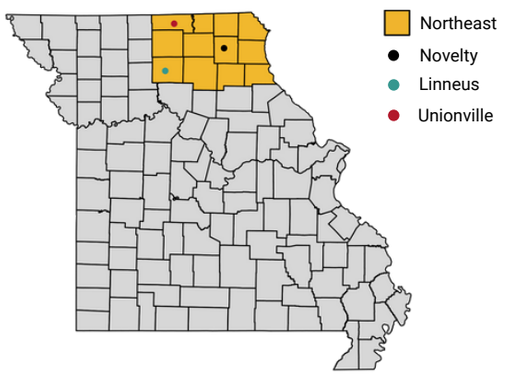
SOYBEAN GROWTH MONITORING

SOYBEAN FARMING SYSTEMS RESEARCH AND EXTENSION

WEEK: 07/09-NORTHEAST-MO



- The rainfall over the last two weeks has brought soil moisture back to high levels, reversing the mild drought stress observed during late June.

- This increased water availability helps initiate seed filling and pod setting in beans planted from April to mid-June in soils with moderate to good drainage. High soil moisture levels also benefit late-planted beans that are still in the vegetative development stage.

- Beans planted in early April have lower yield predictions than those planted in late April or June. The drought stress observed in June impacted early-planted beans during a critical stage. Yields are expected to be higher than in a normal year for all combinations of planting dates and MG in areas not experiencing prolonged soil saturation or flooding.

- Our prediction model is not yet calibrated for oxygen stress.

2024 Relative Yield Prediction

Planting date:

04-05-2024			04-26-2024			05-17-2024			06-07-2024		
MG 3	MG 4	MG 5	MG 3	MG 4	MG 5	MG 3	MG 4	MG 5	MG 3	MG 4	MG 5
+10%	+9%	+7%	+11%	+11%	+12%	+12%	+13%	+13%	+4%	+4%	+4%

Historical Baseline Yield*					
Novelty (Knox County)	45 bu/acre	Linneus (Linn County)	43 bu/acre	Unionvillle (Putnam County)	45 bu/acre

- **Obs 1:** The 2024 yield prediction is relative to the normal yield of the same maturity group planted on the same date.
- **Obs 2:** *The historical baseline yield is the average from 2019 to 2023 reported by USDA-NASS Survey Program.

Soil water content

Planting date: 04-05-2024

Soil layer	0-9in	9-23in	23-54in
Novelty (Chariton silt loam)	90%	89%	88%
Linneus (Armstrong clay loam)	89%	91%	86%
Unionville (Gara loam)	74%	74%	72%

