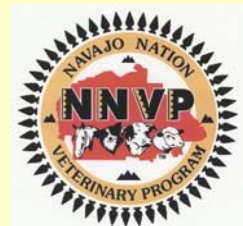
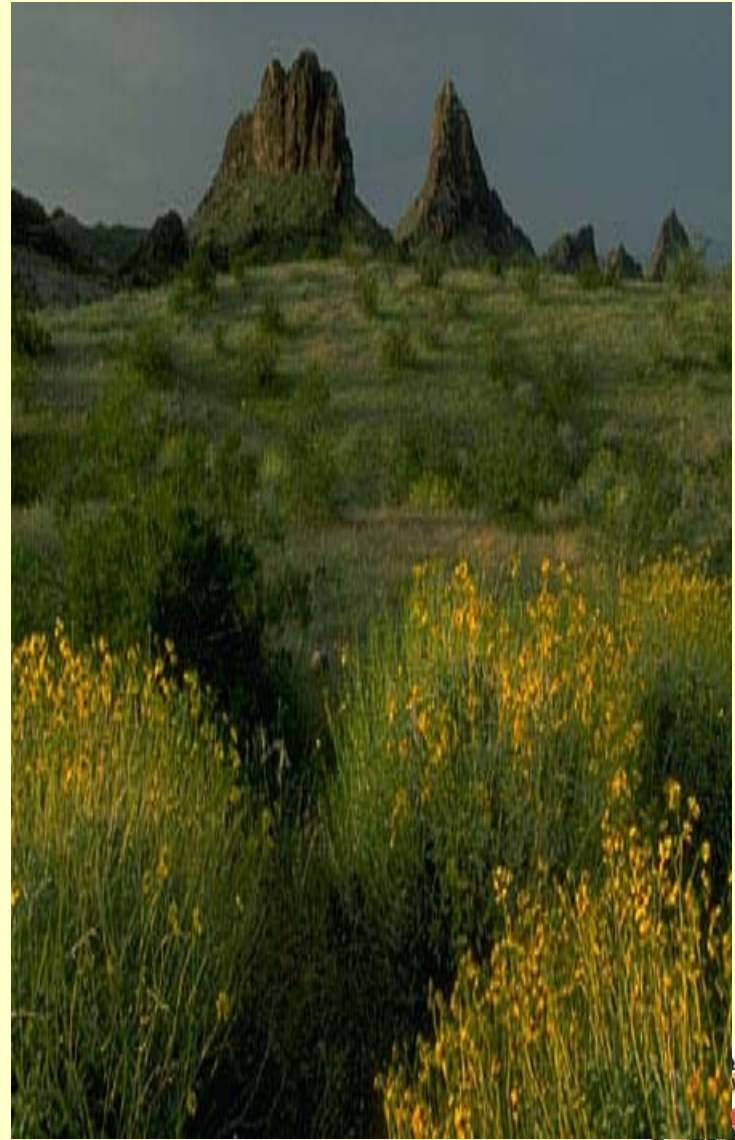
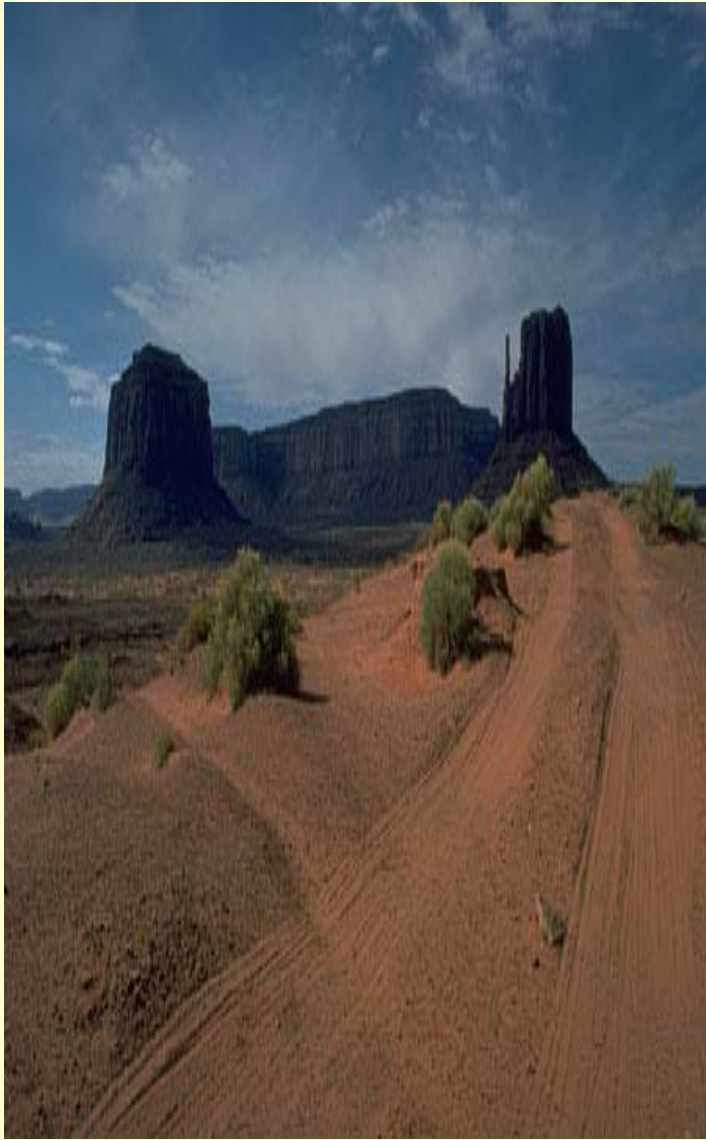


