

# **Fertilization of Perennial Grasses**

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# Introduction

- Most cost-effective provision of plant nutrients: N, P & K (soil pH);  
Ca Mg S (micronutrients),
- Minimum negative environmental impact.
  - Bahiagrass
  - Stargrass
  - Limpograss (Hemarthria)

# Bahiagrass

- Most popular perennial grass
- 75% of Florida permanent pastures
- Easy to establish from seed
- Low maintenance requirements
  - Fertilizer
  - Grazing
- Bahiagrass fertilization received most UF/IFAS attention past 20 years.

# Bahiagrass Fertilization

- **UF/IFAS gives 3 options for bahiagrass fertilization based on **desired amount of forage.****
  - ❑ Low N option\*: 50-60 lb N/A.
  - ❑ Medium N option: 100 lb N/A.
  - ❑ High N option: 160 or (80 + 80) lb N/A.

# IFAS Bahiagrass Fertilizer Options

- **Low N option (for grazed pastures only):**
  - 50-60 lb N/A with no P or K.
- **Medium N option:**
  - 100 lb N/A with 25 lb P<sub>2</sub>O<sub>5</sub> if soil tests low in P and 25 or 50 lb K<sub>2</sub>O/A if soil test medium or low in K.
- **High N option (2 split Applications) (Hay):**
  - 160 (80 + 80) lb N/A with 25 lb P<sub>2</sub>O<sub>5</sub>/A if soil tests medium or 40 lb P<sub>2</sub>O<sub>5</sub>/A if soil tests low in P, respectively.
  - Apply 40 or 80 lb K<sub>2</sub>O/A if soil tests medium or low in K, respectively.

# Timing Bahiagrass Fertilizer Application

- Apply N as early as possible with regards to warm temperature.
- In south Florida apply in **late-February or early-March** to maximize the supply of grass at this critical spring period.
- N bahiagrass spring fertilization can reduce your feed cost \$50 to \$70/cow and increase cattle profit by about \$50/cow compared to feeding concentrates.
- High N: **Apply in March & late-summer**

# Outstanding Issues with IFAS Fertilizer Recommendations

- Advisory in nature.
- There is still the question as to how long bahiagrass can go without P & K? and how this affects the integrity of the sod.
- So there is a proposal to recommend that you periodically apply small levels (25 lb/A) each of P and K as insurance against deficiencies.
- Test results not for environmental nutrient management purposes.

# Stargrass -- Grazing

- High yield of good forage require high fertilizer inputs.
- 160 (80 + 80) lb N/A
- 40 lb  $P_2O_5$ /A ( if soil tests low or very low in P)
- 40 or 80 lb  $K_2O$ /A (if soil tests low or very low to K, respectively).
- Apply  $\frac{1}{2}$  of the N & K and all P in early spring and the remaining  $\frac{1}{2}$  in mid-season.



# Stargrass -- Hay

- Apply 80 lb N/A + P + K as described for grazing in early spring.
- Then Apply 80 lb N/A & 80 lb K<sub>2</sub>O/A after each cutting.
- Cut at 4-5 weekly intervals.

# Limpograss

- Popular grass stockpiled for winter feeding
- Apply 300 lb of 20-5-10/A in early spring
- Graze close (6") at the beginning of summer to prevent buildup of coarse stems.
- Apply another 50 lb N/A in late-September just before stockpiling.
- For hay cut at 45-50 d intervals at 6+" stubble. Don't cut more than twice at 2" stubble per year.

# Use cheapest source of N

- Commonest sources of N:
  - Ammonium nitrate (33% N).
  - Ammonium sulfate (21%N: 24%S).
  - Am. sulfate cheaper and supplies S.
  - No response to S on grazed bahiagrass.
  - Price differential has narrowed (\$157 vs. 252/ton).
  - Am. sulfate is more acidifying and will add about \$2.38/acre in additional lime requirement.
  - Which is cheaper? You be the judge.

