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Save the Bay

Virginia State Dairymen's Association

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Augusta
Redivant in Aurum Secula Prisoum

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The Bank That Puts You First

Virginia Cattlemens Association

Ridley

Pennington

Improving animal performance on fescue

Virginia Cooperative Extension
Virginia Tech • Virginia State University

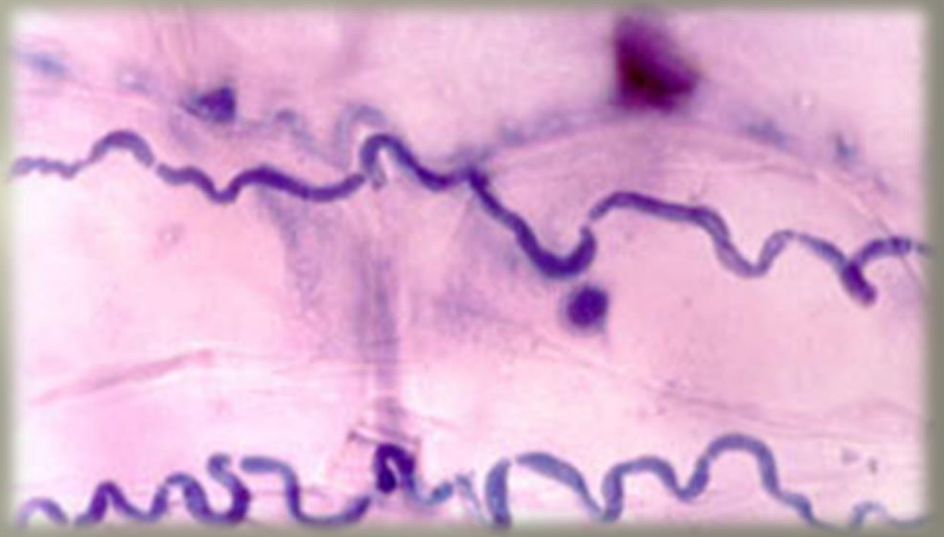
John Benner
Matt Booher

Extent of Endophyte Infection in Virginia

Sampling in the 1980's revealed that 75% of fields surveyed had fungus present in 50% or more of the plants. Levels of 40% or more can generally be expected to produce moderate to severe adverse effects in animals, although no level of infection can be considered completely safe. To determine the infection level of a pasture, it is necessary to obtain a good plant tissue sample for analysis. A minimum of 40 tillers (basal stems of

From the Extension publication:
"Making the Most of Fescue in Virginia"

Endophyte Infection Levels in the Shenandoah Valley



- 2013: Tested 26 pastures in Rockingham, Augusta, & Rockbridge
- Collectively, the farms sampled represent about 10,000 animals

Results

- 65% of pastures were 100% infected
- 30% of pastures were 80-90% infected
- Lowest **infection** rate (1 pasture) was 50%