Livestock Management - During Drought conditions

Navajo Nation Veterinary & Livestock Program





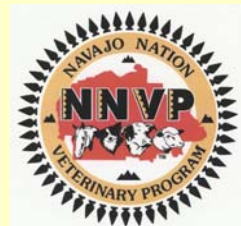
Navajo Veterinary & Livestock Program



DROUGHT¹

- ➔ Drought is a normal recurrent feature of climate
- ➔ Drought varies
- ➔ Drought originates from deficiency of precipitation over extended time
- ➔ Drought is a balance:

Precipitation vs. Evapotranspiration



Drought Cycle

1900-1910

1932-1937

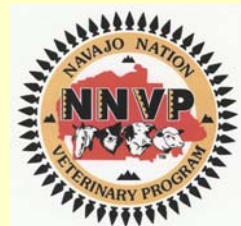
1945-1956

1974-1977

1996-2006



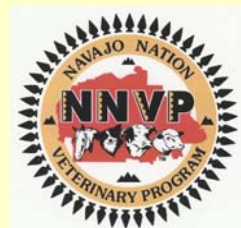
Average Cycle



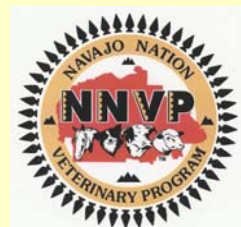
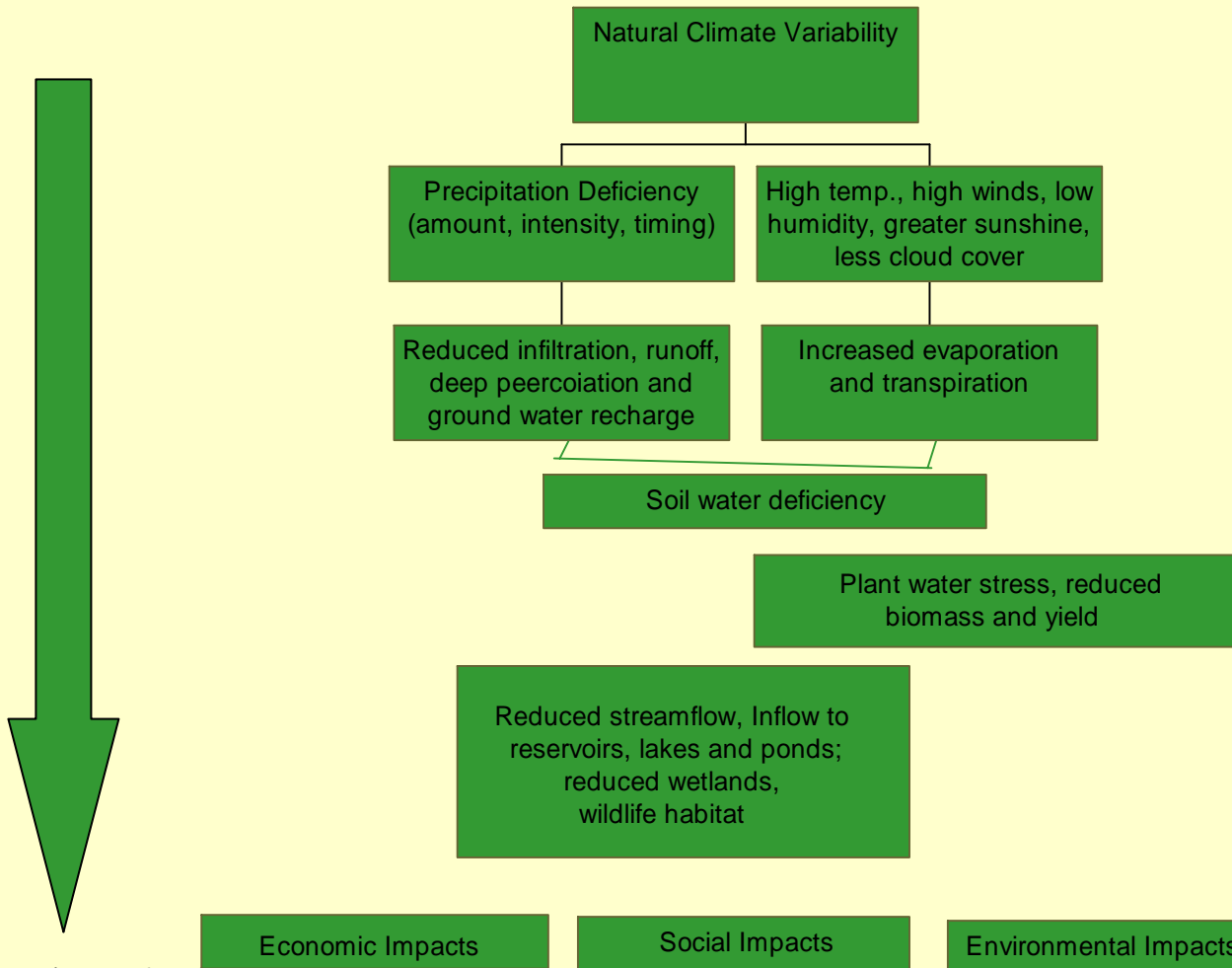
Drought is related to the timing and effectiveness of the rains¹

- ➔ Principle season of occurrence
- ➔ Rainy season delays
- ➔ Rains during vegetation growth stages
- ➔ Rainfall intensity
- ➔ Number of rainfall events

Other factors: high temperature, high wind and low humidity.