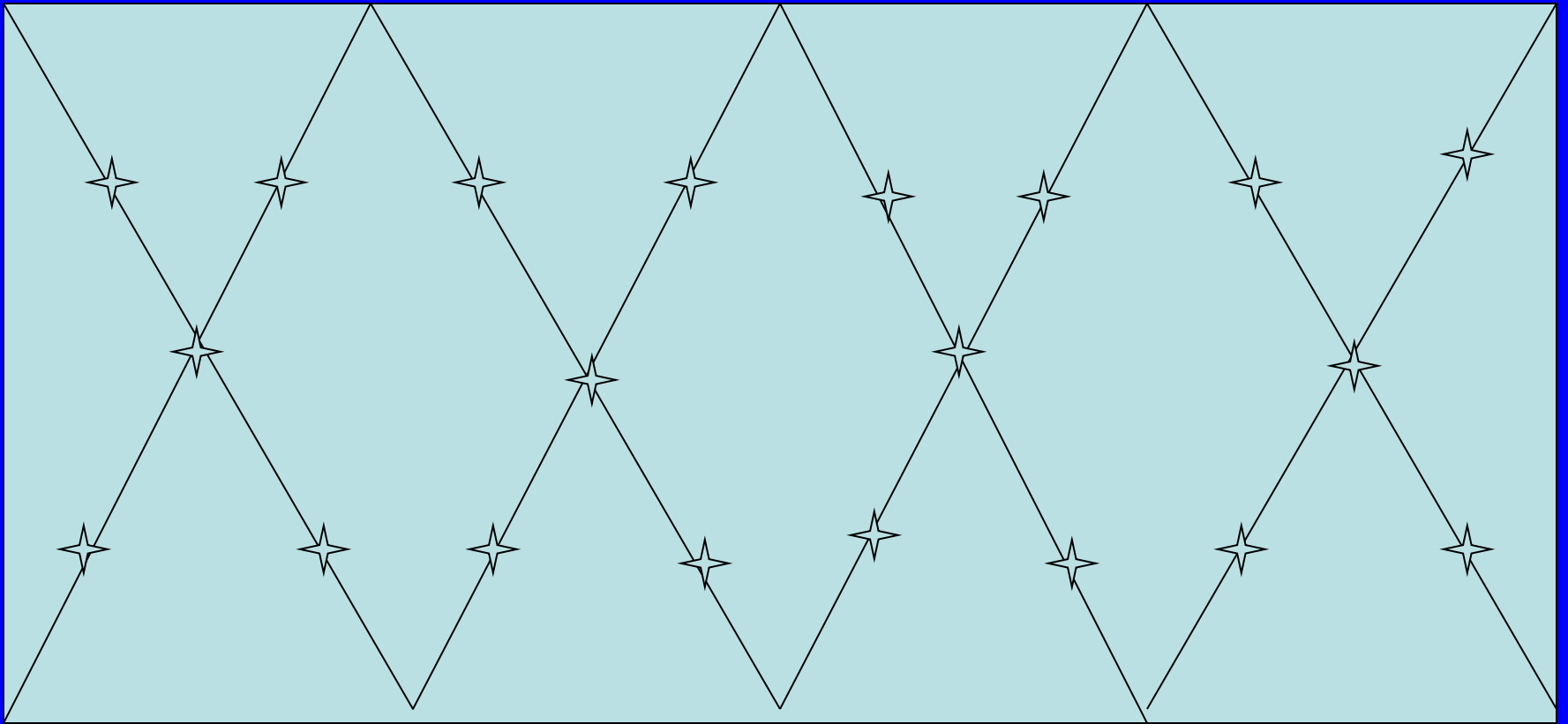
# Soil Sampling & Testing

- Three segments:
  - Sample collection
  - Laboratory analysis
  - Results interpretation

# Soil Sample Collection

- Most error-prone segment and needs precaution
- One consolidated sample for every 20 acres
- Sample must be representative
  - Take at least 20 cores for 20 acres
  - Uniformly distributed over the field
  - Isolate unique habitats

# Diagrammatic scheme for Sampling 20 acre field



# Laboratory analysis & Results interpretation

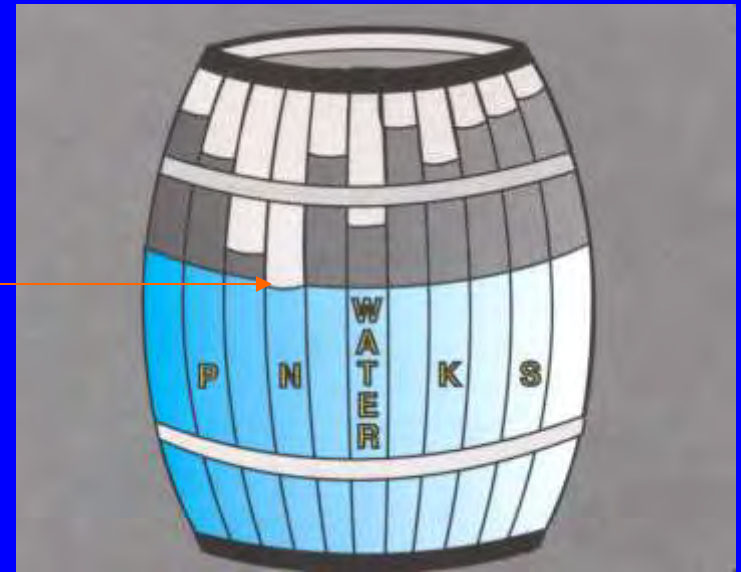
- Select a reputable local laboratory.
- Select a lab that provides recommendations based on field test results.
- Consult your county agent if not sure.

# Basis for Fertilizer Recommendations

- N so dynamic in the soil that it is not routinely determined in soil fertility tests.
- N most limiting & recommendations based on 100% annual crop requirement.

## Stave barrel Analogy

Shortest stave is N





# Basis for Fert. Recommends

- P and K are usually tested because they are frequently deficient in Florida pasture soils.
- Ca and Mg are often tested but are less frequently deficient.
- S is also dynamic and expensive to test and is seldom tested.
- Micronutrients are only occasionally tested because of lack of calibrated field response to their application

**Table 1. Current interpretation for Mehlich-1 soil test results for agronomic and vegetable crops.**

	Very Low	Low	Medium	High	Very High
	-----ppm-----				
P	<10	10-15	16-30	31-60	>60
K	<20	20-35	36-60	61-125	>125
Mg	--	<15	15-30	>30	