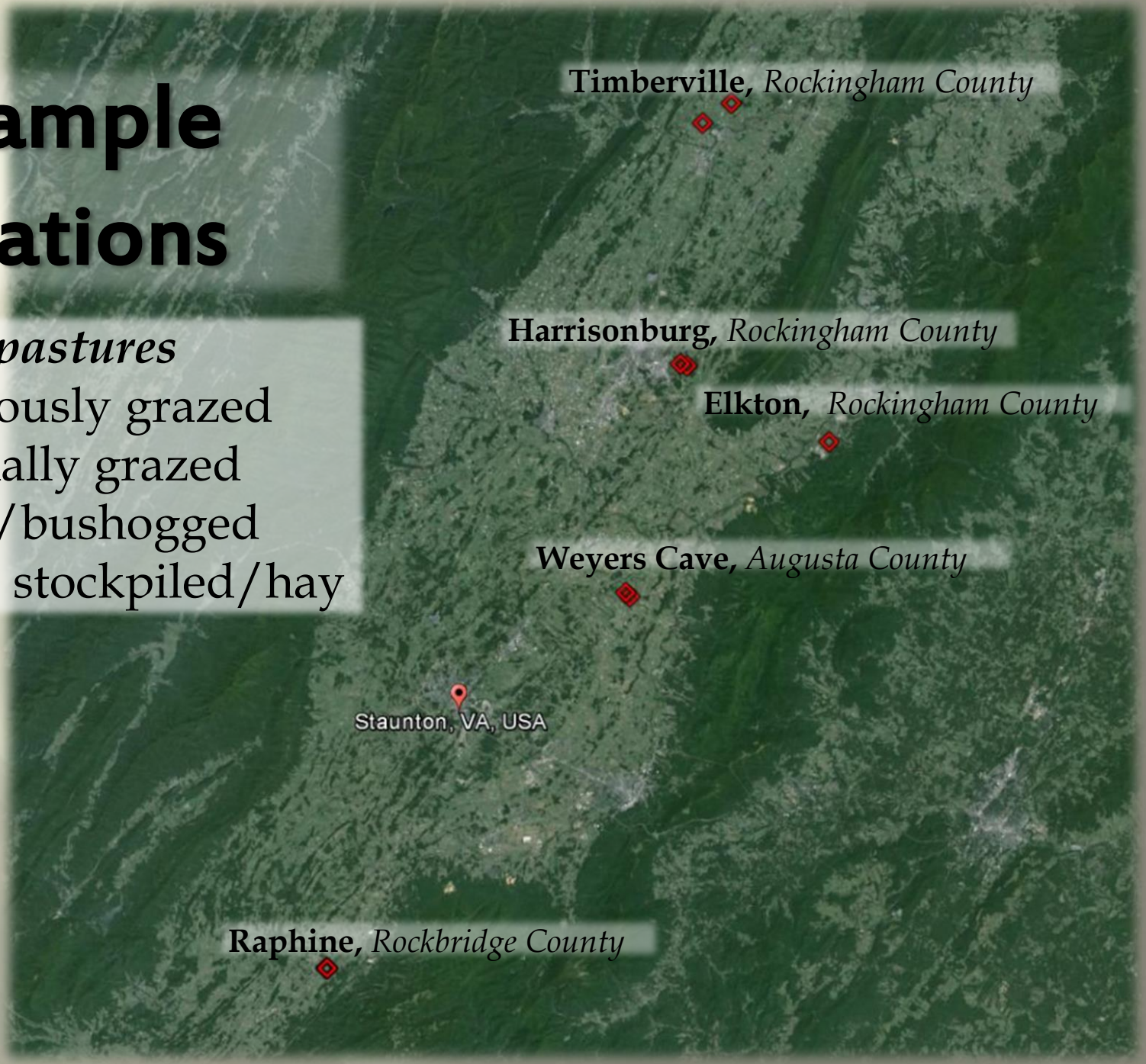

DOB: 2013/04/01
1.07.2014 14:25:22
ind Foot DMPLO
.00
Ekin Mark III Digital Radiography System
SID: 21674
ex: F DOB: 2013/04/01
01.07.2014 14:34:43
Hind Foot DMPLO
Value: 0.00
1/7/14,

A year in the life of fescue pasture...

5 Sample Locations

Tracked 9 pastures

- Continuously grazed
- Rotationally grazed
- Clipped/bushogged
- Summer stockpiled/hay



Sampling

For toxicity testing:

- sampled fescue only

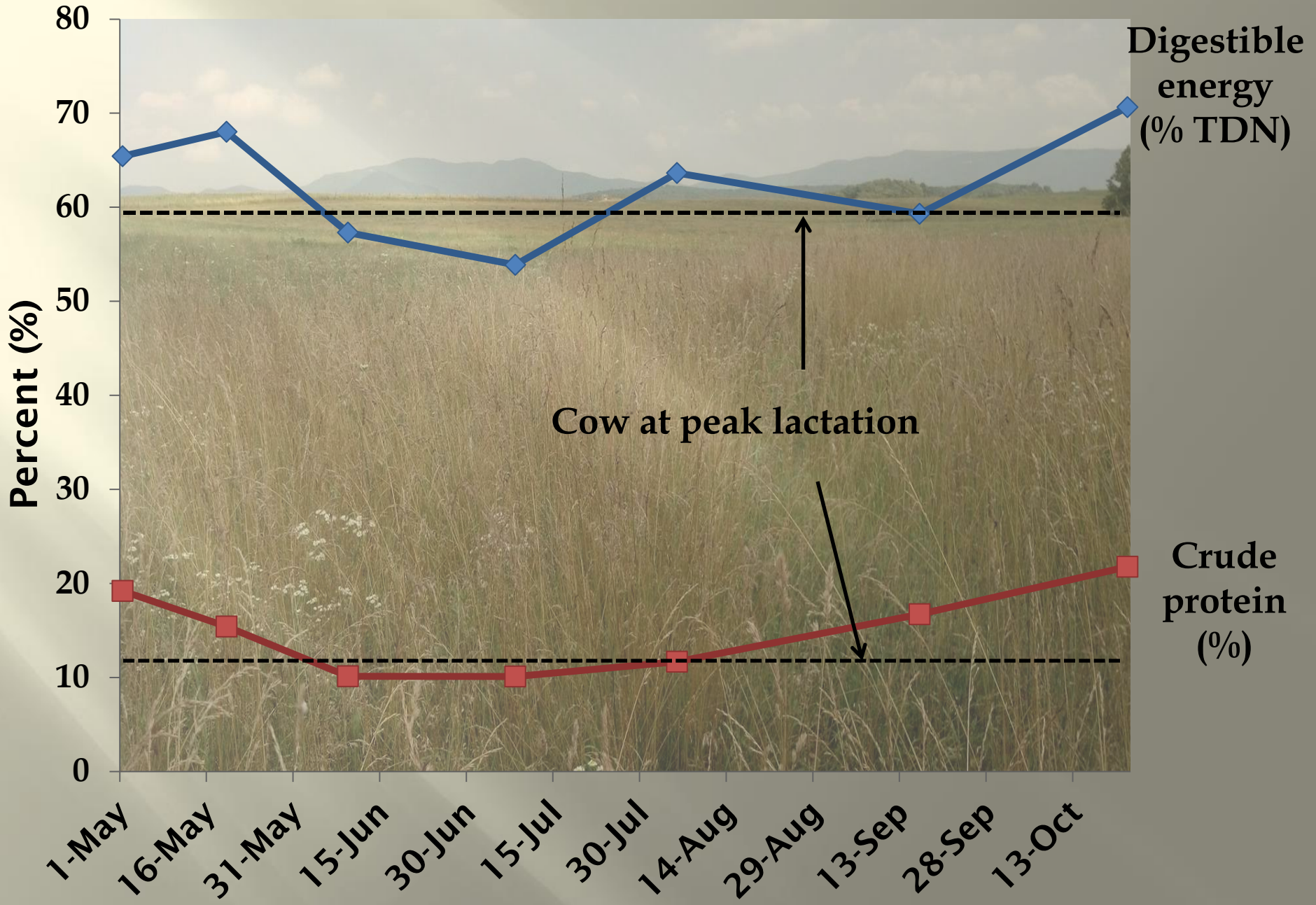
For nutritive testing

- mostly fescue, some other grasses

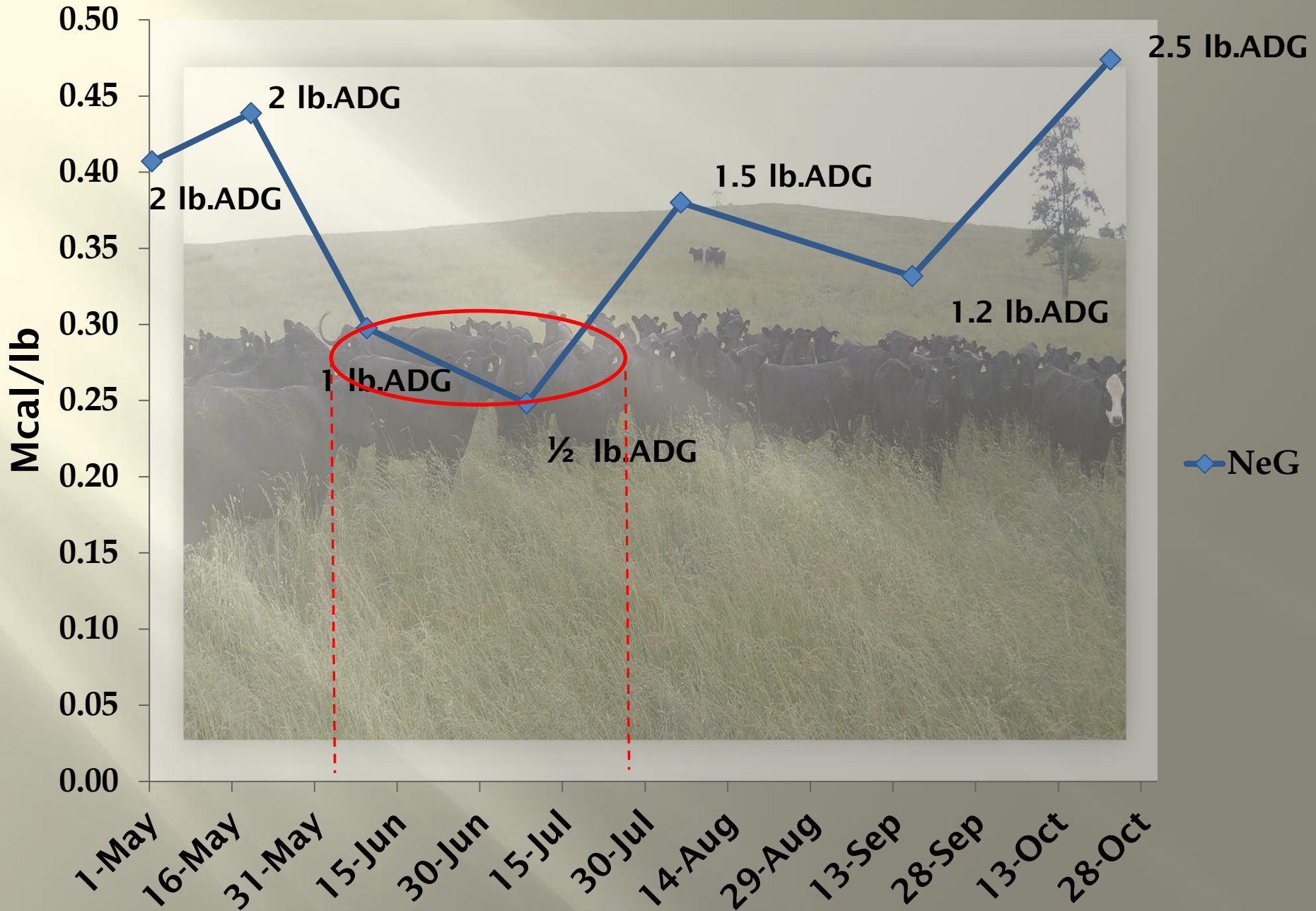