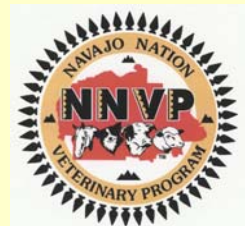
Sequence of Drought Impacts¹



Grazing is a natural resource.
Livestock are the tools.

Mother earth is first.

**Livestock can be utilized to manipulate
and improve grazing lands.**



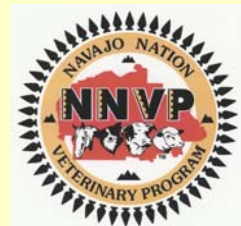
Grazing Management - A balancing Act?²

Amount of grass taken Vs. Amount of grass left

CONSEQUENCES:

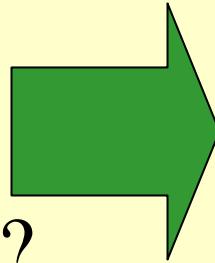
Livestock output Vs. Health of the ecosystem

Livestock production Vs. Plant community structure



Grazing accountability²

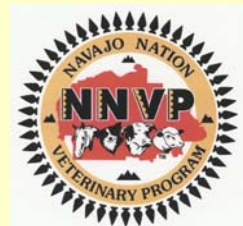
- ➔ When to graze
- ➔ Stocking rate?
- ➔ How long to graze?



Based on:

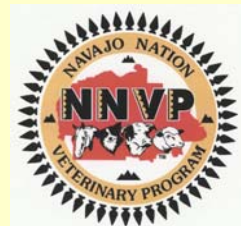
- Previous experience
- Pasture condition
- Size of cow herd

**These factors are manipulated by grazing management -
determine the production and sustainability
of the range resource.**



Important: How much residue should be left after grazing?²

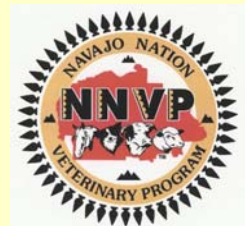
- ➔ **Related to grazing pressure and the effects of litter quantity.**
- ➔ **Impacts: Primary range production and range health (sustainability)**
- ➔ **Stop the “Wasted blade of grass hypothesis - A blade of grass left after the grazing season is a blade of grass not converted to meat.**
- ➔ **100% grazing efficiency - damages over wintering plants and decreases plant recovery.**

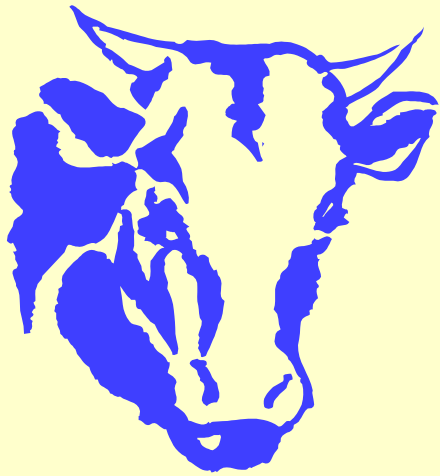


Plant litter²

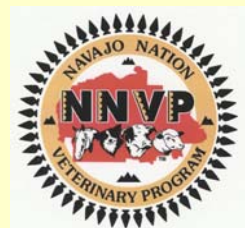
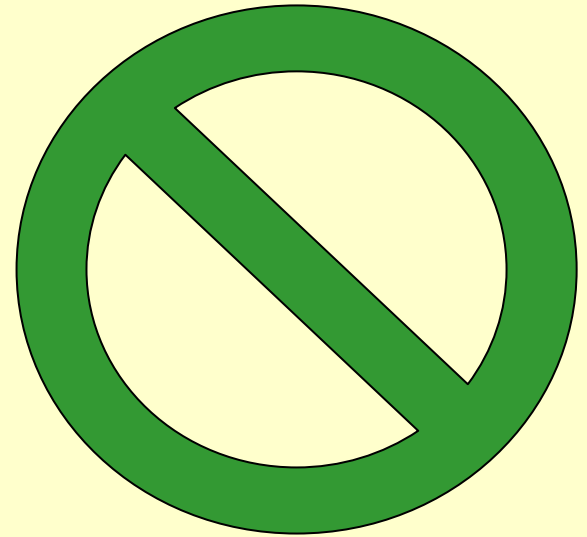
- ➔ Decreases runoff
- ➔ Decreases evaporation
- ➔ Increases absorption
- ➔ Maintains plant species
- ➔ Increased grazing pressures, damages litter
- ➔ Too much litter - Damages growth.

Where's the balance?



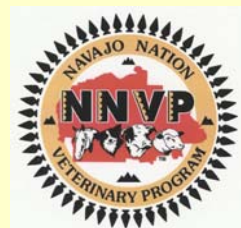


Vs.



Does the average Navajo Rancher have a production goal?

