

Illinois Grazing Manual Fact Sheet  
GRAZING MANAGEMENT

# Drought Planning Considerations



## General Information

Drought occurs almost every year in some part of the country that has affect on agriculture. The definition is: "(1) A prolonged chronic shortage of water. (2) A period with below normal precipitation during which the soil water content is reduced to such, and extent that plants suffer from lack of water; frequently associated with excessively high temperatures and winds during spring, summer and fall in many parts of the world." (National Range and Pasture Handbook (HRPH) USDA/NRCS)

## Drought Plan

The best managers prepare a Drought (drouth) Plan ahead of time and stick to it. A Drought Plan definition is: "The livestock operator's contingency plan to make necessary adjustments during unfavorable years of low forage production." (NRPH)

## Impacts of Drought

Drinking water is normally the least expensive nutrient for livestock. However, water has the most impact on the forage production or lack of production. The impact of reduced forage production can and will impact the animal's productivity and health if not managed properly. An animal's nutrient requirements are in the following order: 1. Maintenance, 2. Fetus Development, 3. Lactation, 4. Growth, 5. Breeding, 6. Fattening. (Dr. John Merrell Texas Christian University, TCU)

Usually it will take 1200 -1500 pounds of water to produce 1 pound of forage dry matter. If brush is controlled in a normal year, forage will increase by 18 percent. If brush is controlled during a year of drought, forage production can increase about 50 percent. If you have doubts, take a look at any corn field along a wooded fence row and see how far out the corn is stunted in a dry year.

## Forages

Cool season grasses (CSG) are considered C3 plants which are made up of three carbon chains. C3 plants, such as Orchardgrass, fescue, Bromegrass, Reed Canarygrass and Timothy, convert light energy at less than 3 percent. These plants start growing in early spring and go into their summer slump in the hot weather of June-August. They start growing again in September with cooler temperatures and moisture. The CSG usually produce about 60 percent of their forage in the spring, April – June, and 40 percent

the remainder of the year. Their root systems can grow to a dept of three to four feet maximum; but to achieve this depth, they will have to receive excellent management. The root depth usually equals the plant's height above the ground, considered top growth and leaf length.

Warm season grasses (WSG) are C4 plants and convert light energy at the rate of 5-6 percent. Examples of WSG perennials are Eastern Gamma grass, Big Bluestem, Indian grass, Switchgrass. Some annual WSG are Pearl Millet, Sudangrass, and Corn. These plants produce 100 percent of their forage in the summer months from June through September. The WSG have a much deeper root system than the CSG. Many of these taller WSG can grow roots to a depth of 10-15 feet or more. Because of their growth patterns, the WSG have the potential for higher yields than the C3 plants. This is partly due to the fact the C4 plants utilize full sunlight.

## Management Techniques

These management techniques can be looked at as “Reducing the need-Increasing the feed”. By this we mean reducing the forage needs which can be done through several methods or practices.

Some options to consider in developing a drought plan are as follows:

Implement a Managed Grazing System, or rotational grazing system. This will consist of dividing the pasture into smaller units, called paddocks, and grazing each for a short period of time and then moving the animals to another paddock. The grazed area will be rested for usually a 30-day period before being grazed again. During a drought, the rest period may need to be lengthened to 40 or more days, or until adequate re-growth has occurred. Over-grazing will hinder the forage re-growth and create more plant stress. If over-grazing occurs for a long period, this can stress the plants enough to eventually kill them. The key to more and better forage, even in a dry year, is to manage your plants and root systems. If the leaf area is left at an optimum length, the roots will support more plant growth. A balanced fertility plan will allow the plants to be more efficient in their water usage. For recommended grazing heights refer to the NRCS Field Office Technical Guide, Practice Standard, Prescribed Grazing 528.

Creep feed nursing calves/lambs (offspring) to maintain optimum gain and lessen the forage stress of the pastures while with their mothers.