To establish a baseline

Forage Quality

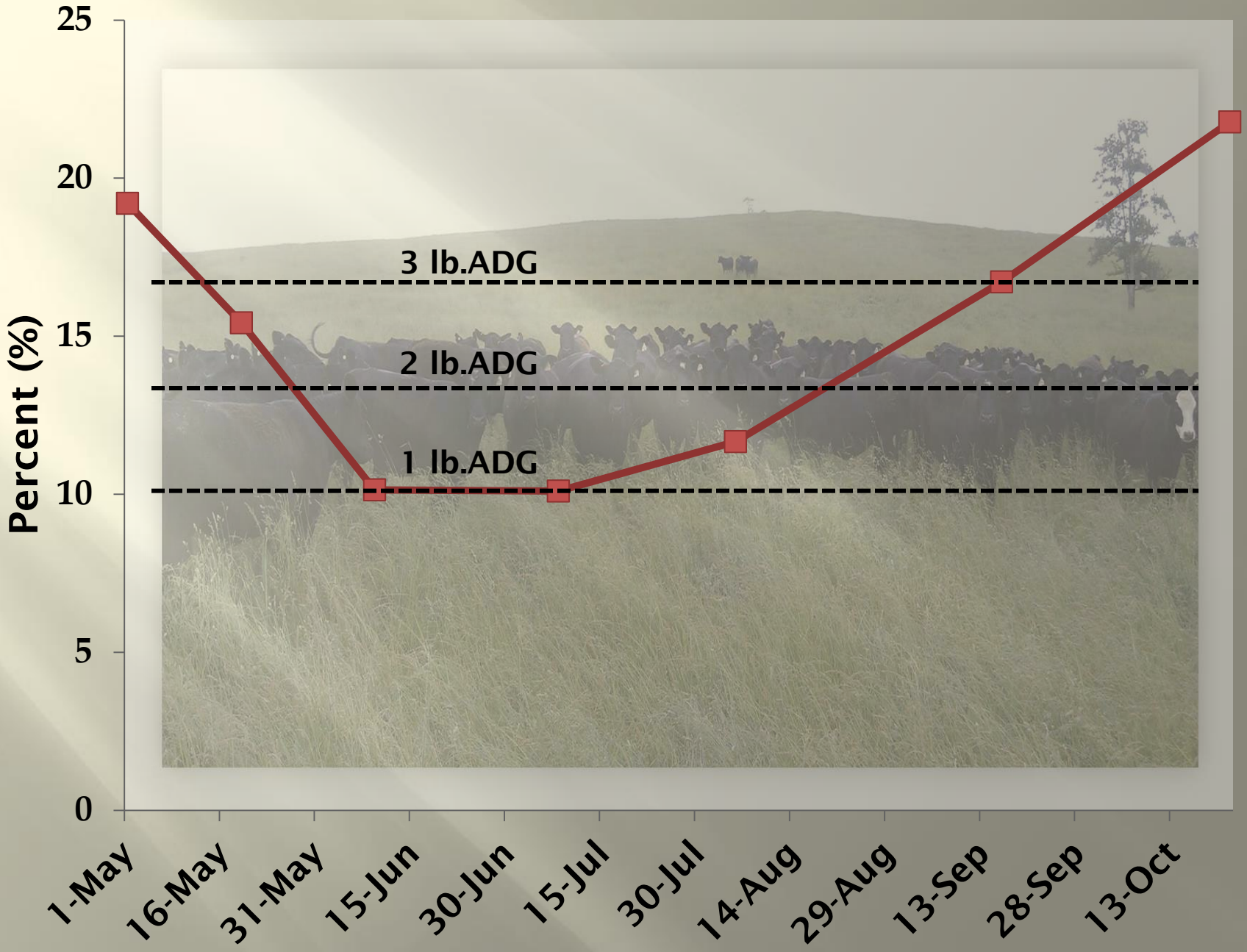
Feed value


80
70
60
50
40
30
20
10
0
Percent (%)
1-May
16-May
31-May
15-Jun
30-Jun
15-Jul
30-Jul
14-Aug
29-Aug
13-Sep
28-Sep
13-Oct
Digestible energy (% TDN)
Cow at peak lactation
Crude protein (%)