- ➔ **Beef production**
- ➔ **Cow-calf production**
- ➔ **85% calf/lamb crop**
- ➔ **Heavy weaning weights**
- ➔ **Uniform calves**
- ➔ **New genetics every two years**
- ➔ **Culling of poor producers**
- ➔ **Mutton production**
- ➔ **Feeding based on energy requirements and animal use**
- ➔ **Livestock as a business**
- ➔ **Grazing management**
- ➔ **Disease prevention & parasite reduction**

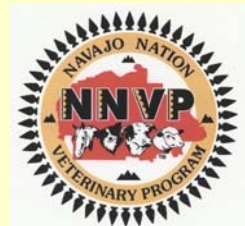


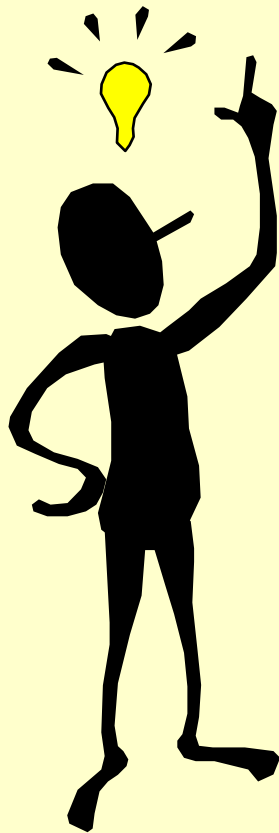
What are the energy requirements of the livestock?

- ➔ **Dry or non-lactating**
- ➔ **Pregnant (esp. during last 1/3 stage)**
- ➔ **Lactating**
- ➔ **Growing**
- ➔ **Body frame size**

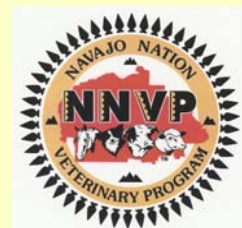
Are extreme weather conditions involved?

Is range supplementation required?





Navajo Veterinary & Livestock Program



Tips for Drought⁵

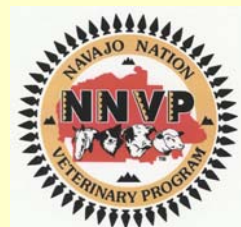
➔ Livestock numbers must be reduced according to forage supply.

Market yearlings early.

Wean calves early - feed at home, feedlot, or sell.

Cull low or non-producing cows

Cancer eye cows and offspring



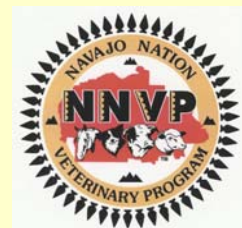
Tips for Drought⁵

➔ Retain a rotational grazing system vs. continuous grazing

Periodic rest help plants maintain vigor.

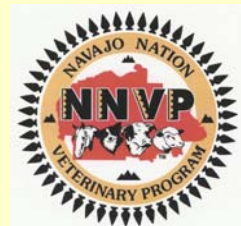
Plants are not able to regrow if grazed repeatedly.

➔ Concentrating more animals into a single herd - Pastures are grazed more uniform. Make use of less preferred range forage.



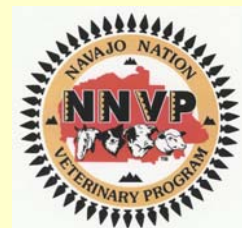
Tips for Drought⁵

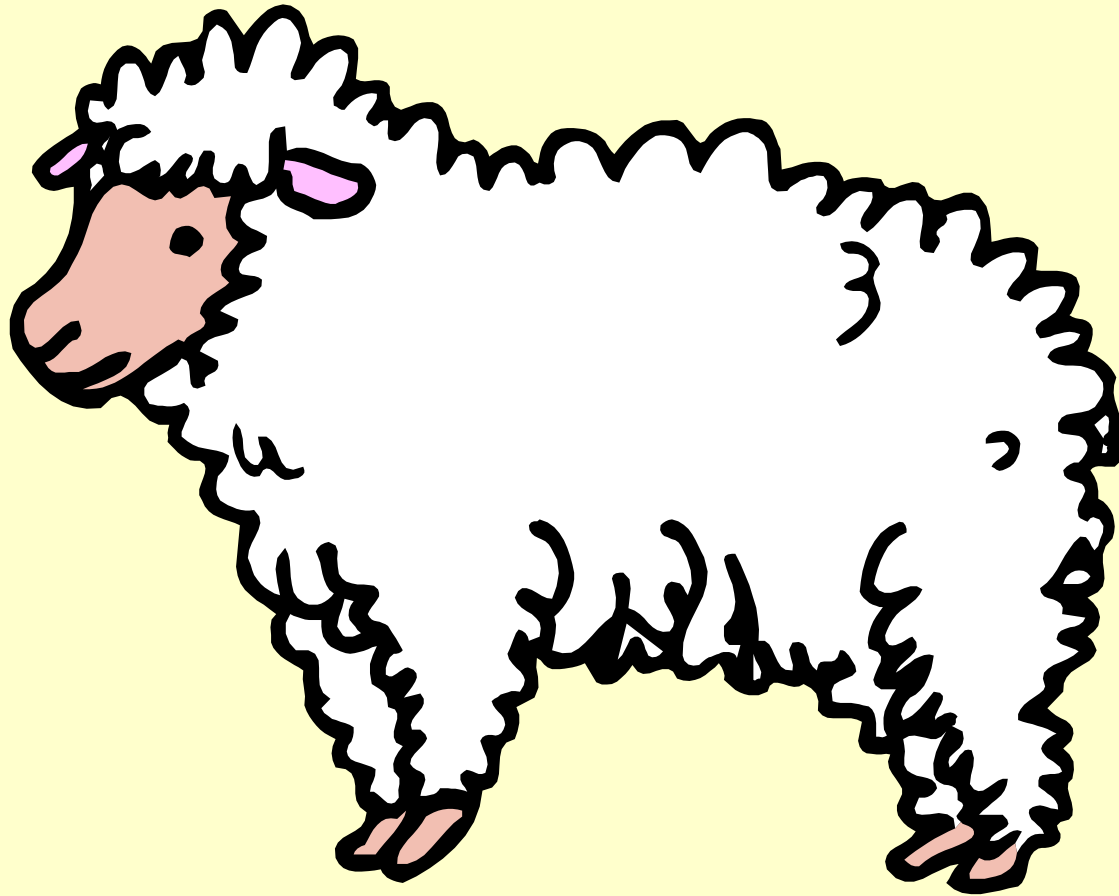
- ➔ Supplement low-quality feed - correct forage quality.
- ➔ Do not buy weed-infested hay due to contamination of unwanted species.
- ➔ Take advantage of areas with annual species. Especially early in the season when the nutrient value is high.



