding

A video, “Assessing Early Bean Leaf Beetle Feeding,” can be viewed HERE.

Armyworm Feeding on Soybean, After Cover Crop Termination

(John Obermeyer)

Armyworm primarily feed on grasses. As seen in the past, and now being reported this spring, they will feed on no-tilled soybean into a cereal rye cover crop. Weeks ago, armyworm moths were attracted to laying eggs on grasses, in which the hatched larvae were quite content on feeding. Then a burn-down herbicide was applied before/at planting and the armyworm were eventually left with no food except for the emerging soybean seedlings. To satisfy their hunger, armyworm will feed on the soybean, but are unable to properly digest this legume for nourishment. Depending on the size of the larvae, and where they feed on the plant, some soybean seedlings may be killed, Obviously, a rescue insecticide treatment is not needed, as the armyworm slowly starve to death and the tattered plants will give way to undamaged leaves.

A video, “Armyworm in Soybean, Homeless and Starving,” can be viewed HERE.

SWPAC Field Day

(John Obermeyer)

SWPAC Field Day, Thursday, June 27

Southwest Purdue Agricultural Center, 4669 N. Purdue Road, Vincennes, IN

Presentation Topics Include:

- Organic tomato production
- High tunnel grafting cucumbers & specialty melons
- Pest management to boost pollination
- Termite use to control invasive species
- Cultivating native plants
- Growing hemp in Indiana
- Unmanned aerial vehicles to gather data
- Annual strawberry production

The Southwest Purdue Agricultural Center (SWPAC) field day is free, including a lunch, but advance registration is required by Monday, June 17. Registration begins at 8:30 a.m. EDT. Register today at purdue.ag/swpac2019, by email (joynerb@purdue.edu), or by phone (812-886-0198).

Download the flyer here.

Alfalfa Winter Injury and Wet Ground – What Do We Do Now?

(Keith Johnson)

Many alfalfa fields in northeastern Indiana suffered serious winter injury. Statewide, alfalfa weevil damage was more common this year and control was difficult because of persistent spring rain. Timely forage seeding of perennial legumes and cool-season grasses this spring was not possible because of excessive rain. Continued rainfall has limited the ability to make hay on a timely fashion and forage quality will be compromised. A result of all of these concerns is that forage supplies in the Midwest USA will likely be reduced in 2019. Producers need to carefully consider all options to meet forage needs if winter injury and waterlogged soils reduced forage yield and quality.

Some corn and soybean producers may opt to take a prevented planting payment if they have crop insurance and all stipulations regarding prevented planting are met. This acreage can be seeded with a crop that can be harvested as a forage **after November 1**. I am seeking clarification with a Risk Management Agency employee to confirm if the forage can be harvested as chopped silage or baleage, or whether the harvest can only be grazed or packaged as hay.

What follows are some comments that should be useful as individuals make decisions about alfalfa stands, crop choices that could provide emergency forage if alfalfa stands are poor, and what seeding options one might consider if a prevented planting payment is received and there is an interest in harvesting the crop as a forage after November 1.

It is very important that **communication with the crop insurance representative** occurs before possible plans are put into action. It is prudent for producers to speak with Farm Service Agency personnel, too, about the impact the late winter and spring has had on yield and quality of all forages, not just alfalfa.

Alfalfa Field Assessment and Forage Seeding Considerations

Greater than 35 **robust** stems per square foot is a minimum threshold for an economic alfalfa stand. Even if the stand is poor, consider taking a harvest as hay supply will be limited.

Evaluate the severity of heaved alfalfa crowns and taproots.

Dig plants and examine root and crown health. Cut taproots in cross and longitudinal sections and note whether roots are mushy or streaked with much disease.

If it is decided that harvest should occur, harvest above heaved alfalfa crowns.

Scout the alfalfa on a weekly schedule to determine whether more stand is lost because of heaving or disease.

Harvest high, greater than four inches, if the first harvest of alfalfa has not been cut as second growth is occurring, too. Delayed regrowth will occur if cut too low.

If the stand is acceptable, does fertilizer need to be supplied as determined by soil test? If so, apply recommended nutrients after the forage has been removed from the field. If the forage stand is yellow, it likely is a nitrogen deficiency caused by a waterlogged anaerobic soil. Fifty pounds of N per acre may be in order if root health is good. If a sandy and low organic matter soil is present and the alfalfa is yellow, it could be a sulfur and/or boron deficiency. These deficiencies are best analyzed with a tissue test.

