The grazing intensity trial at the CGREC is an excellent example of long term ecological research. This trial, now in its 14th year, is still showing changes in plant species composition due to the different grazing intensities. Other research trials are now superimposed on these pastures to give further information on the effects of grazing intensity on mixed grass prairie in the Coteau region of North Dakota.

The photos below show a pasture that has been extremely grazed for the last 12 years.

The definition of an extremely grazed pasture is leaving 20 % of the forage produced in an average year at the end of the grazing season.

This 30 acre study pasture based on data only from silty and overflow range sites has had an average of twenty-three 750 lb. heifers on it for 4.75 months, late May through mid-October.

The 10 most dominant plant species by dry weight are:

Overflow range site	Silty range site
Kentucky bluegrass	Kentucky bluegrass
Smooth brome	Western wheatgrass
Curly-cup gumweed	Green needlegrass
Western yarrow	Western yarrow
Common dandelion	Curly-cup gumweed
Sun sedge	Sun sedge
Western wheatgrass	Quackgrass
Cudweed sagewort	Heath Aster
Soft goldenrod	Blur grama
Ticklegrass	Ticklegrass

The silty range site produces an average of 2,240 lbs/acre of forage a year. There is 750 lbs/acre available the last week of May.

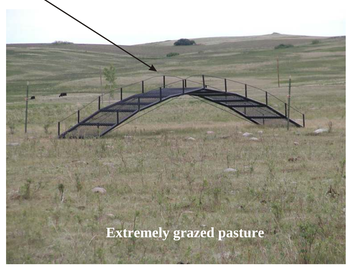
The overflow range site produces 2,950 lbs/acre of forage a year. There is 900 lbs/acre available the last week of May.

Note: 38 % of the plants by weight are increasers in the overflow range site, 37 % of the plants by weight are increasers in the silty range site.

There is little plant root regrowth in this extreme condition!

Each 750 lb. heifer has the equivalent of 0.31 acres per month for grazing.

Ramp for crossing fence with an ATV


Extremely grazed pasture


Extremely grazed pasture


Extremely grazed pasture

The photos below show a pasture that has been heavily grazed for the last 12 years.

The definition of a heavily grazed pasture is leaving 35 % of the forage produced in an average year at the end of the grazing season.

This 30 acre study pasture based on data from silty and overflow range sites has had an average of thirteen 750 lb. heifers on it for 4.75 months, late May through mid-October .

The 10 most dominant plant species by dry weight are:

Overflow range site	Silty range site
Kentucky bluegrass	Kentucky bluegrass
Western snowberry	Western wheatgrass
Stiff goldenrod	Green needlegrass
Smooth brome	Sun sedge
Western ragweed	Cudweed sagewort
Western yarrow	Wilcox dichanthelium
Heath aster	Western yarrow
Western wheatgrass	Prairie coneflower
Ticklegrass	Sedge
Northern bedstraw	Stiff goldenrod

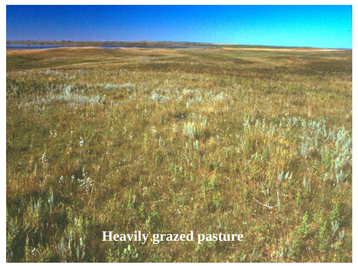
The silty range site produces an average of 2,500 lbs/acre of forage a year. There is 930 lbs/acre available the last week of May.

The overflow range site produces 4,430 lbs/acre of forage a year. There is 1,320 lbs/acre available the last week of May.

Note: 17 % of the plants by weight are increasers in the overflow range site 21 % of the plants by weight are increasers in the silty range site.

There is little plant root regrowth in this heavily grazed condition!

Each heifer has the equivalent of 0.60 acres per month for grazing.


Heavily grazed pasture


Heavily grazed pasture

The photos below show a pasture that has been moderately grazed for the last 12 years.

The definition of a moderately grazed pasture is leaving 50 % of the forage produced in an average year at the end of the grazing season.

This 30 acre study pasture based on data from silty and overflow range sites has had an average of seven 750 lb. heifers on it for 4.75 months, late May through mid-October .