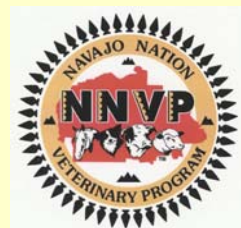
Tips for Drought⁵

- ➔ Keep accurate records on costs therefore proper planning can be initiated early - should another drought year occur.
- ➔ Maintain adequate water. Quantity and Quality based on the animals function. May require larger storage tanks.
- ➔ Do not restock until your range has fully recovered.



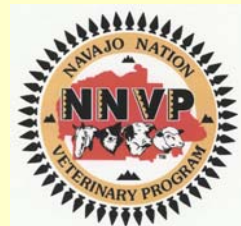


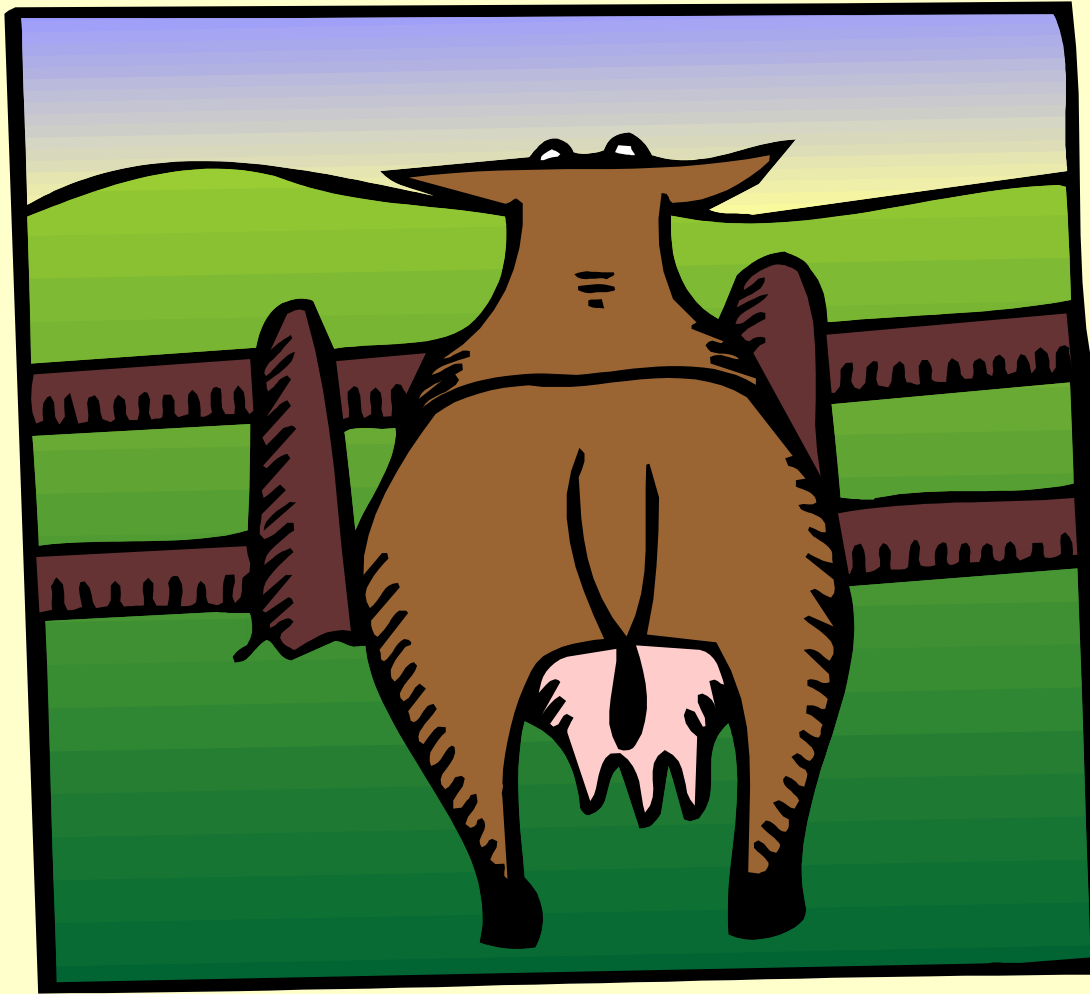
Navajo Veterinary & Livestock Program



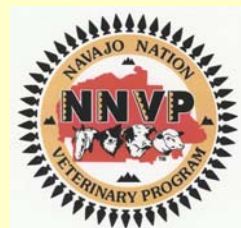
Feeding Sheep During a Drought³

- ➔ Feed based on total energy & protein requirements
- ➔ Adjust feed to larger framed animals
- ➔ Is their adequate protein in the diet?
(Roughage > 7% protein requires supplementation)
- ➔ Roughage should be about 10% of the ration



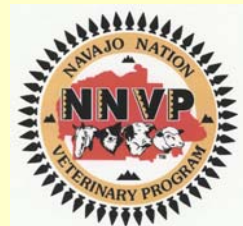


Navajo Veterinary & Livestock Program



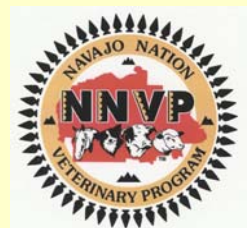
Cattle Management During Drought⁴

- ➔ Early weaning of calves is one possible option - May give the rancher an opportunity to reduce losses or avoid forced sales of good breeding stock sold for low market prices.
- ➔ Dependent on the condition of the cow and the age of the calf.



