

Ranchers, Pastures, and Forage Growers
By Jim McClain, CEO of Bio Agriculture and Horticulture, Inc.

The past year has been challenging for ranchers and growers of feed and forage. Unpredictable weather has caused planting and harvest issues. A 2019 USDA report states that parts of the central and western US face draughts every 3 – 5 years. International politics and trade wars have closed markets, and Covid-19 defies planning for the future. The best thing ranchers and growers can do is build efficiencies into their operations. Reduce costs and inputs and increase forage harvest yield and quality and speed to market.

Ray Archuleta, a Soil Health spokesperson for the USDA's Natural Resource Conservation Service is quoted as saying, "Most growers think they apply fertilizer to feed a crop, but 60% of the applied fertilizer never reaches the plant (remains in the soil or runoff into the water supply). It is the complex interactions between soil microbes and the crop that feed the plant." Up to 60% of yield is dependent on soil fertility. This is where the agricultural biologicals of BIOMAX Soil Enhancer with SumaGrow™ make a major difference.

In a study of beef steers summer grazing performance, BIOMAX treat sorghum, showed a higher Average Daily Gain (ADG), a higher Animal Unit Month (AUM) and a significant cost advantage when compared to traditional standard nitrogen fertilization, raw milk, and a control (no treatment). The purpose of this study conducted at Murry State University in Western Kentucky, was to determine the effectiveness of different methods of pasture inoculants compared to traditional nitrogen fertilization, the grower standard.

The 12 acres used for testing the three different field inoculants and control were divided into four 3-acre sections. Each area received a different method of fertilization with one as a control, an untreated area. The steers numbering 32 were divided into four groups of 8 steers each with average weights of 628 pounds at the beginning of grazing. Sorghum was planted no-till at a seeding rate of 19 pounds per acre. The steer groups were moved to fresh grazing areas when about 50% of the forage dry matter had been consumed.

Growing conditions were stable throughout the test period. However, temperature and humidity were challenging during July and August. Cost per acre for the four areas was \$137.01 for the Grower Standard (nitrogen), \$40 for BIOMAX Soil Enhancer with SumaGrow™ (included a 50% reduction of the normal nitrogen application, \$45 for raw milk, and \$0.00 for the control.

The results were remarkable. The steers grazing in the BIOMAX Soil Enhancer treated fields gained 40.5 pounds more per steer for the 150-day grazing period when compared to nitrogen, raw milk, and the control. In calculating the number of steers that one acre of forage could support, the BIOMAX treat forage acres were significantly greater than the other three. A per acre cost analysis indicated an \$101.45 per acre advantage for the BIOMAX Soil Enhancer with SumaGrow™ acreage. The BIOMAX treated plots had the best overall performance with the highest return on investment.

In 2012 I was speaking to a BIOMAX user from Colorado who had a deer stand. There were two fields, one treated with BIOMAX and one not. One morning there were 26 deer in the BIOMAX field and one in the untreated area – there is always one who doesn't get the message.

On another occasion, cattle were offered two piles of feed. One was grown with a BIOMAX treatment the other only received synthetic fertilizers. The cattle ate the BIOMAX treated feed and shunned the chemical fertilizer treated feed. The cattle could tell the more nutritious feed.

The biological formulation in the BIOMAX Soil Enhancer product improves soil health by increasing soil organic matter (OM), improving soil texture and aggregation, and increasing water holding capacity. Every one percentage point increase in soil organic matter increases the soil's water holding capacity by about 16,000 gallons per acre, 10,000 pounds of soil carbon, and 1,000 pounds per acre of nitrogen, which allows the grower to reduce chemical fertilizer. Keep in mind that BIOMAX Soil Enhancer with SumaGrow™ is cheaper than the replaced fertilizer.

I am always available for further discussion at jim.mcclain1842@sbcglobal.net or call me at 714-728-0376. Have a good day and stay safe. Jim