The 10 most dominant plant species by dry weight are:

Overflow range site	Silty range site
Kentucky bluegrass	Kentucky bluegrass
Smooth brome	Western wheatgrass
Western snowberry	Stiff goldenrod
Stiff goldenrod	Green needlegrass
Canada goldenrod	Sun sedge
Timothy	Cudweed sagewort
Northern bedstraw	Western ragweed
Western yarrow	Sedge
Quackgrass	Heath aster
Heath aster	Western yarrow

The silty range site produces an average of 3,070 lbs/acre of forage a year. There is 1,310 lbs/acre available the last week of May.

The overflow range site produces 4,620 lbs/acre of forage a year. There is 1,340 lbs/acre available the last week of May.

Note: 13 % of the plants by weight are increasers in the overflow range site 21 % of the plants by weight are increasers in the silty range site.

This level of grazing has little effect on root regrowth.

Each 750 lb. heifer has the equivalent of 1.1 acres per month for grazing.


Moderately grazed pasture

Exclosure cage used to measure utilization


Moderately grazed pasture

The photos below show a pasture that has been lightly grazed for the last 12 years.

The definition of a lightly grazed pasture is leaving 65 % of the forage at the end of the grazing season.

This 30 acre study pasture based on data from silty and overflow range sites has had an average of three 750 lb. heifers on it for 4.75 months, late May through mid-October.

The 10 most dominant plant species by dry weight are:

Overflow range site	Silty range site
Kentucky bluegrass	Kentucky bluegrass
Smooth brome	Smooth brome
Canada goldenrod	Heath aster
Western snowberry	Western wheatgrass
Western ragweed	Sun sedge
Stiff goldenrod	Quackgrass
Wild licorice	Cudweed sagewort
Big bluestem	Prairie rose
Timothy	Western ragweed
Heath aster	Sedge

The silty range site produces an average of 3,380 lbs/acre of forage a year. There is 1,480 lbs/acre available the last week of May.

The overflow range site produces 4,430 lbs/acre of forage a year. There is 1,220 lbs/acre available the last week of May.

Note: 15 % of the plants by weight are increasers in the overflow range site. 9 % of the plants by weight are increasers in the silty range site.

Kentucky bluegrass and litter hampers plant growth.

Each 750 lb. heifer has the equivalent of 2.6 acres per month for grazing.


Lightly grazed silty range site


Lightly grazed overflow range site

The photos below show an exclosure that has been ungrazed for the last 12 years.

The definition of ungrazed is leaving 100 % of the forage at the end of the grazing season.

This 0.3 acre study exclosure based on data from silty and overflow range sites has had no grazing on it.

The 10 most dominant plant species by dry weight are:

Overflow range site	Silty range site
Kentucky bluegrass	Kentucky bluegrass
Smooth brome	Heath aster
Western snowberry	Western wheatgrass
Stiff sunflower	Stiff goldenrod
Quackgrass	Wormwood
Prairie rose	Stiff sunflower
Wild licorice	Western ragweed
Prairie chickweed	Soft goldenrod
Stiff goldenrod	Blue lettuce
Canada thistle	Quackgrass

The silty range site produces an average of 2,870 lbs/acre of forage a year. There is 1,440 lbs/acre available the last week of May.

The overflow range site produces 3,430 lbs/acre of forage a year. There is 1,130 lbs/acre available the last week of May.

Note: 7 % of the plants by weight are increasers in the overflow range site 11% of the plants by weight are increasers in the silty site.

Kentucky bluegrass and litter hampers plant growth.


Exclosure (ungrazed) on extreme grazed pasture silty range site.


Exclosure (ungrazed) on extreme grazed pasture overflow range site.


Increase in chickweed on the extreme grazed pastures.

Average above ground biomass production by grazing treatment from 1992 to 2001

SILTY RANGE SITE	Beginning lbs./ac.	Midseason lbs./ac.	End of season lbs./ac.	Total yield lbs./ac.
Ungrazed	1,440	2,590	2,670	2,870
Light	1,480	3,010	3,180	3,380
Moderate	1,310	2,690	2,910	3,070
Heavy	930	2,280	2,380	2,500
Extreme	750	1,850	2,220	2,240

OVERFLOW RANGE SITE	Beginning Lbs./ac.	Midseason lbs./ac.	End of season Lbs./ac.	Total yield lbs./ac.
Ungrazed	1,130	3,370	2,730	3,430
Light	1,220	4,200	4,040	4,430
Moderate	1,340	4,200	4,400	4,620
Heavy	1,320	4,130	4,390	4,430
Extreme	900	2,490	2,870	2,950