Maximizing Forage Yield with Soil Testing and Fertilization

Brian Arnall
Nutrient Management Extension

Topics

- Deficiency ID with Pete Sheets
- Fertilizing on a Budget
- Fall applied litter
- Litter and commercial fertilizer

This years Considerations

- Do not give up on the summer pasture
- But it is time to start looking at planning for fall growth especially in the Drier areas.

Fertilizing on a Budget

- Multiple approaches / scenarios
- First need some info
  - Yield history or potential
  - Soil Test: P, K, and pH
- Each scenario may have multiple options
- The correct option will be producer and environment dependent

Fertilizer on a Budget

- Scenario 1: Soil test show P and K adequate in all fields
- Option 1: Maximize yield and quality on limited acres
  - Choose field(s) with highest yield potential and only fertilize them to maximize yield.
- Option 2: Maximize return on each lb of N.
  - Or apply 50 lbs N ac per field over all fields.

Fertilizer on a Budget

- Scenario 2: Soil test show P is low in some/all fields while K is adequate.
  - Look at the sufficiency level of P on each field.
  - How much are you losing and how much to apply

STP	% Suf	P_2O_5		STK	% Suf	K_2O
0	50	75		0	50	140
10	65	60		75	65	80
20	80	40		125	80	50
40	95	20		200	95	30
>65	100	0		>250	100	0

Fertilizer on a Budget

- Option 1: Max yield and quality with Nitrogen
  - Only apply N to the fields that have the highest P level.
- Option 2: Correct P deficiency
  - Apply P to the lowest values only and some N to select fields.
  - Apply litter to low P fields and commercial N to rest

Fertilizer on a Budget

- Scenario 2: Soil test show both P and K are low.
  - Look at the sufficiency level of P on each field.
  - How much are you losing and how much to apply
  - Keep in mind Total loss is P * K
  - P @ 60% and K @ 70% = 42% of Max yield
  - @ <50% max yield recovery of N investment will be low

Fertilizer on a Budget

- Option 1: Fertilize the worst field
  - Fertilize the field with the worst % Max yield
- Option 2: Fertilize the lowest Sufficiency
  - Fertilize with only P or K, which ever is impacting yield the most.
- Option 3: Focus on N
  - Fertilize the field(s) with the highest potential yield.

Fall Applied Litter

- Primarily concern is Nitrogen
- In Kentucky fall applied vs spring for forage
  - Incorporated no difference
  - Surface applied Fall ≥ Spring
- In Mississippi Fall v Spring for Corn
  - Fall < Spring, due to warm winters.
- Environment after application is Key to recovery.

Fall/Winter Applied Litter

- Best case Scenario(s):
  - Cold at application and through winter.
  - Few slow soaking rainfall events from fall to spring
    - P and K well incorporated
    - Little N is lost and readily available
- Worst case Scenario(s):
  - Warm at application and through winter.
  - Extremely Dry & Warm Winter
  - Very heavy rains, Very wet winter (leaching)

Balancing Litter & Fertilizer

- To maximize yield and quality a combination of Litter and Commercial Fertilize.
- If you apply litter do not pay for Commercial P or K.
  - N only Urea or Ammonia Nitrate
  - Pgs 7 and 11 of Guide
- 2 ton of litter and 100 lbs of Urea

Thank you!!!

PARTNERS IN RESEARCH

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OKLAHOMA STATE UNIVERSITY AGRICULTURE

Brian Arnall
373 Ag Hall
405-744-1722
b.arnall@okstate.edu

Presentation available @

www.npk.okstate.edu

Twitter: **@OSU_NPK**