

Converting Sandy Fields to Luscious Swards

The extreme drought of 2021 proved the durability and value of perennial pastures.

In 2021, we used less hay than normal and still produced the normal amount (120 grass fed carcasses) of excellent beef and bison.

We accomplished that through adaptive grazing in a year of intense heat and irregular rainfall.

In our area, non-irrigated crops were a complete failure.

Our farm has 200 acres of permanent pastures, divided into 70 paddocks.

We rotationally graze, frequently interseed and carefully manage our pastures.

Our farm is in the Anoka Sand Plain.

The Anoka Sand Plain is an area of 2,000 square miles.

It was formed by retreating glaciers over 10,000 years ago.

Our farm consists of gently undulating uplands, poorly drained, highly organic lowlands, and the transition slopes between those two soil types.

We graze cattle, bison, horses, sheep and goats.

We also pasture raise hogs, chickens, geese, ducks and turkeys.

The primary grazing herds are 100 beef animals, and 30 bison.

The beef animals are mostly 600-to-1,000-pound heifers.

The bison herd consists of a mature bull a half dozen cows, and young animals.

Our goal is to produce excellent, grass-fat animals to harvest each Fall.

We offer our cattle high quality hay every month of the production season.

The hay is specifically selected to complement the pasture.

The objective is to assure that they always have full and productive rumens.

The spring of 2021 was relatively dry, but our deeply rooted pasture plants got off to a fair start.

June, July and the first half of August were extremely dry and hot.

Through the summer months we carefully using up the existing forage.

During those months the cattle consumed more than the normal amount of supplementary hay.

Starting in mid-August, we received several inches of rain.

The rain continued into September.

The pastures, which had been grazed, but not overgrazed, responded with an incredible surge of growth.

In a normal year, hay consumption is light in June and July, then steadily increases to a high level by September.

Thereafter, hay consumption continues at a high rate until the cattle harvest is finished at the end of November.

In 2021 the cattle and bison grazed lush pastures into November.

Hay consumption for the year was well below average. (26 tons versus 40 tons)

The pastures look beautiful going into winter.

They have never looked better.

The beef and bison carcasses were above average especially at the end of the season.

Background.

A small, dredged stream, the Snake River winds for a mile through the farm.

We have been working to establish and improve pastures for twenty-five years.

The pastures are a combination of native grasses, non-native grasses, legumes and forbs.

Those combinations include virtually all the plants species that will grow in our sand.

For a hundred years, the sandy uplands were tilled for row crops; the high organic soils were idle wood and brushland, occasionally grazed; and the transiting slopes were oak savanna, also occasionally grazed.

Native Grasses in our Pastures

Big Bluestem
Indian Grass
Switch Grass
Little Bluestem
Quack Grass
June Grass
Kalm's Brome
Cord Grass
Needle and Thread Grass
Prairie Dropseed
Sand Burr
Wheat Grass
Sedges, numerous

Non-native Grasses in our Pastures

Brome Grass
Orchard Grass
Timothy
Kentucky Blue Grass
Creeping Foxtail
Reed Canary Grass

Legumes in our Pastures

Alfalfa, numerous varieties
Vetch, native and improved
White Clover, numerous varieties
Red Clover, numerous varieties
Alsike Clover
Birds-foot Trefoil
Ladino Clover
sainfoin

Forbs in our Pastures

100's of species from wet meadow, to mesic to dry types.

Records of note set during June 2021 heat wave:

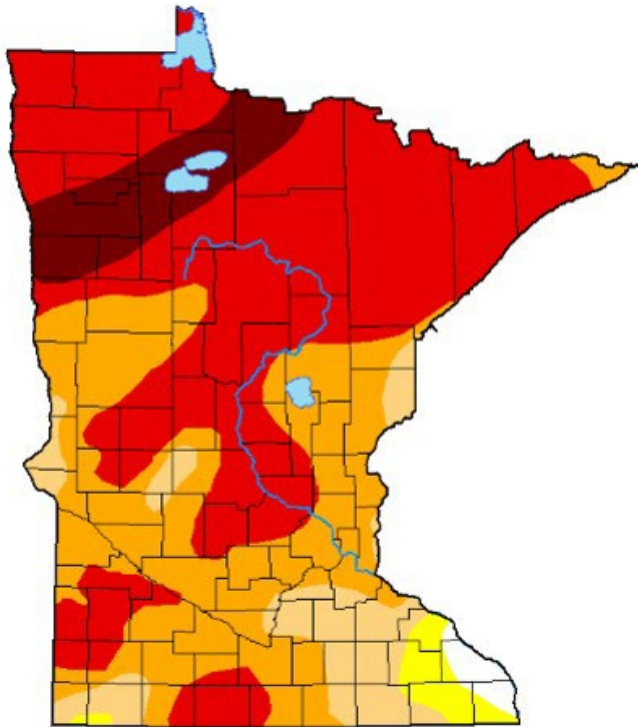
- Duluth, June 4-5: earliest-in-season occurrence of two consecutive high temps above 90 F
- International Falls, June 4: highest temperature on record so early in the season (98 F)
- St. Cloud, June 6: highest minimum temperature recorded so early in the season (74 F)
- St. Cloud: most consecutive high temperatures at or above 90 F so early in the season (seven)
- Twin Cities, June 5: highest minimum temperature on record so early in the season (78 F)
- Twin Cities: most consecutive low temperatures at or above 70 F so early in the season (nine)
- Twin Cities: most consecutive high temperatures at or above 90 F so early in the season (ni





U.S. Drought Monitor
Minnesota

August 24, 2021
(Released Thursday, Aug. 26, 2021)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1.15	98.85	96.58	87.63	57.65	8.07
Last Week 08-17-2021	1.15	98.85	96.56	88.29	49.77	8.07
3 Months Ago 05-25-2021	26.79	73.21	13.42	0.18	0.00	0.00
Start of Calendar Year 12-29-2020	1.60	98.40	23.40	0.28	0.00	0.00
Start of Water Year 09-29-2020	54.95	45.05	8.39	0.00	0.00	0.00
One Year Ago 08-25-2020	68.89	31.11	12.23	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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