04-26-2024

0-9in	9-23in	23-54in
91%	89%	86%
89%	91%	86%
71%	74%	72%

05-17-2024

0-9in	9-23in	23-54in
88%	90%	92%
86%	91%	88%
64%	73%	74%

06-07-2024

0-8in	8-30in	30-60in
77%	85%	87%
71%	87%	87%
42%	72%	76%

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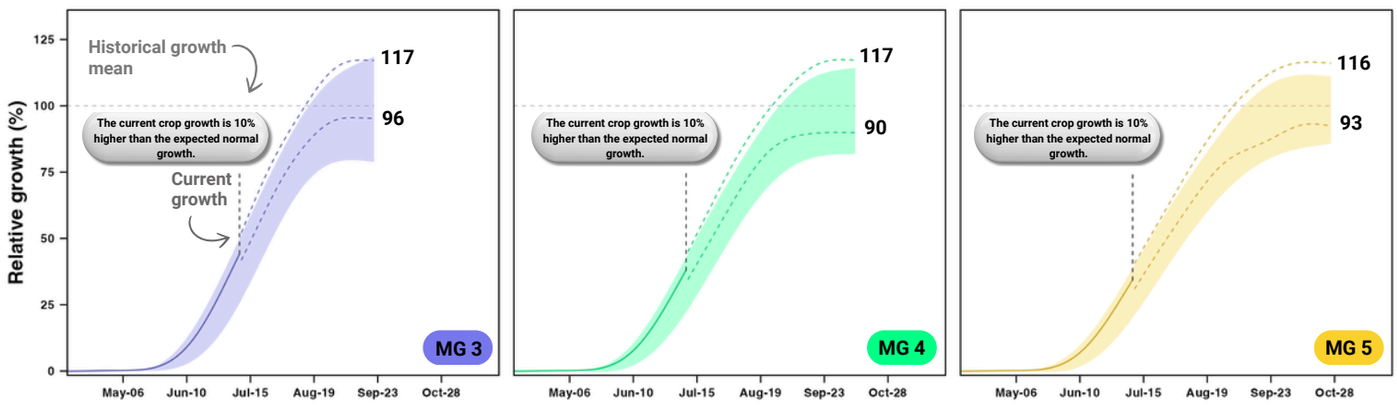
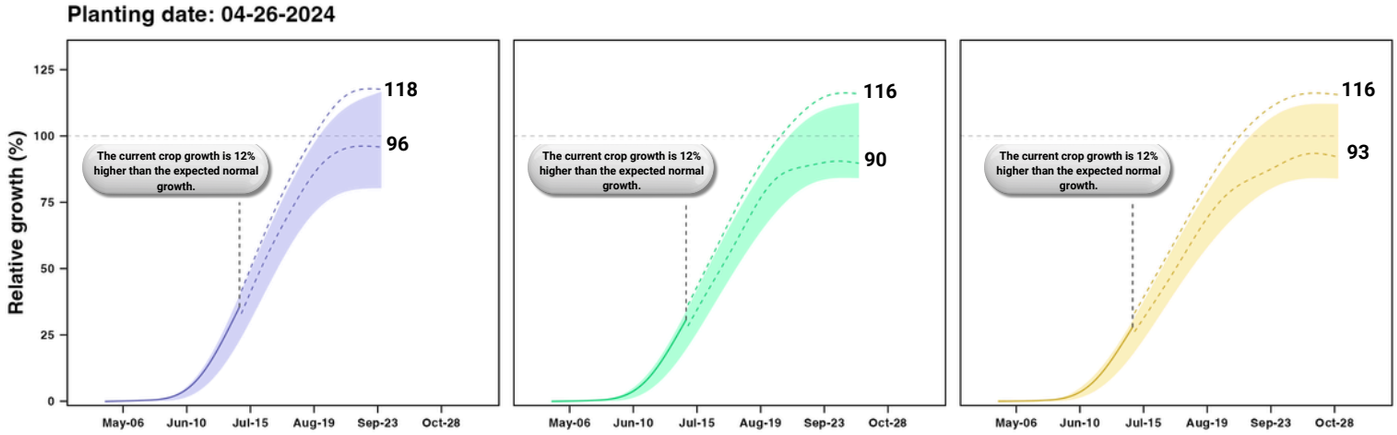
Extension University of Missouri | Variety Testing Program University of Missouri | Missouri Soybean Center University of Missouri | MISSOURI SOYBEANS