If the alfalfa stand is marginal and termination will occur, it is best to not reestablish back to alfalfa until next spring. Alfalfa autotoxicity (allelopathy) can occur when a new alfalfa seeding immediately follows an alfalfa stand. Removing the forage reduces the amount of toxin. The zone of influence of an established plant upon seedlngs is approximately a very large dinner plate. If the stand is **extremely poor because of winter loss**, an August reseeding may be successful if the stand is terminated soon. Details about alfalfa autotoxicity can be found at the link https://www.extension.purdue.edu/extmedia/AY/AY-324-W.pdf

Terminate alfalfa with tillage or herbicides that will control alfalfa and reduce summer-annual weed growth. **Review herbicide labels to note what crops can be seeded without injury and if the crops can be harvested as a forage**. Is the alfalfa Roundup Ready variety?

Forage crop choice to follow alfalfa if sown in late spring

- Seed company personnel indicate that there is **very limited** sorghum or millet crops in inventory. **Seed representatives should be contacted immediately**

if this is the preferred forage crop. Sorghum and millet seed production was low in 2018 because of weather-related conditions.

- Late-maturity indeterminate soybean (one selected that will not make grain) would be a viable option for an excellent quality forage.
    - Cut as a silage **before** soybeans are in the green bean stage and **no** leaf yellowing.
    - Drill soybeans.
    - Date of harvest would likely be in September or early October.
- Teff
    - Moderate quality at best.
    - Hay is best method of harvest.
    - Very firm seedbed needed.
    - Seed at 1/8 inch.
- Forage crabgrass
    - Can be grazed or hayed.
    - Volunteer crabgrass is likely if allowed to go to seed.

Forage crop choice to follow alfalfa if sown in early August

- Spring oats
    - Best harvested as silage; drying would likely be difficult if packaged as hay in October.
    - Excellent quality.
    - Option – Include forage turnips with spring oats if pastured and more energy is desired.
- Annual ryegrass for grazing (can overwinter)
    - **Beware** – Purdue University weed scientists and many industry weed scientists express concern about terminating annual ryegrass with a herbicide. Annual ryegrass is more difficult to kill than small grains and when growth is late vegetative or older.
    - Excellent quality.
    - Not a good choice if wheat grain is in the crop rotation because of volunteer ryegrass.
    - Include magnesium in mineral mix to reduce chance of grass tetany.

Fall seeding (early October)

- Could follow all crops above with a winter small grain seeding (cereal winter rye, winter wheat and winter triticale) that could be harvested as a forage in spring 2020.

Prevented Planting Payment eligible with forage crop opportunity – *At the date of this information (June 4), it was verbally communicated by a Risk Management Agency employee at a public meeting that the forage can be grazed or mechanically harvest as hay, but not harvested as chopped silage or baleage. Confirmation to whether hay harvest is the only means of mechanical harvest is being requested.*

***Immediate harvest* on Prevented Planting Payment corn acreage –** If cereal winter rye and winter wheat are cover crops growing now, they have value as a moderate quality forage if harvested when the developing seed is before or at the milk stage. **Labels of herbicides used on the 2018 crop, as well as the small grain cover crop, need to be evaluated to see if the small grain can be used as a forage.** Before harvesting the small grain cover crop, the crop insurance agency representative should be advised of the intention to use it as a forage.

Forage crops seeded for after November 1 use

Forage crop choice if sown in mid-August

- Spring oats
    - Drying would likely be difficult if packaged as hay.
    - Excellent quality.
    - Option – Include forage turnips with spring oats if grazed and more energy is desired.
    - Will not overwinter.
- Winter small grains (cereal winter rye, winter wheat and winter triticale) for fall grazing
    - Include magnesium in mineral mix to reduce chance of grass tetany.
    - Will overwinter and could be harvested in the spring, too.
- Annual ryegrass for fall grazing
    - **Beware** – Purdue University weed scientists and many industry weed scientists express concern about terminating annual ryegrass with a herbicide. Annual ryegrass is more difficult to kill than small grains and when growth is late vegetative or older.
    - Excellent quality.
    - Not a good choice if wheat grain is in the crop rotation because of volunteer ryegrass.
    - Include magnesium in mineral mix to reduce chance of grass tetany.
    - Can overwinter and if it does, could be harvested in the spring, too.