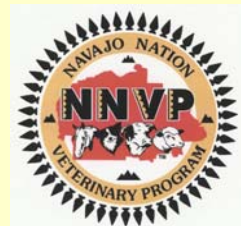


Navajo Veterinary & Livestock Program



Early weaning of calves:⁴

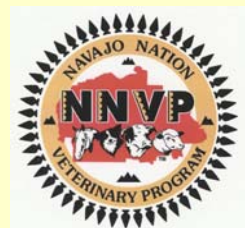
- ➔ Will permit more cows to be carried on the range.
- ➔ Requires calves to be fed in a dry lot - which will add to the feed and overhead cost.
- ➔ Requires proper feed management of the early weaned calves.



Early weaned calves to be classified into age groups and managed differently depending on their age.⁴

- ➔ **>6 weeks** **Not suggested. High losses.**
- ➔ **6 weeks - 3 months** **Not suggested. High losses.**
- ➔ **3 - 6 months** **Good quality hay & grain.**
Require 12-14% protein.
Include molasses 3% of bwt/day.
- ➔ **> 6 months** **Good quality hay & grain.**
At 2 to 4 pounds/day.

When calves are weaned early - they should be started on feed 3 weeks prior to weaning. Do not use straw - alfalfa roughage best.

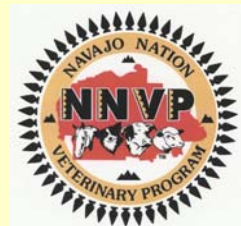


Early weaned calves:⁴

Supplement with Vitamin A.

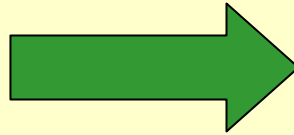
Research has shown: Early weaned calves, with proper management and feeding, can equal weights of calves raised on the cow. Improve conception rates from 57% to 97%.

Creep feed all calves if you will not be weaning early - to ensure heavier calves at weaning.

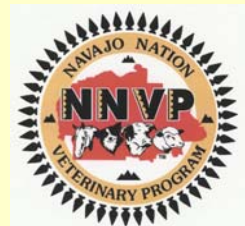


Two major minerals require supplementation during drought

➔ Calcium
➔ Sodium

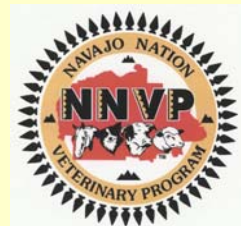


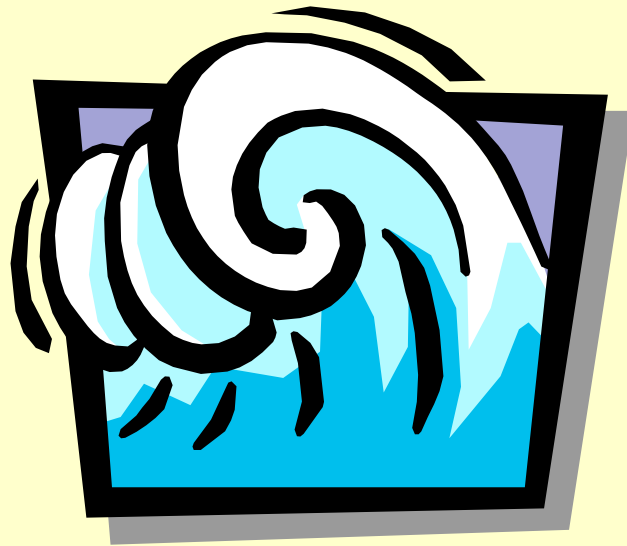
**Supplied in
mineral salt blocks**



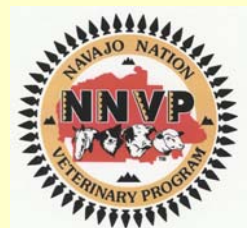
Two vitamins deficient during drought

- ➔ Vitamin A - usually supplied by green pasture. Supplement by injection for storage for 3-4 months in the liver and fat tissues
- ➔ Vitamin E & selenium - usually abundant in hay and grains. Can be supplemented in many ways.





Navajo Veterinary & Livestock Program



WATER

Often a major concern during drought. Intake increases as the temperature rises.

