

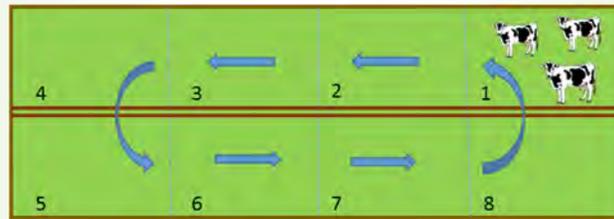


Silvopasture integrates pasture, shrubs and trees. One benefit is that many trees keep their foliage during drought. Trees absorb carbon dioxide, produce oxygen and provide shade. This reduces heat stress in cattle, increases plant diversity and provides shelter for wildlife.

Pastures: Plant improved grass/legume species in your farm to serve as pastures and source of hay/silage forage.

Ruminal activators like yeasts, some bacteria, an ionophores (i.e., monensin and lasalocid) can improve digestion of low quality forages and can help ruminants in times of nutritional stress.

Weed control: Routinely control undesirable and invasive plants in your pasture. They compete with forage for space, soil moisture and nutrients, and may become toxic or noxious to livestock.



Rotational grazing subdivides pastures into smaller areas called “paddocks” using fencing, so that only one portion is grazed at a time while the remainder “rests.” Resting grazed paddocks allows forage plants to renew energy reserves, rebuild vigor, deepen root systems and yield maximum production. For this system to be successful, stocking rates have to be kept at a suitable level and timing of rotations must be adjusted to the growth stage of the forage.



Water harvest and storage: fresh water is vital for animal nutrition. Livestock need both good water quality and sufficient quantity. Poor quality water may affect

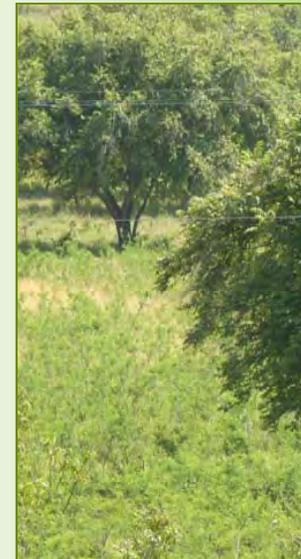
animal performance and reduce production. Secure adequate water supplies and keep water tanks and troughs clean. For optimal pasture use, cattle must be less than 600 feet of a water source from any point in the paddock.

Record: keep records of animal performance, feeding practices and medical treatments. Also, keep plans and records of grazing and fertilizing scheduling.



United States Department of Agriculture

Combating the Effects of Drought on Pasture and Forage



Good pasture and forage sources are important in lessening the impacts of drought.



Pastures and forage should be properly managed to ensure adequate quality and quantity during times of scarcity.

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Best Management Practices to Mitigate Drought Damage to Pastures

Carrying capacity is the maximum number of animals that can graze a paddock or pasture without harming the pasture ecosystem (plants, soils and microorganisms). Put simply, **Do not graze more animals on a pasture than the soil and forage plants can handle.**

Important: the number of animals a paddock can support (**stocking rate**) changes based on conditions. Stocking rate depends on the interaction between forage species and animal type, season and climate conditions. Stocking more animals in a paddock or pasture than the soil and forage species can support is called **overgrazing**. Overgrazing leads to poor plant growth, weedy species invasion, poor animal performance, visible soil loss (**erosion**) and reducing or totally eliminating preferred and desired forage plants. Increased runoff can degrade water quality in streams, rivers, aquifers and coastal waters with sediment, manure and other pollutants.

Good pasture management during drought is critical to optimize productivity (plant and animal) without harming soil, water and air quality. Adjusting the length of grazing and rest periods balances the needs of both plants and animals. Often livestock farmers are reluctant to adopt this practice. An alternative is to invest in time and money in forage conservation and bring supplemental forage to animals during drought.

Hay is an alternative feed for livestock during the dry season. Haying reduces the amount of water in forage tissues using solar radiation and wind. Good dehydration avoids fermentation and mold growth when hay is stored and helps to retain nutritional value. To prepare a good quality, high dry matter, digestible hay, forage must be harvested during the high quality growth stage (45 to 55 days old). Sunny weather conditions are necessary to produce high quality hay.



Haylage is high quality forage preserved at 45% moisture content without oxygen (**anaerobic conditions**). At harvest, forage moisture content generally ranges from 75 to 80%. To make haylage, forage moisture content is reduced by solar radiation (drying in the sun) to 45%. After drying, the haylage is typically round-baled in plastic bags with special equipment. The haylage should be ready for feed about 3 to 4 weeks later.

Silage is high quality forage preserved at 60 to 65% moisture content under anaerobic conditions. Silage is typically ready to feed about 21 days after drying. Well-managed silage (hermetically sealed) may last for long time without losing quality.



Photo: Dr. Robert Godfrey, UVI Agricultural Experiment Station.

A **Protein bank** is a paddock planted with legumes. It is a low-cost alternative to improve protein content in animal feed since protein constitutes one of the most expensive nutrients in commercial feed. The most common legume species that grows naturally in the Caribbean Area (although it is considered invasive) is **Leucaena** or Tan-tan. This plant species belongs to the legume family and grows in association with a soil bacteria, allowing the plant to fix nitrogen in the soil.

