Grass-Cast:
A grassland productivity forecast for the Great Plains & Southwest

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NC CASC Webinar Series
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DEVELOPED BY:

Funded by:
Vision: Maintain and strengthen agricultural production & natural resources under increasing climate variability and change.

Mission: Co-develop science-based, region-specific info & tech for working-land managers to enable climate-informed decisions, in collaboration with internal (USDA) and external research, extension & education partners.

https://www.climatehubs.usda.gov/
How does our Hub work?

Networks & Partnerships are the Key!

Farmers, Ranchers, Foresters & Service Providers
All Spring, We Wait & Watch...

Will there be enough grass this summer?
All Spring, We Wait & Watch…

Will there be enough grass this summer?
All Spring, We Wait & Watch...
Making Weather Info **Usable** for You

**Seasonal Outlook**

What does it **MEAN** for **grassland managers**?
Grassland Productivity Forecast

“Grass-Cast”

“Based on observed weather + future weather scenarios... we expect grassland productivity in your area... to be X% higher or lower than your area’s 38-year average.”

https://grasscast.unl.edu
Overview of “Grass-Cast” Procedure

1. Observed weather + Forecasted weather

2. ET for the growing season

3. Greenness for the season

4. Lbs/Acre of Veg for season
Forecasts aren’t always correct, so…

3 possible weather scenarios instead:

What if rainfall in May-Aug is:

1. above-normal?
2. near-normal?
3. below-normal?
May 5, 2021: “What if precip thru Aug is…”
(then updated every 2 weeks)

Medium Blue:
If precip is **above**-normal, we expect **15% to 30% more** pounds per acre than the area’s 38-year average.

Turquoise:
If precip is **near**-normal, we expect **5% to 15% more** pounds per acre.

Yellow:
If precip is **below**-normal, we expect **5% to 15% less** pounds per acre.
May 5, 2021: “What if precip thru Aug is...”
(then updated every 2 weeks)

Green: If precip is above-normal, we expect 5% less to 5% more pounds per acre than the area’s 38-year average.

Orange: If precip is near-normal, we expect 15% to 30% less pounds per acre.

Red: If precip is below-normal, we expect 30% less pounds per acre or worse.

More precise % estimates?
Which map or scenario is more likely?
Which Scenario is Most Likely?

NOAA Climate Prediction Center (CPC) 90-Day Precipitation Outlook

B = “Below Normal”

NOAA’s outlook is leaning slightly (~35% chance) towards below-normal precipitation through July 31. Still a 33% chance of near & 32% chance of above.

https://go.usa.gov/xHZh4
May 5, 2021: “What if precip thru Aug is...”
(then updated every 2 weeks)

**Green:**
If precip is **above**-normal, we expect 5% less to 5% more pounds per acre than the area’s 38-year average.

**Orange:**
If precip is **near**-normal, we expect 15% to 30% less pounds per acre.

**Red:**
If precip is **below**-normal, we expect 30% less pounds per acre or worse.
Be sure to consider **OTHER** sources of information!

**VegDRI**

![Vegetation Drought Response Index](https://vegdri.unl.edu/

- Real-time conditions
- *Not* a forecast
- Greenness
- Quality

**EDDI**

![8-week EDDI categories for May 7, 2021](https://psl.noaa.gov/eddi/)

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[https://vegdri.unl.edu/](https://vegdri.unl.edu/)

[https://psl.noaa.gov/eddi/](https://psl.noaa.gov/eddi/)
Be sure to consider YOUR local context!
Don’t Misuse Grass-Cast

It’s not a substitute for seeing rangeland conditions in person.

Don’t use it as a sole source of info for:

- Management Decisions
- Setting Stocking Rates
- Determining Turnout & Removal Dates
- Range Monitoring
- Grazing Losses
  - grazing loss (as a %) may be larger than total production % loss
Average Year
• **1000** pounds per acre
• Leave ½ → leave 500 lbs
• Take ½, but half of it gets trampled, so you really get to take ¼ = **250 lbs**

Drought Year (30% less)
• **700** pounds per acre
• If leave 500 lbs...
• 200 lbs left to take, but half gets trampled, so you really get **100 lbs**
• 100 lbs vs. 250 lbs =
• A **60%** grazing loss
• Which is >> than a 30% total production loss
To Learn More...

[Grassland Production Forecast website]

https://grasscast.unl.edu

or type ‘Grass-Cast’ into your favorite web browser
Grass-Cast Database - Data on aboveground net primary productivity (ANPP), climate data, NDVI, and cattle weight gain for Western U.S. rangelands

NDVI
Annual NDVI growing season values for Grass-Cast sites. See readme for more...

MD5: ctk0745e4c18648c485fe45fe4501605

NDVI_raw
Raw bimonthly NDVI values for Grass-Cast sites.

MD5: 2212417751323a99c5c72b50cf7de355

Grass-Cast_sitelist
This provides a list of sites-studies that are currently incorporated into...

MD5: 3072a22b02edb3ac3b4589be510652a0

ANPP
Dataset for annual aboveground net primary productivity (ANPP). Excel sheet...

MD5: e1ed5d4d4e1da371a91031b1b41410a

DOI: 10.15482/USDA.ADC/1521120

https://go.usa.gov/xHH82
How can Grass-Cast help inform YOUR decisions?

Let’s discuss!
Thanks for your time!

Grass-Cast is available for the Southwest too! Separate spring & summer forecasts.

Grass-Cast team contact: dannele.peck@usda.gov

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