SHEEP

1 gallon/day - winter

2 gallons/day - summer

CATTLE

2.5 gallons/day - winter

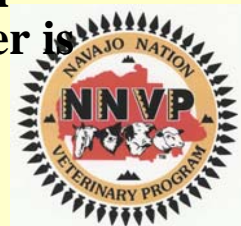
12 gallons/day - summer

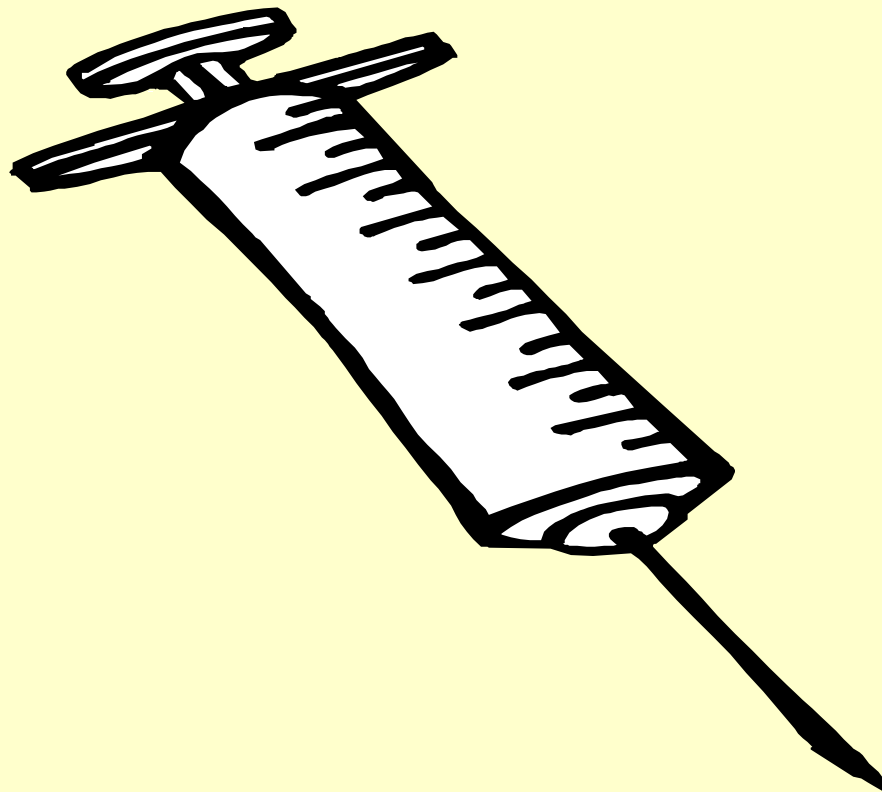
HORSE

5-12 gallons/day - any time

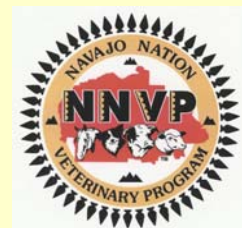
(working horses should be watered 3-4 times/day)

Requires more water when mineral blocks available. More water is required to fatten livestock, during growth, pregnancy & lactation. More water is required when temperatures are extremely hot.





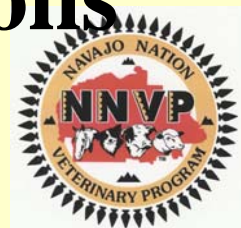
Navajo Veterinary & Livestock Program

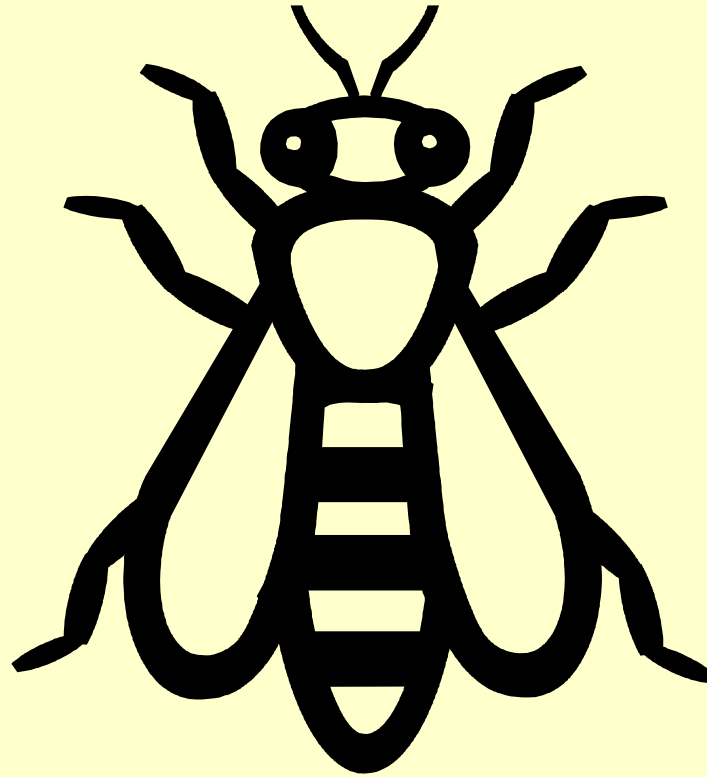


DISEASE PREVENTION

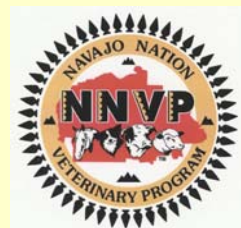
- ➔ CATTLE Blackleg 8-way, Somnus, & Killed Respiratory vaccine
- ➔ SHEEP Covexin-8 vaccine
- ➔ HORSES WEFT-Rhino (5 way), Stranlges vaccine

Read the label. Are booster injections required for full protection?