End-of-season growth prediction

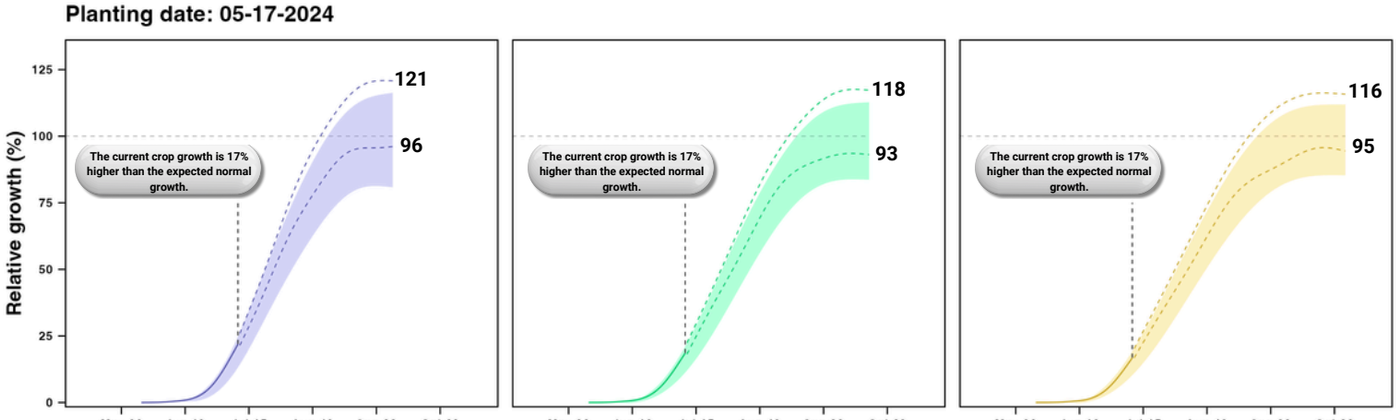
Planting date: 04-05-2024



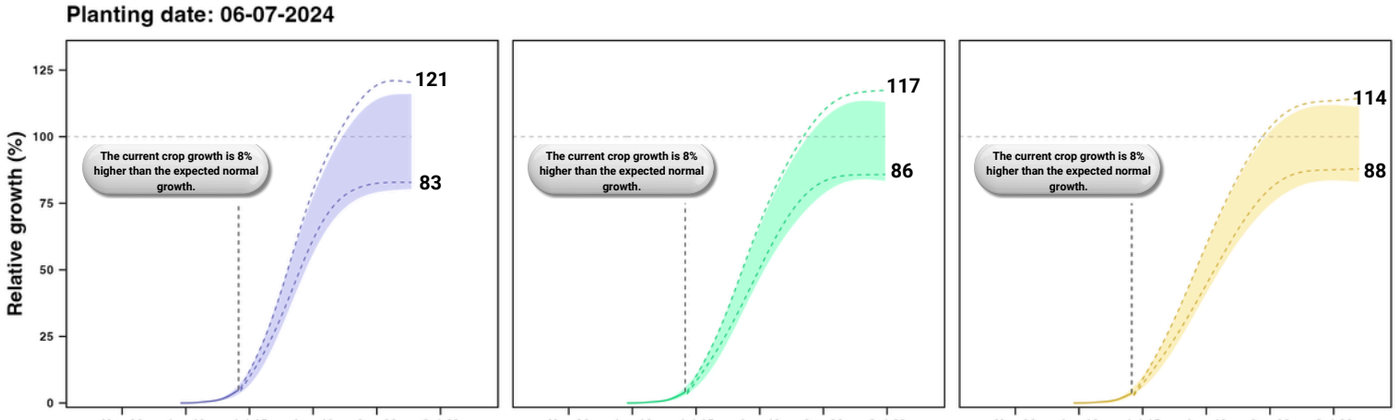
Planting date: 04-26-2024



Planting date: 05-17-2024



Planting date: 06-07-2024



Normal growth distribution

Current growth

Current growth distribution MIN/MAX

The normal growth represents the average growth expected at the reporting date, derived from simulating a current crop variety using 40 years of historical weather data specific to a particular location and planting date.

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MISSOURI SOYBEANS

Growth Cycle

Planting date: 04-05-2024

	Stage	Nodes	Harvest
MG 3	R3	14	08/28 ± 3 days
MG 4	R1	14	09/11 ± 4 days
MG 5	R1	14	09/24 ± 5 days

04-26-2024

Stage	Nodes	Harvest
R3	13	09/03 ± 3 days
R1	13	09/17 ± 4 days
V13	13	09/29 ± 5 days

05-17-2024

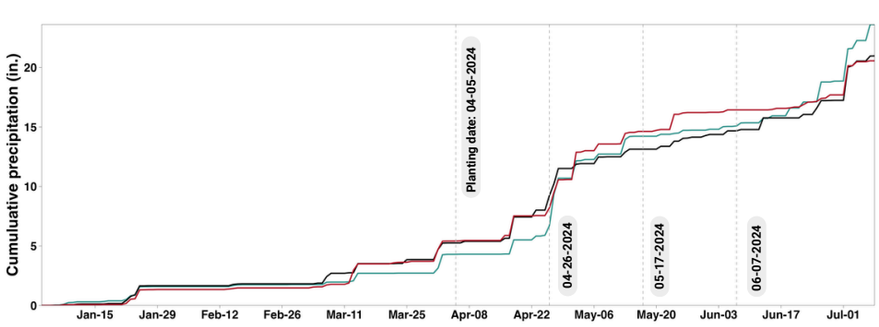
Stage	Nodes	Harvest
R1	10	09/11 ± 3 days
V10	10	09/25 ± 4 days
V10	10	10/07 ± 5 days

06-07-2024

Stage	Nodes	Harvest
V6	6	09/21 ± 4 days
V6	6	10/04 ± 5 days
V6	6	10/14 ± 6 days

The stage and nodes indicate the current crop development as of the date of this report.

Rainfall



Drought Stress

Planting date:	MG 3	MG 4	MG 5
04-05-2024	2%	2%	2%
04-26-2024	2%	2%	2%
05-17-2024	0%	0%	0%
06-07-2024	0%	0%	0%

Drought stress is estimated by the cumulative crop transpiration reduction.

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