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IOWA STATE UNIVERSITY

Extension and Outreach

NC Iowa Agronomy Connection Newsletter

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What's happening with Crop Growth and Development

Corn ranges from VT to R3. This cooler weather will be a benefit for pollination and grain fill. I have been in some fields that exhibit nitrogen firing up to the ear leaf as well as fields showing potassium deficiency. The former due to excess rain in May and June and loss of nitrogen and the later likely due to poor root development due to saturated soils early on. For corn at VT-R1 stage, maximum plant height is reached, but root expansion continues until R3 stage. The primary ear is usually at node 13 of the plant with most plants having 19 to 20 leaves, although the first 5 or so leaves are usually no longer present. If growing conditions are stressful during R2–R3 stages, we would see yield reductions from loss of kernels (kernel abortion via tipping back of the ears). Once corn reaches the R4 stage, kernel number is established and yield reductions caused by stress would be from a decrease in kernel size.

Corn growth & development reproductive stages.

Stage	Description of stage	Comments	Time to next stage	GDD
R1	Silk	Maximum plant height	~ 10 days to R2	220
R2	Blister (clear liquid in developing kernel)	Maximum vegetative dry matter. Minimal grain dry matter.	~ 8 days to R3	170
R3	Milk (white liquid in developing kernel)	Outside of kernel is yellow. Starch accumulation increasing.	~ 6 days to R4	125
R4	Dough	Starch accumulation increasing. Kernel moisture starts decreasing.	~ 7 days to R5 (dent stage)	135

Soybeans range from R3, beginning pod to R5, beginning seed but there are isolated areas of smaller beans due to replant situations. It took a long time, but the soybeans in NC Iowa have finally turned that dark green color. In many places we still have not had canopy closure as the beans experienced really slow growth due to saturated soils for a long period of time.

Soybean growth & development reproductive stages.

Stage	Description of stage	Comments	Time to next stage
R1	Open flower at any node.	Recommended time for foliar applications to control White Mold.	Just a few days to R2 stage.
R2	Open flower at 1 of the 2 uppermost nodes of the main stem.	Dicamba (HG4) on Xtend soybeans is labeled up to R2 stage. Glyphosate (HG 9) on RR soybeans is labeled through the R2 stage.	About 10 days to R3 stage.
	A pod at least 3/16-inch	Most popular stage for foliar fungicide applications other than for	



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 Worth and Wright Counties.

Additional Resources

Integrated Crop Management

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Iowa Environmental Mesonet

ISU Women in Ag

R3	long at 1 of the 4 uppermost nodes of the main stem with a fully developed leaf.	White Mold control where R1 stage is recommended, and in some cases R1 + R3 stage applications for White Mold control.	About 9 days to R4
R4	A pod at least 3/4-inch long at 1 of the 4 uppermost nodes on the main stem with a fully developed leaf.	Beginning of the most crucial period of plant development in terms of stress influencing seed yield. Rapid and steady dry weight accumulation by the pods.	About 9 days to R5 stage.
R5	Seeds are 1/8-inch long in the pod at one of the four uppermost nodes on the main stem with a fully developed leaf.	By R5.5 stage, plants obtain max. height, leaf area and node number. Rapid and steady seed dry weight accumulation.	About 15 days to R6 stage.

Insects and Diseases

Soybean aphids have been reported to be on the increase in southern Minnesota and there have been scattered reports here in Iowa. I have yet to find aphids and I seem to spend more time in soybean fields than corn this time of year. The treatment threshold for soybean aphid is 250 per plant on 80% of plants and with increasing aphid populations. Here is the [link to the speed scouting guidelines](#) for soybean aphid. And also as a reminder, here is the link to the [Management of Insecticide-resistant Soybean Aphid](#) publication. I have also been seeing Japanese beetles feeding on soybeans in NC Iowa, but to date, this has been an occasional finding with minor feeding. Continue to scout for both insects.

Rootworm beetles have been emerging over the past few weeks so now is a good time to evaluate root injury by digging roots and scoring roots for damage. Also, for those with later planted corn, the silks will be highly attractive to rootworm beetles so be sure to scout for silk clipping that could impact pollination. A foliar insecticide may be warranted if there are five or more rootworm beetles per plant, silks have been clipped to less than 1/2 inch from the ear tip, and pollination is not complete. Japanese beetles will also feed on silks so scout for silk clipping from these pests as well.

Over the course of the last two weeks I have had multiple calls about the second generation of true armyworms feeding in both corn and soybeans and so has my colleague Brian Lange in NE Iowa. They prefer to eat grass, but will eat soybeans and with many acres of replanted beans, those small beans have been getting nailed. True armyworm larvae keep feeding until they get about 1.5 inches long when they stop feeding to pupate, then become a moth to lay eggs for another generation. These caterpillars are well known to move in large numbers to feed mostly on grass species. In late season corn, consider treatment if finding leaves above the ear being fed on with multiple larvae per plant, and larvae are 1-inch long or smaller and in beans if you experience 20% defoliation after flowering begins and 30% defoliation prior to flowering (for those replanted bean acres). There has also been several reports of folks finding yellow-striped armyworm. This is a rare pest in Iowa and rarely cause any economic loss but as always, scouting is recommended.

