

Building Soil Fertility Through Hay Feeding

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Needs

Winter feeding is an existing practice in most beef cattle operations in Arkansas. It is also identified as the largest expense incurred by producers annually. Typical feeding sites are small areas used for an entire season. The soil is not capable of retaining extremely high nutrient concentrations. Nutrient runoff can be a concern for water sources. Producers need to understand that better management during feeding season can decrease fertility needs, increase forage production and reduce nutrient waste.



Materials and Methods

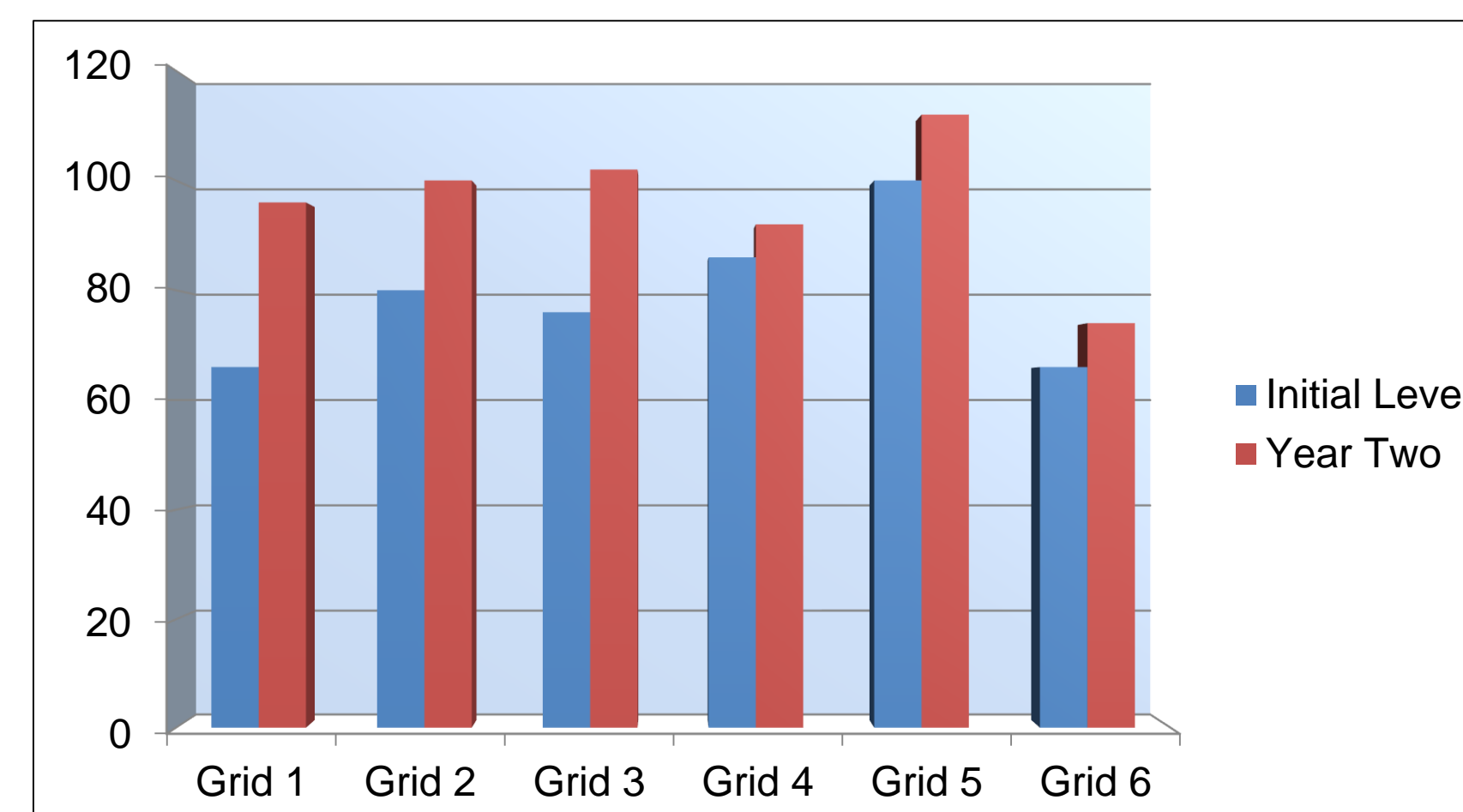
The field selected was the lowest in forage production on the farm. Within the 20 acre field, 6 single acre grids were mapped and soil sampled in October of year one to establish initial fertility and organic matter levels. Hay core samples were collected and analyzed. The hay source was quality bermuda purchased off farm. Hay sample results averaged Crude Protein of 14.1 % and TDN of 63.6%. Hay was unrolled as uniformly as possible across the field. Manure was harrowed to more evenly distribute nutrients. Year two soil samples were taken 6 months post hay feeding the following October.

