Forage Fact #110

Date:
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Locating Field Benchmarks for Monitoring

"I want to set up field benchmarks that we can monitor to see if we are improving our land's carrying capacity. I also want to learn how to do the monitoring myself and involve my children."
Tara Holmes,
Siphon Creek, BC
May, 2017

Materials Needed:

- ☐ air photo or field diagram
- ☐ hand held GPS
- ☐ camera
- ☐ field markers: could be
  - skeets or
  - rocks taped / painted or
  - landscape metal pins or
  - wooden lath stakes
- ☐ brightly colored flagging tape
- ☐ tree /post paint

Relevant Factsheets:

Forage Fact #111:
How Photogenic is your Forage?
Forage fact #112:
Estimating Forage Yields Yourself
Forage Fact #113:
Are You Happy with Your Forage Stand?

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Context For This Factsheet

This forage fact is part of the project for Improving Productivity & Profitability of Forages. It will help you locate good field benchmarks to monitor your plant and soil response. Your goals or questions will determine what exactly you will monitor, and how frequently. Well placed benchmarks can help you integrate the various properties that you are monitoring. By being able to revisit the same benchmarks year after year, they also become a powerful tool for testing the forage and soil changes to management over time.

Tara Holmes & her two budding young scientists

Considerations & Procedure

Before going to the field, ask yourself what your key questions of the field monitoring are. For example, Tara Holmes set up initial benchmarks so that she and Ben could track what effect their improved grazing practices would have on the soil quality and carrying capacity of their pastures. Stan and Shirley Smithard decided that paired benchmarks would help them monitor how many years of winter feeding it took to improve their soil and forage *(see photo below).* Fred and Lise Schneider wanted to set up benchmarks in different landscape and drainage positions to see how the seeded forage mixtures survived different conditions *(see air photo plot diagram on next page).*

Setting up benchmarks with Smithards to reflect number of years of winter feeding on the pasture: **447** = 1 yr verses **449** = 7 yr.

The next consideration is variability in soils & the field characteristics including:

- ◊ soil type
- ◊ slope position
- ◊ eroded / non eroded
- ◊ wet vs well drained
- ◊ management
- ◊ differences in crop
- ◊ row vs inter row
- ◊ wheel / animal traffic

In the Smithard example, all factors were similar except management (years of feeding at each benchmark)

Peace River Forage Association of British Columbia

Pros & Cons of Various Benchmarking Systems:

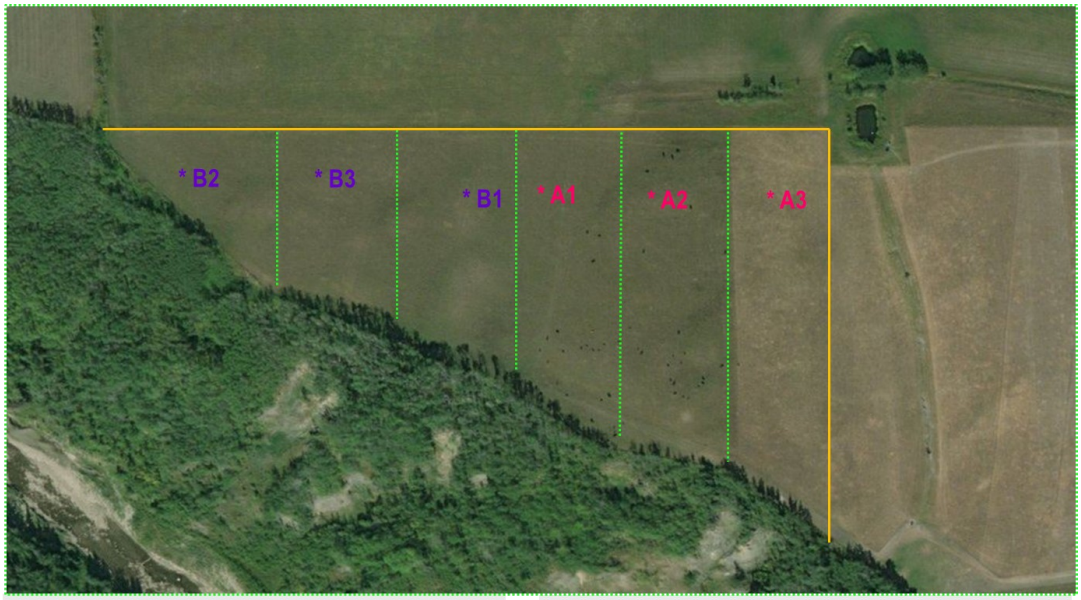
1. Skeets have been good in a variety of situations. Even if they are trampled by grazing animals or run over by farm equipment, the broken shards can be found.
2. Rocks that were painted or covered with brightly colored duct tape have also worked well for some.
3. Wooden stakes can be used for short term, but they are often moved or broken by equipment or grazing animals.
4. Metal landscape pins have been used with some of our grazing demos. They need to be pushed in to ground level with flagging tape attached.

References

AESA. 2003. Alberta Soil Quality Card & Field Identification. Alberta Agriculture. Agdex 525-2, 6 pg.
For more info: 780-427-3432

USDA. 2001. Soil Quality Test Kit Guide. Publication of USDA, Agric. Research Service, Soil Quality Institute & Natural Resources Conservation Service, 82 pg.

Air photo plot diagram with benchmarks at Schneiders' sainfoin demonstration plot seeded 2017.



Types of demo tests:
A = Sainfoin/ Alfalfa (Alberta mix) + Grass (SPG mix)
B = Sainfoin/ Alfalfa / Grass (SPG Mix)

Benchmarks for monitoring:
A1 A2 A3 = benchmarks for A demo test
B1 B2 B3 = benchmarks for B demo test
Tentative plan for temporary fence

When we are comparing management systems, sites for benchmarks and sampling should be in the same soil type and topographical position. If this is not possible, then setting up paired samples at 3 different landscape positions as we did at Schneiders, may give more meaningful information.

In the plot photo above: A1 & B1 are both on knolls, A2 & B2 are mid slope positions and A3 & B3 are in lower parts of the landscape.

After carefully considering locations, the benchmarks need to marked in some way so that they can be found again. This can be done by using a hand held GPS or another method. "Back up" or "old school" marking locations can involve # of paces in a certain direction to a painted or flagged tree or fence post. Take photos of the site.

The main objectives of this exercise are to:
1. to locate representative benchmarks meaningful to your questions, and
2. to be able to find them easily again.

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