



## Monitoring Checklist

Adapted from the Monitoring lesson by Dave Scott, in ATTRA's Managed Grazing Tutorial. For a full monitoring discussion, see the tutorial at <https://tutorials.ncat.org>.

A monitoring plan is an essential part of a grazing plan, and is a feedback mechanism that will provide you with information on what's going on in your pastures, both from climate and ecological factors as well as management decisions. A good monitoring system will alert you to failure before it is too late and will record successful grazing strategies.

### Monitoring must be consistent, practical, and simple

#### Assessing Soil Function

##### 1. The Shovel Test. Look for:

- Aggregation
- Color
- Smell
- Root mass
- Take photos and compare over time

##### 2. Water Infiltration Test

- Insert a ring formed from a 6-inch can with the top and bottom cut out into the soil to a 3-inch depth.
- Gently pour in water to a line on the can one inch above the soil.
- Time how long it takes for the water to infiltrate. Do it again and record the time.
- We want rapid infiltration. Some of the best soils will infiltrate several inches of water in one hour; poorly functioning soils may take 30 minutes to absorb one inch.
- Write down how well your soil does. Trampling grass into the soil with livestock and adding compost to encourage microbial populations will improve water cycling.

Excellent	Several inches per hour
Good	Three to four inches per hour
Lacking	Less than one inch per hour
Write the results down in a notebook or spreadsheet and compare over time.	



Figure 1. Excellent aggregation. Photo: NCAT



Figure 2. Aggregation, root mass needing improvement. Photo: NCAT

##### 3. Slake Test

- Archuleta Slake Test <http://soilquality.org/indicators/slaking.html>
- Gently suspend an air-dried, ping pong ball-sized clump of your soil into a clear one gallon jar, filled with water.
- The water will rush into the pores of the soil. If the soil does not have enough strength in its structure, the soil will "slake" or disintegrate as the water applies internal pressure.
- The longer the soil remains intact, the more aggregated it is, and the better structure it has.
- Record, compare over time.

##### 4. Biological Lab Testing

- Determine the biological activity and diversity in your soil
  - Haney test
    - 1. Ward Labs, [www.wardlab.com/haney-info.php](http://www.wardlab.com/haney-info.php)
    - 2. Midwest Labs, [www.midwestlabs.com/test-packages](http://www.midwestlabs.com/test-packages)



- Cornell, <https://soilhealth.cals.cornell.edu/testing-services>
- Earthfort, [www.earthfort.com/lab-services](http://www.earthfort.com/lab-services)

### Assessing the Forage Base

1. Desire increased:
  - Carrying capacity
  - Nutrient density: high digestible NDF (testing lab) and Brix readings
  - Species diversity
  - Longevity
2. Desire less:
  - Weeds
  - Bare soil
3. Monitor: Record in notebook or spreadsheet – compare over time:
  - Simple Forage Photo Transect
    - 100-foot intervals across paddock
    - Take photo of 2-foot by 2-foot plot
    - Note % grasses, legumes, weeds, bare soil, litter, erosion in each plot
  - Monitoring methodologies
    - For rangeland:
      1. Bullseye! Targeting your Rangeland Health Objectives, [www.ncat.org/wp-content/uploads/2015/08/Bulleseye-Manual.pdf](http://www.ncat.org/wp-content/uploads/2015/08/Bulleseye-Manual.pdf)
      2. Calculating Available Forage, [www.wyoextension.org/werawater/region8/PDFs/range3.pdf](http://www.wyoextension.org/werawater/region8/PDFs/range3.pdf)
    - For temperate pasture:
      1. Pasture Condition Score Sheet, [www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/pasture/?cid=STELPRDB1045215](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/pasture/?cid=STELPRDB1045215)
      2. Estimating Amount of Forage in Hay Fields and Pastures, <http://edis.ifas.ufl.edu/ag369>
  - Forage nutrient analysis, <http://foragetesting.org>, Brix test
  - Grazing stocking rates, paddock moves, etc.
    - Use red book, spreadsheet, grazing chart, or calculator

### Assessing Livestock

1. Appearance and Behavior
  - Rumen fill
  - Thriftiness
  - Cud chewing
  - Gate watching
  - Playfulness and contentment
2. Production
  - ADG per acre
  - Diseases - pneumonia, mastitis, foot rot, and parasites
  - Record and compare over time

### Financial Assessment

1. Identify the biggest drains on your income and make reducing them your goal
  - a. Fertilizer
  - b. Supplemental feed—winter and summer
  - c. Irrigation power
  - d. Pesticides
  - e. Vet bills
  - f. Seed
2. Monitor Progress with Adequate Accounting – compare over time
  - a. Gross/Acre
  - b. Expenses/Acre
  - c. Net margin/Acre

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