We have some gray leaf spot, physoderma and bacterial leaf streak in corn. I have yet to find gray leaf spot that warrants a fungicide application but there are plenty of places that have been flying on fungicide. Here is a link to an article that gives great information on bacterial leaf streak, [Identifying, Scouting and Management of Bacterial Leaf Streak](#).

[Septoria brown spot](#) is common in soybeans and I have also found some [Frogeye Leaf Spot](#) at very low levels.

Events

July 25. Agronomy in the Field, a women's cohort for agronomic learning will be held at the Ron and Margo Sievers farm near Rembrandt. Please contact me at 515-231-2830 if you are interested in participating. The session starts at 5:45 p.m.

August 7. Agronomy in the Field, a women's cohort for agronomic learning will be held at the Ron and Margo Sievers farm near Rembrandt. Please contact me at 515-231-2830 if you are interested in participating. The session starts at 5:45 p.m.

August 7 and August 15. Iowa State University Extension and Outreach is hosting two workshops on farmland drainage for woman landowners. The August 7 workshop will be held at NIACC in Mason City and the August 15 workshop will be held at the ISUEO Webster County office in Fort Dodge. [More details and registration information.](#)

August 8. ISU Extension and Outreach, Practical Farmers of Iowa, and Iowa Learning Farms will be hosting a cover crop field day from 5:30 - 7:30 p.m. to share information on incorporating cover crops into farm operations, including following seed corn, cost share opportunities available for farmers interested in implementing cover crops or other nitrogen-management practices, and information on local water quality data. We will offer 1.5 hours of soil and water CCA CEUs available to attendees. The workshop will begin at the Roland Community Center at 5:30 p.m. with a free, catered meal and will end on a nearby farm. Please RSVP to Iowa Learning Farms by calling 515-294-5429 or via email at ilf@iastate.edu. Learn more about this event [here](#) or check out the graphic below.

COVER CROP FIELD DAY

ROLAND COMMUNITY CENTER
208 MAIN STREET, ROLAND, IOWA

A graphic for a 'Cover Crop Field Day' event. The background is a photograph of a green cornfield under a blue sky with light clouds. The text is overlaid on the image. At the top, it says 'COVER CROP FIELD DAY' in large green letters. Below that, in smaller black letters, is the location: 'ROLAND COMMUNITY CENTER, 208 MAIN STREET, ROLAND, IOWA'. The date and time are 'WED, AUGUST 8, 5:30-7:30 PM'. It includes an RSVP deadline of 'AUG 6TH' with contact info '515.294.5429 OR ILF@IASTATE.EDU'. It mentions '1.5 SOIL & WATER MANAGEMENT CCA CREDITS AVAILABLE'. A list of speakers includes Brian Sampson, Tim Couser, Jamie Benning, Shannon Moeller, Hillary Olson, and Brett Metzger. A 'Conservation Learning Lab Project' description follows. At the bottom, it says 'COVER CROP, WATER QUALITY, COST SHARE FIELD DAY' in large white letters, and 'THIS FIELD DAY IS FREE, OPEN TO THE PUBLIC AND INCLUDES A COMPLIMENTARY MEAL.' Below that, it lists sponsors: 'IOWA LEARNING FARMS, IOWA STATE UNIVERSITY EXTENSION AND OUTREACH, PRACTICAL FARMERS OF IOWA'.

WED, AUGUST 8

5:30-7:30 PM

RSVP BY AUG 6TH
515.294.5429 OR ILF@IASTATE.EDU

1.5 SOIL & WATER MANAGEMENT
CCA CREDITS AVAILABLE

Complimentary Meal

Brian Sampson, Story Co. Farmer

Tim Couser, Story Co. Farmer

Jamie Benning, ISU Extension and Outreach

Shannon Moeller, Practical Farmers of Iowa

Hillary Olson, Story Co. NRCS

Brett Metzger, Key Cooperative

Conservation Learning Lab Project

The project is studying how implementation of conservation practices can reduce nitrogen and phosphorus loss at the watershed scale in Iowa. The project is specifically focused on the adoption of practices like cover crops that reduce the movement of nutrients on a large percentage of the watershed.

COVER CROP, WATER QUALITY, COST SHARE

FIELD DAY

THIS FIELD DAY IS FREE, OPEN TO THE PUBLIC AND INCLUDES A COMPLIMENTARY MEAL.

FIELD DAY SPONSORS:

IOWA LEARNING FARMS, IOWA STATE UNIVERSITY EXTENSION AND OUTREACH, PRACTICAL FARMERS OF IOWA

September 6. Hold the date for the Northern Research Farm Fall Field Day.

Farmland Leasing Meetings are being organized across Iowa. Locations and details can be found on the [Ag Decision Maker web page](#).

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