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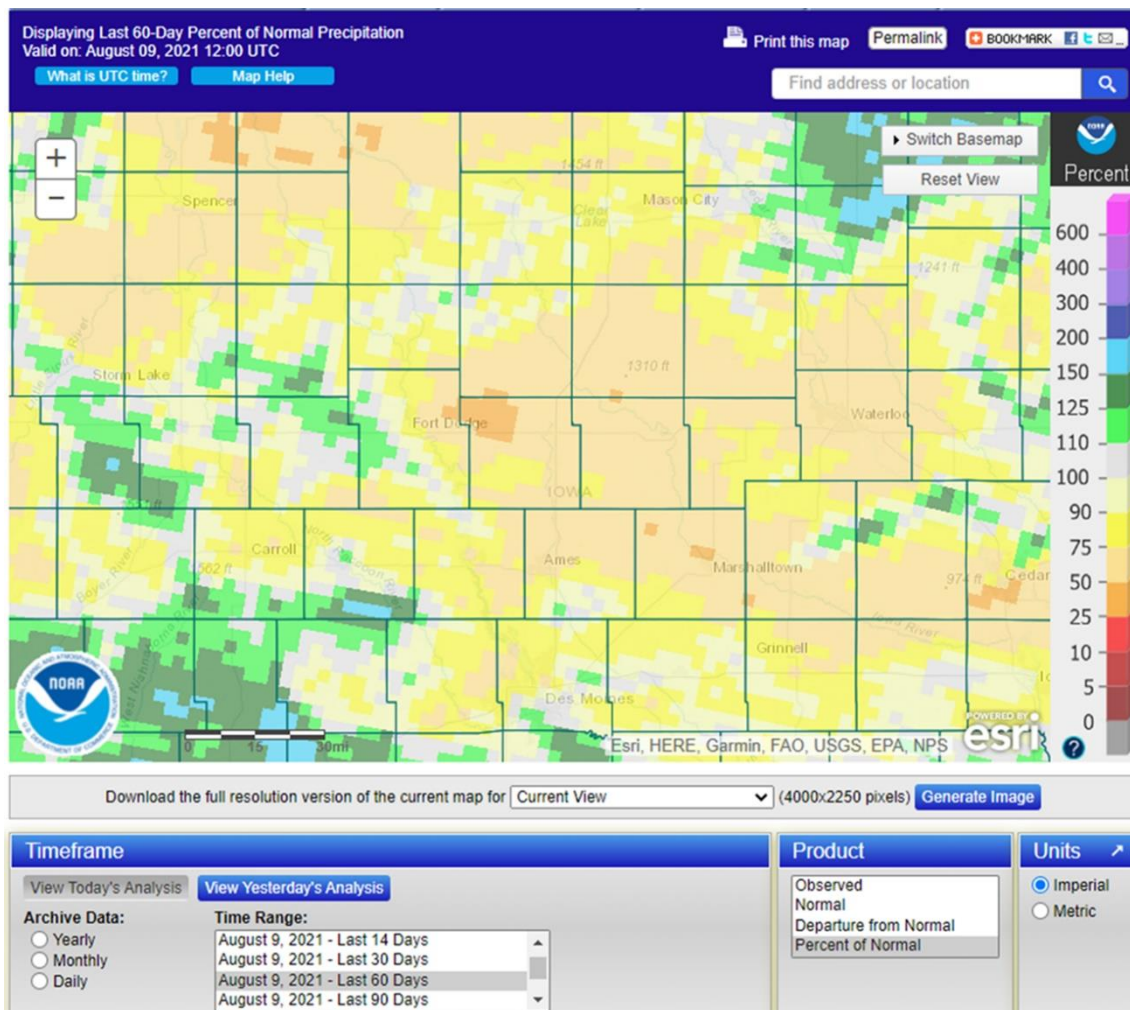
SDS and Spider Mites

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Yield Estimator/ Kernel Counts



DROUGHT CONCERNS

ARTICLES BY ALEX WOODALL AND THE PIONEER AGRONOMY TEAM

Spotty rains continue to create a distinct differentiation in rainfall patterns across the area. **The image above is the last 60 day percent of normal precipitation.** Southern Wright County continues to miss key rains and is probably one of the worst drought stricken areas in my territory.



SDS – Sudden Death making an appearance

We have started to see some SDS flashing last week where we have had more rainfall. Not much that can be done now about SDS other than to document varietal differences and note the advantage ILEVO treated soybeans have with SDS. Photos on left from Kossuth County.



Where we have been more limited on rainfall, we have seen **Spider Mites** set in. Photos above from Wright County.

As with any dry weather year, **Two-spotted Spider Mites** have a tendency to show up. Normally they are noticed on field edges first.

- Populations increase when temperatures are >85 F and humidity is less than 90% (pops can increase rapidly in these conditions)
- Mites can be collected by shaking the leaves on to a white piece of paper and looking for the moving mites
- Two spotted mites often aggregate at the field edges, especially if there are weeds surrounding the border
- They begin feeding at the bottom of the plant and move upwards as the health deteriorates
- Spider mites lack wings but disperse by the wind
- Webbing is often visible on the underside of the leaves
- Exact treatment guidelines for spider mites do not exist. But should take into consideration, infestation time, density, plant appearance. Follow the link
- Most pyrethroids are not effective against 2 spotted spider mites, except bifenthrin.
- Organophosphates (Lorsban) are recommended
- Cool weather helps keep populations in check if they exist. There is a naturally occurring fungus that can control populations when conditions exist outside of the parameters listed above.