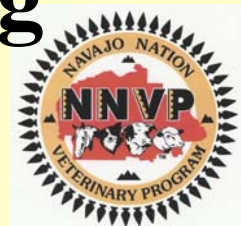
Navajo Veterinary & Livestock Program



PARASITE REDUCTION

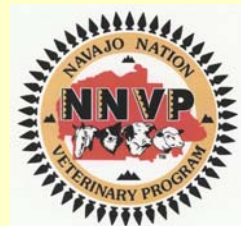
- ➔ CATTLE Deworm Spring & Fall
- ➔ SHEEP Deworm Spring & Fall
- ➔ HORSES Deworm every 60 days if stabled, every 6 months if pastured.

External parasites increase during drought conditions.



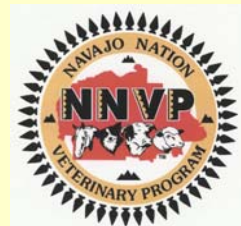
Other considerations:

- ➔ Breeding Soundness Examinations early
- ➔ 45-60 day breeding season
- ➔ 3-9 year olds - Optimum reproduction
- ➔ Identification of each animal
- ➔ Check your range
- ➔ Cull steers, yearlings, open cows, broken mouthed, problem animals...etc.
- ➔ Encourage your neighbor to vaccinate & deworm



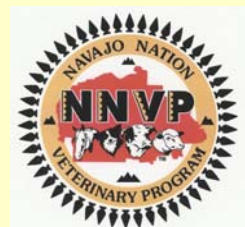
Other considerations:

- ➔ Return to the cattle breeds with color
- ➔ Dehorn and castrate at or near 4 months of age - When vaccinations will be done.
- ➔ Only support quality livestock on the range
- ➔ Encourage horse round up in your communities
- ➔ Pregnancy check your cows
- ➔ Purchase BSE and proven bulls



SIGNS & SYMPTOMS OF NUTRITIONAL PROBLEMS

- ➔ Retained placenta
- ➔ Rectal Prolapse
- ➔ Vaginal Prolapse
- ➔ Uterine Prolapse
- ➔ Dystocia
- ➔ Low body condition scores
- ➔ Milk fever
- ➔ Ketosis
- ➔ Rough hair coat
- ➔ Weak offspring
- ➔ Stunted growth
- ➔ Unable to breed back



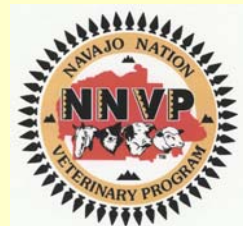
Drought related livestock poisoning by WEEDS⁶

Poisoning most often occurs in overgrazed areas or during drought when forage is limited.

LUPINE - Seeds and pods are highly poisonous. Sheep are most often affected. Observe frothing, trembling, excitement and butting into other animals & objects.

CAMAS - Entire plant poisonous. Observe rapid breathing, excess salivation, convulsions, & death.

LOCOWEED - Entire plant poisonous. Observe weakness, loss of coordination and lack muscle control. Animals must be removed from the area - addictive.



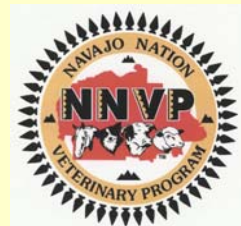
Drought related livestock poisoning by WEEDS⁶

Poisoning most often occurs in overgrazed areas or during drought when forage is limited.

LARKSPUR - Entire plant poisonous. Observe staggering, repeated falling and respiratory paralysis, mainly in cattle - rarely in sheep or horses.

ARROWGRASS - Entire plant poisonous. Observe abnormal breathing, trembling, convulsions & death.

COCKLEBUR - Young seedlings most poisonous. Observe weakness, rapid breathing, convulsions & death.



Drought related livestock poisoning by WEEDS⁶

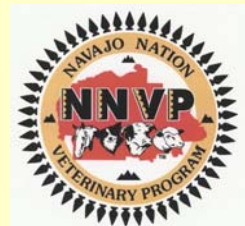
Poisoning most often occurs in overgrazed areas or during drought when forage is limited.

SNEEZEWEED - Entire plant poisonous. Observe vomiting, coughing & bloating. Common in sheep.

HORSETAIL - Entire plant poisonous. Observe loss of vigor, trembling and eventually paralysis.

CHOCKECHERRY - Leaves are poisonous. Observe abnormal breathing, trembling, convulsions & death.

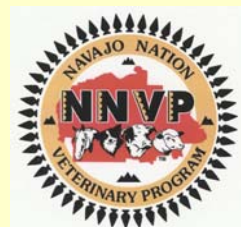
Recognize the poisoning symptoms and weed identification will help determine whether these weeds are involved.



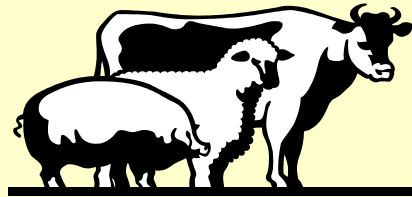
Research

Created by Glenda Davis, Program Manager

- 1. Understanding & Defining Drought, National Drought Mitigation Center, Nov., 1995.**
- 2. Grazing Management - A Balancing Act?, Walter Willms, 1997.**
- 3. Feeding Sheep During a Drought, Farm & Agriculture, 1997.**
- 4. Cattle Management during drought, Roger Brownson, June, 1988.**
- 5. Tips for Dealing with Drought in Range, John Lacey, June, 1988.**
- 6. Drought Related Livestock Poisoning by Weeds, Richard Zollinger, June 1997.**



Navajo Nation Veterinary & Livestock Program



Chinle Clinic - (520) 674-2069

Shiprock Clinic - (505) 368-1007

Tuba City Clinic - (520) 283-4644

Window Rock Clinic - (520) 871-6615