Increased Rain Hinders Hemp Production

(Marguerite Bolt, mbolt@purdue.edu)

Heavy weed competition and poor stand establishment in fiber hemp plots planted on May 15th at Meigs farm

With large amounts of rain across the state during the month of May, farmers have struggled to plant hemp this season. There is also the threat of increased weed pressure and seedling diseases for anybody that manages to get seeds in the ground. From four years of hemp research at Purdue, we can attest that hemp does not like wet feet.

Hemp is not a miracle crop, especially when we have very wet spring weather. Controlling for weeds and pathogens is challenging because there are no pesticides labeled for use in hemp (including OMRI listed pesticides). Having a clean seedbed prior to planting can help reduce weed pressure, as well as a higher seeding rate and tighter row widths (Vera et al. 2006). Weed control is crucial during the first 3-4 weeks of growth until hemp becomes more competitive once canopy closure occurs.

There are multiple pathogens affecting hemp seedlings including damping off diseases caused by water molds (Chromista), Pythium species (*P. aphanidermatum* and *P. ultimum*), and several other fungal species (Beckerman et al. 2017; McPartland 1996b; McPartland and McKernan 2017). Saturated and compacted soils are the perfect combination to foster diseases that affect stand establishment.

While hemp production in the state is still minimal compared with corn and soy, approximately 4,000 acres were registered for hemp production in 2019. We predict hemp acreage could triple next year. A lot is at stake for this re-emerging crop as farmers look to diversify, however, there is a lack of established guidelines for production and pest management. Because our knowledge of production is limited, and we cannot apply pesticides, hemp poses economic risks, especially when we have a very wet spring. For anybody interested in hemp production, have a solid plan for planting, managing, harvesting, and selling your crop.

Related References

Purdue Hemp Website. https://dev.purduehemp.org/hemp-production/

Beckerman J, Nisonson H, Albright N, and Creswell T. 2017. First Report of *Pythium aphanidermatum* crown and root rot of industrial hemp in the United States. Plant Disease 101: 1038-1039.

McPartland JM. 1996b. A review of Cannabis diseases. J. Int. Hemp Assoc. 3, 19–23.

McPartland JM, McKernan KJ, 2017. In: Chandra S, Lata H, ElSohly M. (Eds.) Contaminants of Concern in Cannabis: Microbes, Heavy Metals and Pesticides. Springer International Publishing, pp. 457–474.

Vera CL, Woods SM, and Raney JP. 2006. Seeding rate and row spacing effect on weed competition, yield and quality of hemp in the Parkland region of Saskatchewan. *Canadian Journal of Plant Science* 86: 911-915.

Armyworm Pheromone Trap Report – 2019

(John Obermeyer)

County/Cooperator	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10
Dubois/SIPAC Ag Center	5	24	91	74	8	3	77	82	153	
Jennings/SEPAC Ag Center	0	2	9	11	6	1	0	0	67	
Knox/SWPAC Ag Center	105	34	78	200	185	43	42	87	0	
LaPorte/Pinney Ag Center	0	127	312	52	51	39	186	13	591	
Lawrence/Feldun Ag Center	148	60	124	327	376	29	134	637	779	
Randolph/Davis Ag Center	0	193	183	420	446	236	162	50	0	
Tippecanoe/Meigs	8	5	127	120	361	82	291	251	499	
Whitley/NEPAC Ag Center	4	191	384	392	1222	739	1349	605	193	

Wk 1 = 4/4/19-4/10/19; Wk 2 = 4/11/19-4/17/19; Wk 3 = 4/18/19-4/24/19; Wk 4 = 4/25/19-5/1/19; Wk 5 = 5/2/19-5/8/19; Wk 6 = 5/9/19-5/15/19; Wk 7 = 5/16/19-5/22/19; Wk 8 = 5/23/19 – 5/29/19; Wk 9 = 5/30/19-6/5/19; Wk 10 = 6/6/19-6/12/19

Yet another storm moving through west central Indiana. (*Photo credit: John Obermeyer)*

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