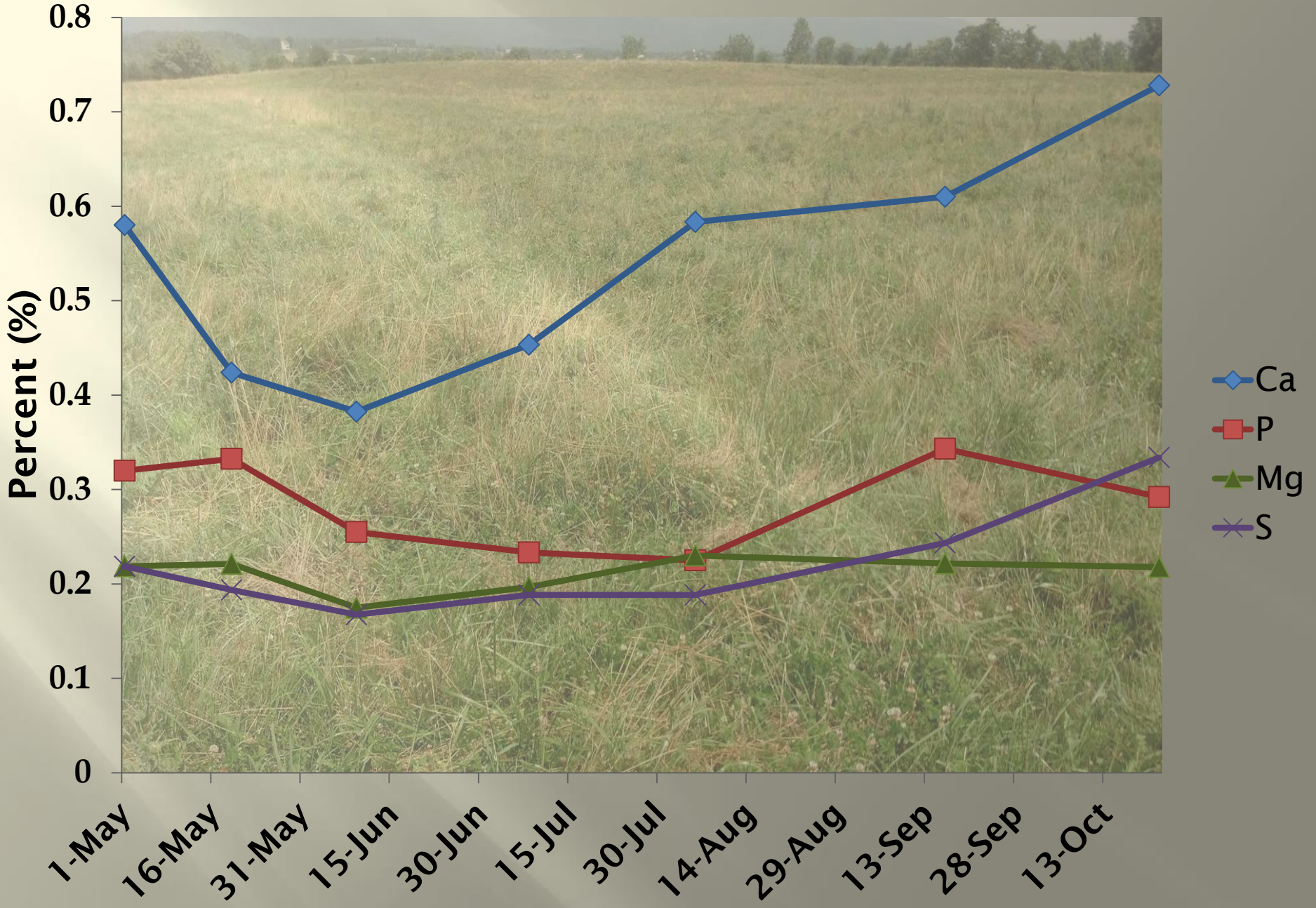
Gain potential (500 lb. steer) - *Energy*