Provide supplemental forage or feed when the forage is grazed to a minimum height, CSG 3-4” or WSG 8-10”. Supplementation can be done in the pastures by feeding corn or hay or some of the by-products available on market today. [If corn is used, a pound of corn will replace two pounds of forage consumed. (Cliff Little OSU 2005)]. If by-products are used, consult a University of Illinois Extension Animals Systems Educator because there are maximum amounts that you should not exceed in the livestock ration. Don't overlook crop residues. They can provide a forage source for a period of time. If using annuals, check for nitrates. After a frost, check for prussic acid on sorghums and Sudangrasses. When supplemental feeding, be aware of the cost. You can spend your way into debt quickly. Many ranches have been lost to debt accumulated from trying to feed their way out of a drought.

Graze the hay fields. In dry years the forage will usually be short and thinner. If you try to harvest this short forage mechanically, you will incur a higher harvest loss. The livestock will be much more efficient in harvesting the shorter forage. This will also lengthen the rest period for your pasture forages. Use bloat-prevention strategies if legumes are in the forage mixture such as alfalfa, red clover, white clover etc.

Early wean calves/lambs (offspring). Offspring can be weaned at an early age and still have a good rate of gain in the feedlot. Many times, near a 4:1 ratio or better on feed conversion. [By early weaning, the mother's energy and nutritional needs decline dramatically, up to 40 percent over a normal lactation and 205-day weaning. (Myers et al. 1999)] This in turn reduces their intake rate and stretches the forage resources farther.

Separate the animals according to nutrient needs, by age and body condition score. The younger animals and any lactating animals will have a much higher nutrient demand.

Move stockers that are part of the operation to the feed lots. This will allow more rest for the forage acres and for the breeding herds or flocks.

Reduce the animal numbers (open females [heifers, cows, ewes, nannies & mares], older less productive females, and 1st bred females). If drought persists, you may want to keep bred heifers and liquidate more cows if you have been making genetic improvements in your herd. The heifers should genetically be the best animals that you have. A 400-pound calf will only eat about 1/3 as much as a mature cow. In drought prone areas, livestock will run 75 percent of their carrying capacity in breeding stock, and stockers, are used for the remainder. This allows more management flexibility during a drought.

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Dry lot the herd or flocks until the forage growth reaches the recommended height: CSG = 8-10" and WSG = 16-20". Placing livestock into the dry lot should be the last resort! Some farms will have a "sacrifice area" that is also used during winter or other short forage situations. This can also be used as a method to renovate some pastures in a rotation.

You can usually feed at the maintenance level of the animal; however, you will need to balance the ration with other sources for energy and nutritional levels. Stored feed is the most expensive and many farms and ranches have been ruined by trying to "feed out" of a drought!

### Prevention

The quicker that you recognize the short forage problem and address it, the less damage your operation will incur, both financially and environmentally. Some operations will

wait for the government to pay them disaster assistance. An example of this is the CRP drought release dates that normally occur on Aug. 1st. This is well after the forage has gone dormant (i.e. cool season grasses and forage quality has decreased dramatically.)

Another concern is poisonous plants. Usually in the dry years, livestock will start grazing in wooded and odd areas that are not frequently used. The animals will tend to feed on other plant species and this increases the chance of poisoning. Many of the poisonous plants grow in the wooded or shaded areas.

It is recommended that you routinely check conditions or rainfall totals. This will allow you to forecast and make plans if it looks like a drought will continue or is foreseen. Typically, if 50 percent of the normal moisture, rainfall, is not received by June 1st, you should be prepared to initiate a Drought Plan. Check climate conditions at the Climate Prediction Center web site: [www.cpc.ncep.noaa.gov/](http://www.cpc.ncep.noaa.gov/).

"Drought is a recurring characteristic of our business which should become an integral part of a continuous, coordinated management planning and application process. This process should be flexible, with timely adjustments to address ever changing situations in order to maximize continuing net return from available resources. Whether currently in the middle of a drought, going into or coming out of one, or waiting for the next one, the time to prepare for the next drought is now." (Dr. John Merrill et al: 1983)



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