Objectives

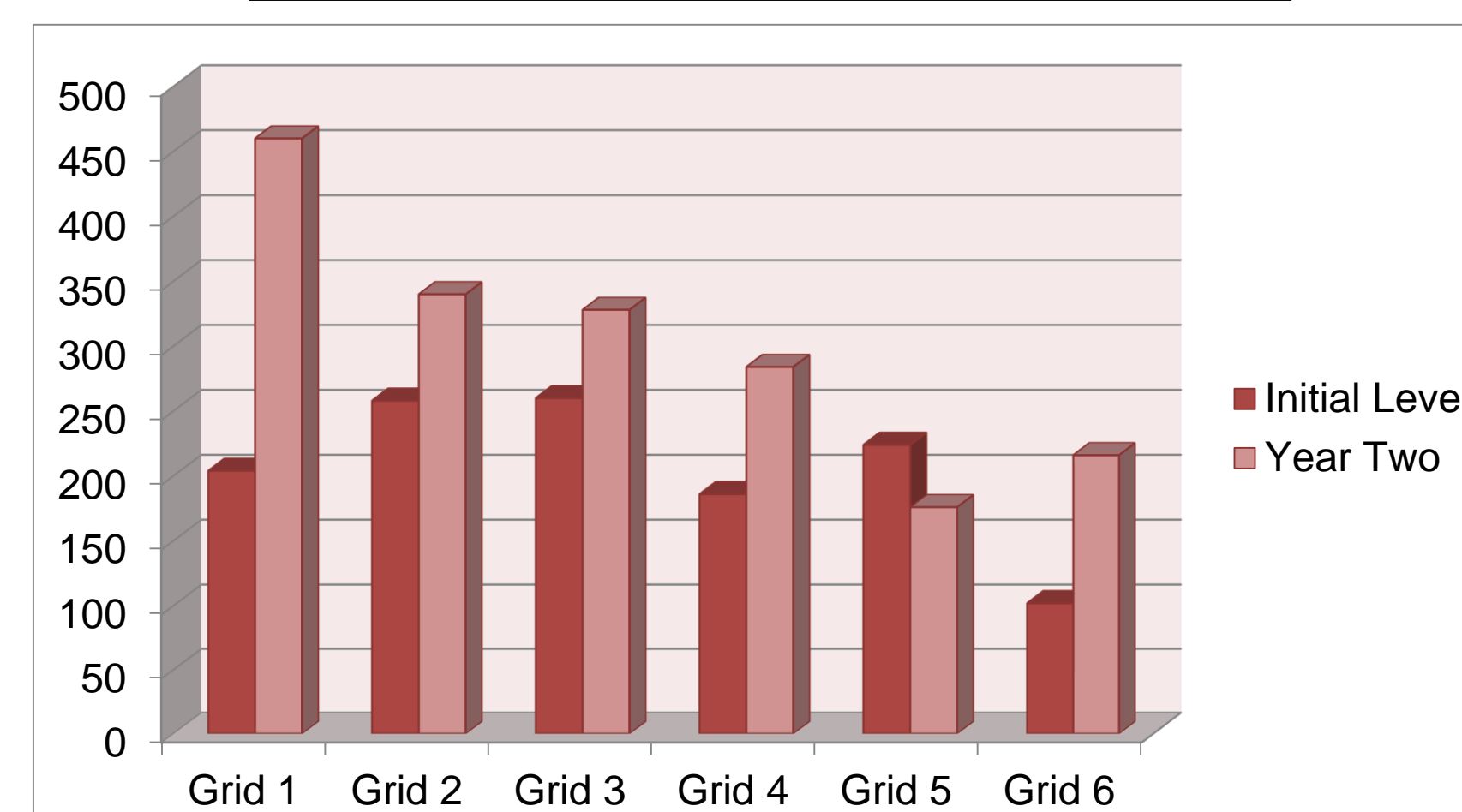
- To measure the changes in soil fertility and organic matter levels exclusively from feeding hay.
- Educate producers to fully utilize an existing input and practice.
- Reduce nutrient concentration and runoff.