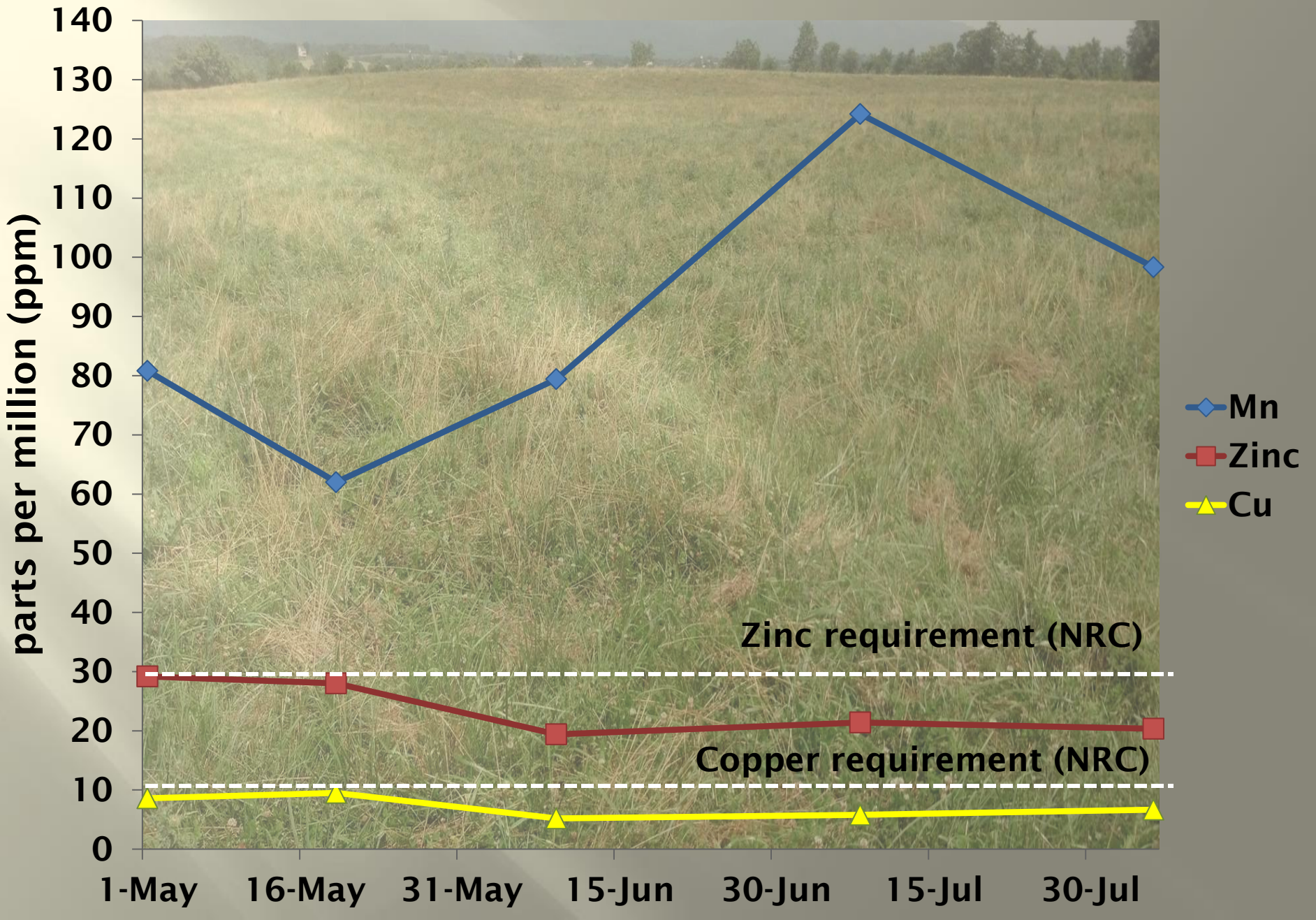
Gain potential (500 lb. steer) - *Protein*