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Corn Ear Tip Back

Tipped back corn ears can be seen at varying degrees in many fields again this year. The typical culprits like P0589 are showing a bit of a nose already so you may start to get some calls as guys walk out into the fields.

It is normal to see some tip-back, also called nosing back, every year, and with the 2021 variability you are likely to see many of those delayed ears from the frost timing tip back significantly more than the rest of the "normal" ears. Tip back can be caused by many different reasons and doesn't always signify a problem or issue. Here is a very good discussion of the topic from Dr. Nielsen at Purdue from 2003.

'The occurrence of kernel abortion signals the incidence of severe photosynthetic stress during the first few weeks of grain fill following the end of pollination. Tip kernels and late pollinated kernels are especially vulnerable to abortion because they are the result of the final days of pollination and therefore are technically the youngest kernels on the ear and most sensitive to subsequent severe photosynthetic stress.'

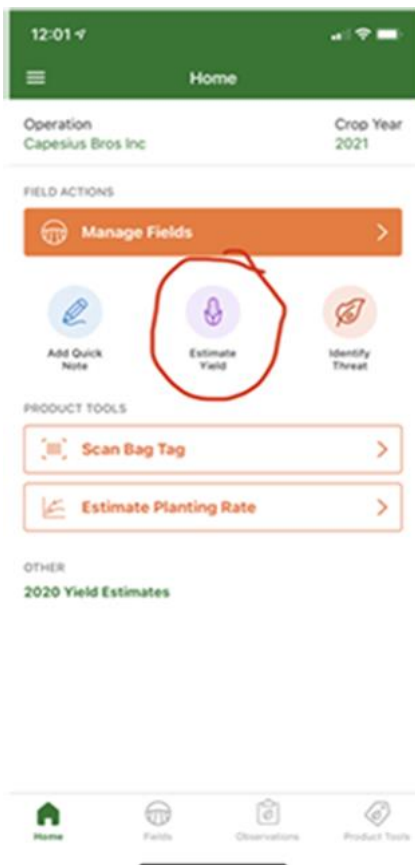
If the tipback is caused from aborted kernels (shriveled and yellow, pollinated then aborted them) its likely due to photosynthetic stress caused by:

1. Drought
2. Nutrient limitation (especially N)
3. Foliar disease
4. Weather – hail
5. Insect Defoliation
6. Lodging

As we move to Dough (R4) stage, if the kernels have been "kept" they are less likely to be aborted later on due to those issues, but kernel depth and weight will be reduced through DENT (R5 Stage)

If those kernels were never pollinated (barren, no shriveled kernels), it could have been an issue with:

- insect clipping silks
- silk elongation issues
- poorly nicked silk/pollen timing.



Hybrid Family	Kernel Weight (% of Loc. Mean) ¹	Standardized Kernels per Bushel ²	# Loc.
P9492	91.0%	88,000	4
P9772	99.5%	80,500	3
P0075	100.4%	79,500	27
P0157	99.8%	80,000	18
P0220	101.0%	79,000	26
P0306	106.0%	75,500	39
P0339	104.3%	76,500	32
P0421	103.8%	77,000	28
P0446	98.4%	81,500	17
P0574	111.3%	72,000	30
P0589	103.4%	77,500	43
P0595	102.9%	78,000	22
P0622	102.9%	77,500	32
P0688	95.0%	84,000	40
P0720	104.2%	77,000	9
P0963	111.9%	71,500	37
P0977	103.4%	77,500	27
P1082	97.7%	82,000	34
P1093	90.9%	88,000	45
P1108	101.7%	78,500	27
P1138	95.9%	83,500	14
P1185	96.4%	83,000	32
P1197	105.8%	75,500	56
P1213	104.5%	76,500	12
P1244	96.6%	83,000	20
P1353	96.7%	83,000	29
P1366	95.4%	84,000	63
P1380	100.7%	79,500	11
P1563	97.1%	82,500	15

Yield Estimator/Kernel Counts:

I have lost count of how many times I have heard a grower tell me “that is a really neat tool” or “can I get that to do some more fields?” when I pull out the yield estimator tool. A couple notes to ensure we are collecting accurate counts when using the tool.

1. Take multiple pictures from different angles of each ear. I usually take 3 shots per ear.
2. Have the ear in consistent light (preferably shade) when taking the photo
3. Make sure you have the correct kernel/bushel factor. If you don’t know anything about the hybrid and have had AVERAGE grain fill conditions – 85- 90K/bu is a good place to start. If you look at our lineup under the conditions we had over the last few years, 77-85k/bu is most common,

The Power of Test Weight:

As we continue to work through a dry year and quickly progress through developmental stages, grain quality - test weight is going to become a top-of-mind question/point of discussion. We saw a wide range of cases in 2020 of test weights with some being less than #2 yellow dent coming out of the field to some photos of multiple semi loads taken to the elevator surpassing 60lbs.

Many factors can impact test weight and factors in 2021 that could pull weights down include

- Reduced Solar Radiations at grain fill
- Premature plant death – drought – foliar diseases
- Hybrid differences (think P1197 vs P1093)
- Of course an early frost or ear rots

Kernel dry matter content at the beginning of dent is only about 45% of the eventual final accumulation explaining why late plant health is so valuable. I believe those who applied fungicide this year will see a difference if we continue to catch some later rains! Doing what we can to control the factors we can control (disease, harvest timing) will typically help drive overall yield.

