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## BeefTalk: Managing Drought Through Proper Soil Health



**The effective mitigation of drought is improved soil health and using the available moisture more effectively.**

By Kris Ringwall, Beef Specialist

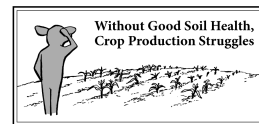
NDSU Extension Service

Tough times are times that allow producers to ponder that next turn in the road and think through better ways to prepare for Mother Nature's wrath.

Drought is one of those times. Effective mitigation of drought is improved soil health; thus, it's more effective utilization of available moisture.

That is not to say drought is manageable, but rather our response to lower moisture levels may mitigate the severity. We know beef, grass and crops require inputs, including water, to live on the

## Images



Without Good Soil Health, Crop Production Struggles

## columns

### **BeefTalk: BeefTalk: Managing Drought Through Proper Soil Health**

(2017-08-10) The effective mitigation of drought is improved soil health and using the available moisture more effectively.

[FULL STORY](#)

### **Prairie Fare: Prairie Fare: Onions Offer Layers of Goodness**

(2017-08-10) Onions can be eaten raw or cooked, and they are available in a wide range of sizes and colors. [FULL STORY](#)

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land. When water is short, grass and crops will dry, soon followed by an exodus of the animals that depend on the grass and crops.

Droughts are not new; they cycle periodically through the land. Before the confines of modern agriculture, animals and people moved with the changing weather patterns. Today, the sale of cattle moves them to land with feed. Ranchers set aside drought sales revenue to restock at a later date. The goal always was to settle around water and then produce the needed food to survive.

The challenges still remain. Despite technology breakthroughs, water still is required for food production. Droughts in arid areas may see no moisture, semiarid areas may see a little moisture and humid areas still will have moisture, just less of it.

Land was not created equally. Soil types, temperature and moisture make up land. Proper land management involves an understanding of what goes on within the living soil within the land base that individual producers manage. Soil is the presence of particles bound together, forming soil aggregates and the living processes that create those aggregates and fill the spaces between them.

Unfortunately, our modern expectations of the land we live on are not always in sync with Mother Nature. The challenges still remain. Life does not

end when moisture is in short supply. Rather, native vegetation adapted to the long-term moisture pattern for the area generally covers soil. In the extremes, life emerges for very short periods that coincide with rain.

Climate is what we expect; weather is what we get. Understand the climate zone and plan for the vagaries of weather.

Hay carryover is one example. While stored hay will deteriorate, this carryover is the insurance for a failed hay crop and is an important aspect for cattle production. Is the amount of hay deterioration a worthy expense for the assurance hay will be available the next year? Generally, the answer is yes; however, the human thought process often believes anything can be done.

When Mother Nature alters the road (in this case through lack of moisture), not enough resources are available to offset the impact economically. But let's remember, tough times are times that allow producers to ponder that next turn in the road and think through better ways to prepare for Mother Nature's wrath. Effective drought mitigation is improved soil health, which utilizes available moisture more effectively.

Dryness, although very apparent on the top of the soil, is not as important as what is going on within the soil. The Dickinson Research Extension Center has dedicated resources to help better understand

soil health. Jon Stika, a part-time professional at the center, specializes in soil health and notes soil health is defined as the capacity of the soil to function through plant nutrient cycling (particularly nitrogen) and maximizing water infiltration into the soil.

The general principles of managing to improve soil health require reduced soil disturbance, increased plant diversity (crop rotation, cover crops and species on rangeland), the maintenance of living roots in the soil as much of the year as possible, and keeping the soil covered with plants and plant residues at all times. These principles have proven to be the core principles of center research and mitigating the lack of moisture in southwestern North Dakota.

The center had a quarter of land with dysfunctional soil. Crop production was minimal and repeated attempts to improve the land were of no avail. Crops grew, but they were much closer to being in survival mode.

In 2008, the center, in conjunction with local soil conservation districts, started a diverse eight-year crop rotation on this quarter in hopes of improving the underlying health of the soil. The rotation was three years of alfalfa, followed by winter triticale/hairy vetch, corn, oats/peas, a multispecies cover crop, spring wheat and winter wheat. The goal was to get a better understanding of what is necessary to implement

the soil health principles in an effort to enhance soil health.

After eight years, the fields do not even look the same. The eight study fields are alive and productive, but more importantly, they are soil healthy. Remember, tough times are the times to ponder that next turn in the road and think through better ways to prepare for Mother Nature's wrath.

May you find all your ear tags.

For more information, contact your local NDSU Extension Service agent (<https://www.ag.ndsu.edu/extension/directory>) or Ringwall at the Dickinson Research Extension Center, 1041 State Ave., Dickinson, ND 58601; 701-456-1103; or [✉kris.ringwall@ndsu.edu](mailto:kris.ringwall@ndsu.edu).

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#### Attachments



[PDF - Without Good Soil Health, Crop Production Struggles](#)

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