Results

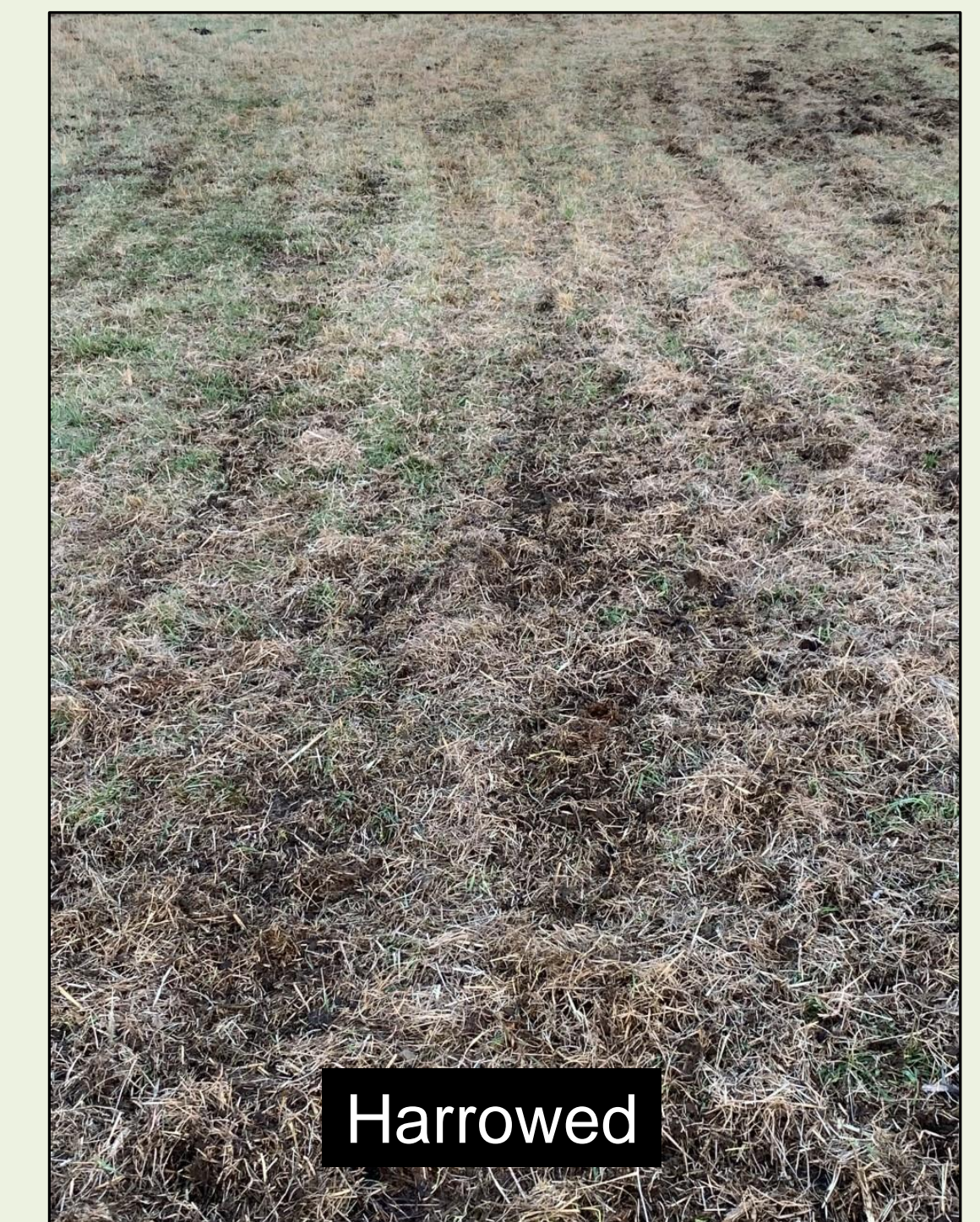
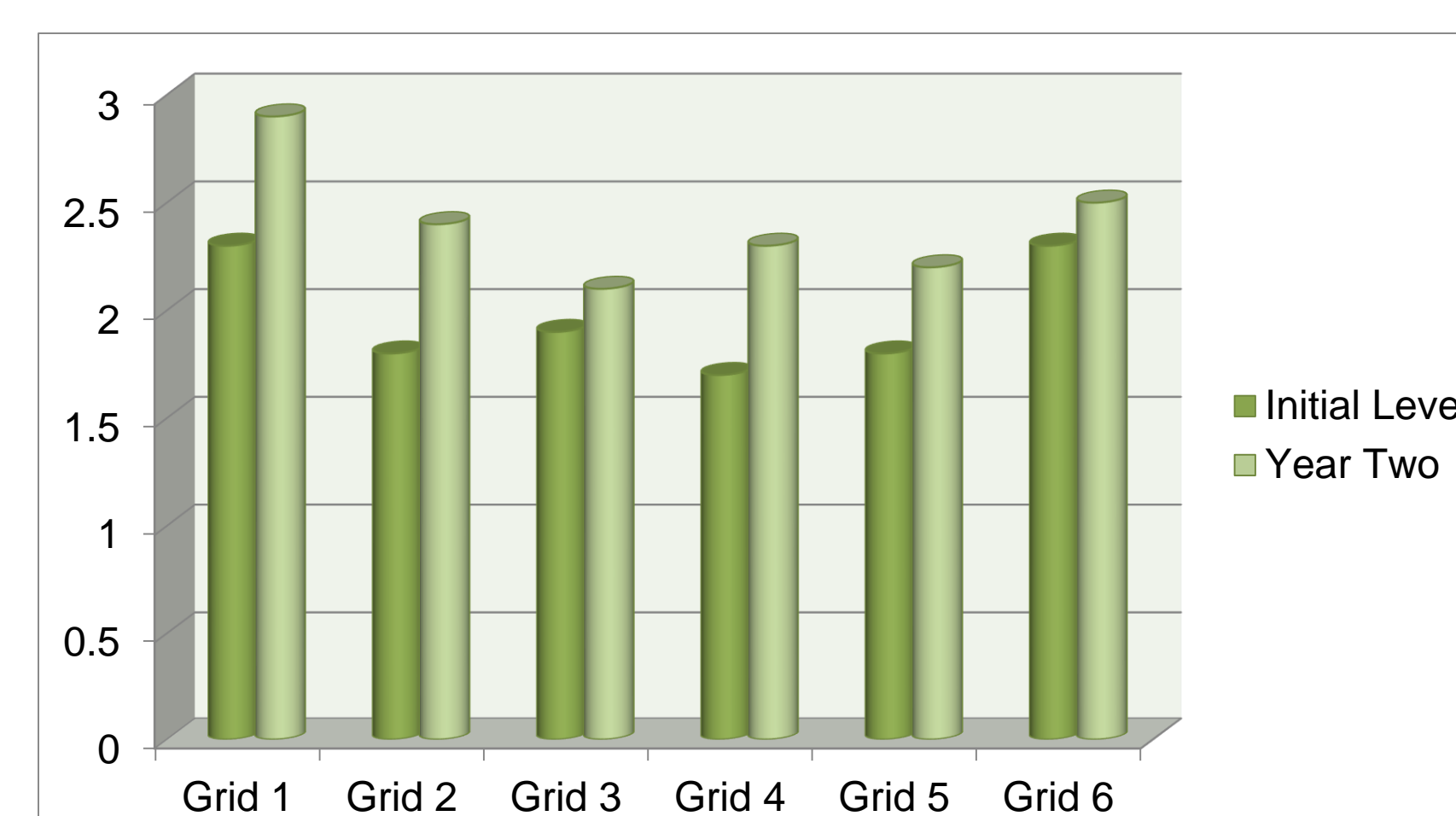
Phosphorous levels (lbs/acre)



Potassium Levels (lbs/acre)



Organic Matter (percentage)



Impacts

1. Phosphorous levels increased an average of 17 lbs/acre.
2. Potassium levels increased an average of 90 lbs/acre.
3. Organic matter averages increased from 1.96% to 2.40%.
4. Improved forage production in the targeted area.
5. Nutrient credit offsets hay expense by \$18/ton or \$5.88/bale (4x5).
6. Phosphorous and potassium increase at year two was worth \$36.40/acre or \$728.00 total.
7. Reduced nutrient waste.

