



Soil Testing Summary Write-up for Goertz Ranch NW Pasture

- **Rancher Name (can be kept confidential if desired):** Harvey Goertz
- **Location:** South of Elk Mountain; Northwest corner
- **Date of Soil Tests:** May 6th, 2020
- **Agricultural Use(s)** (e.g. dryland hay, alfalfa, grazing, etc.): dryland hay; grazing
- **Challenges and Conservation Objectives (as presented by producer):** Portions of the fields have been under producing pasture grasses. There is concern that soil health is a factor in this.
- **Summary of Comprehensive Soil Test Results:** Test results showed generally fertile soils; the soil fertility score integrates nutrient status with the soil health score. This correlates closely with sustainability of crop production. The soil health score was slightly low for the region indicating lower, key biological traits. A high overall fertility score and a low soil health score indicate a heavy fertilized soil that is not being optimized for biology. CO₂ respiration is 31.9 ppm and SLAN amino-N is 85 ppm, this indicates the probability that soils will respond to increasing Nitrogen is moderate. The Phosphorus storage and Swiss CO₂-Equilibrium P are above normal. The soluble (or available) Nitrogen is 2 ppm, the estimate biological N is 29 ppm and total potential Nitrogen is 34 ppm which are all very low. The soil bulk density is 1.03 which is optimal. Bulk density is affected by geologic parent material, sand, silt and clay. It is influenced by humus and microbe rate. The VAST aggregate stability score is 9 which is low. Aggregate stability depends on amount of sand vs. silt vs. clay as well as organic matter. The organic matter rating is 3.49 which is considered relatively high. The water-soluble Carbon is optimal though the water-soluble C:N ratio is very high indicating soil is accumulating carbon or is N-depleted. The ratio of K (Potassium) to Ca + Mg (Calcium and Magnesium) is marginal which is an important score for animal grazing health. Soil pH is 6.02. Most plants are not affected by soil pH unless it is very high or very low.



- **Technical Interpretation by NRCS Relative to Conservation Objectives:** Phosphorus and Potassium are quite high; this could be either from the soil parent material or high applications of Phosphorus and Potassium fertilizer in the past. The soil bulk density is low which is tied to soil texture and organic matter. However; we textured the soil out as a loam and the soils have relatively high organic matter. The way in which the test is performed may be skewing the result. Nitrogen has been identified as a limiting factor in this field. This is seen in the water soluble C:N, the soluble nitrate, estimated biological N mineralization and total N potential. All other scores are medium or optimal and no limiting factor has been identified.

- **Recommended Practices:** The producer currently grazes horses and cattle in this field. There is concern about planting a high legume concentration in regards to bloating in the cattle and overly high nutrient intake in the horses. One possible recommendation from NRCS is to rotate to a predominance of non-bloating legumes in cover crop mixes, install cross fencing and use the northwest pasture as winter grazing and/or haying. The other recommendation is to follow CSU Nitrogen fertilizer application rates. The high Phosphorus and Potassium indicate that adding these to fertilizer is not warranted at this time. Possible use of annual legumes may assist in increasing Nitrogen to the system, however, these will likely remain in field if not terminated before going to seed which may result in less than ideal grazing for cattle and horses.

- **Practices Put in Place:**

- **Follow up:**
 - **Date:**
 - **What is working:**
 - **What is needed:**