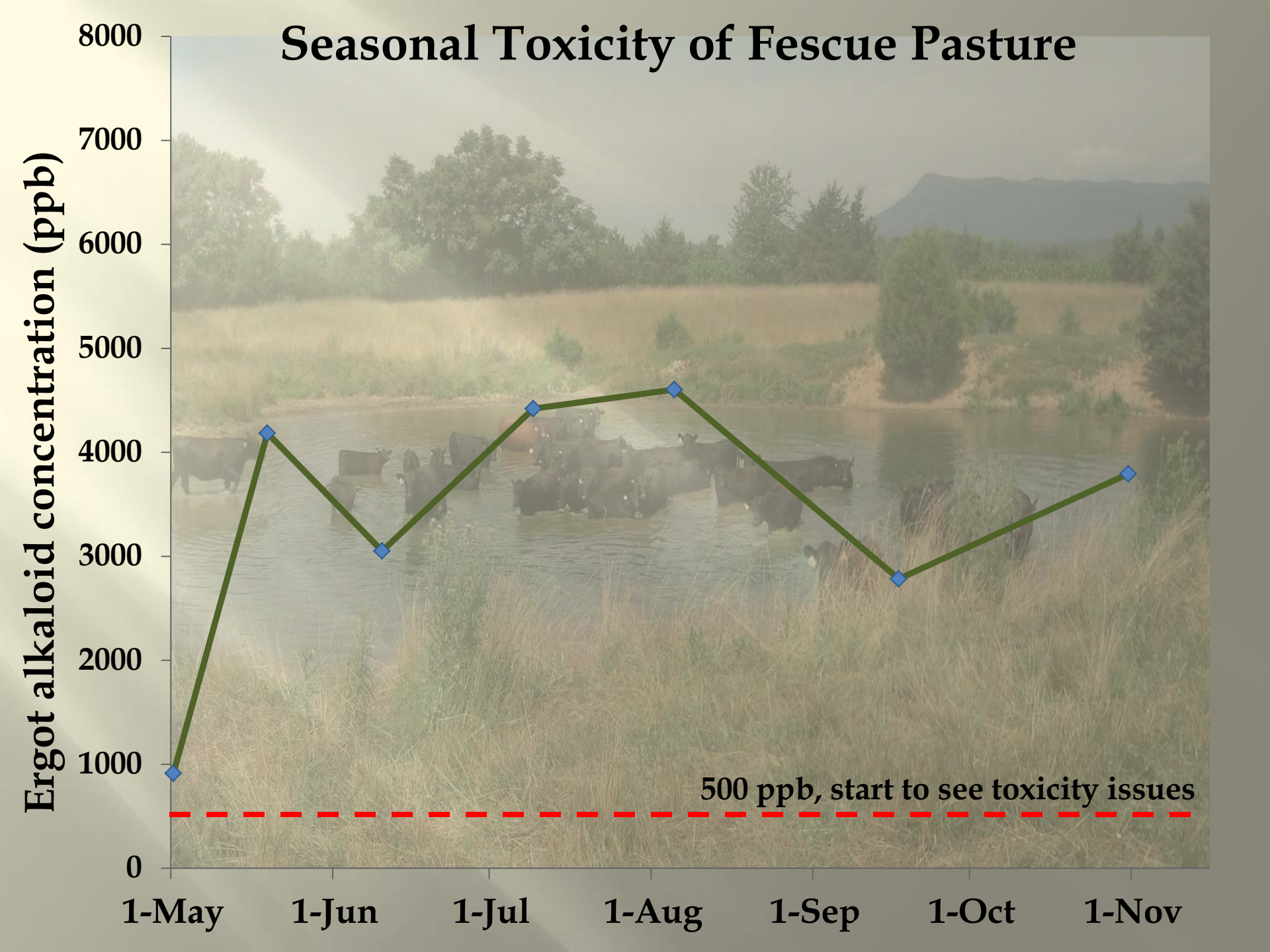
Pasture micronutrient content

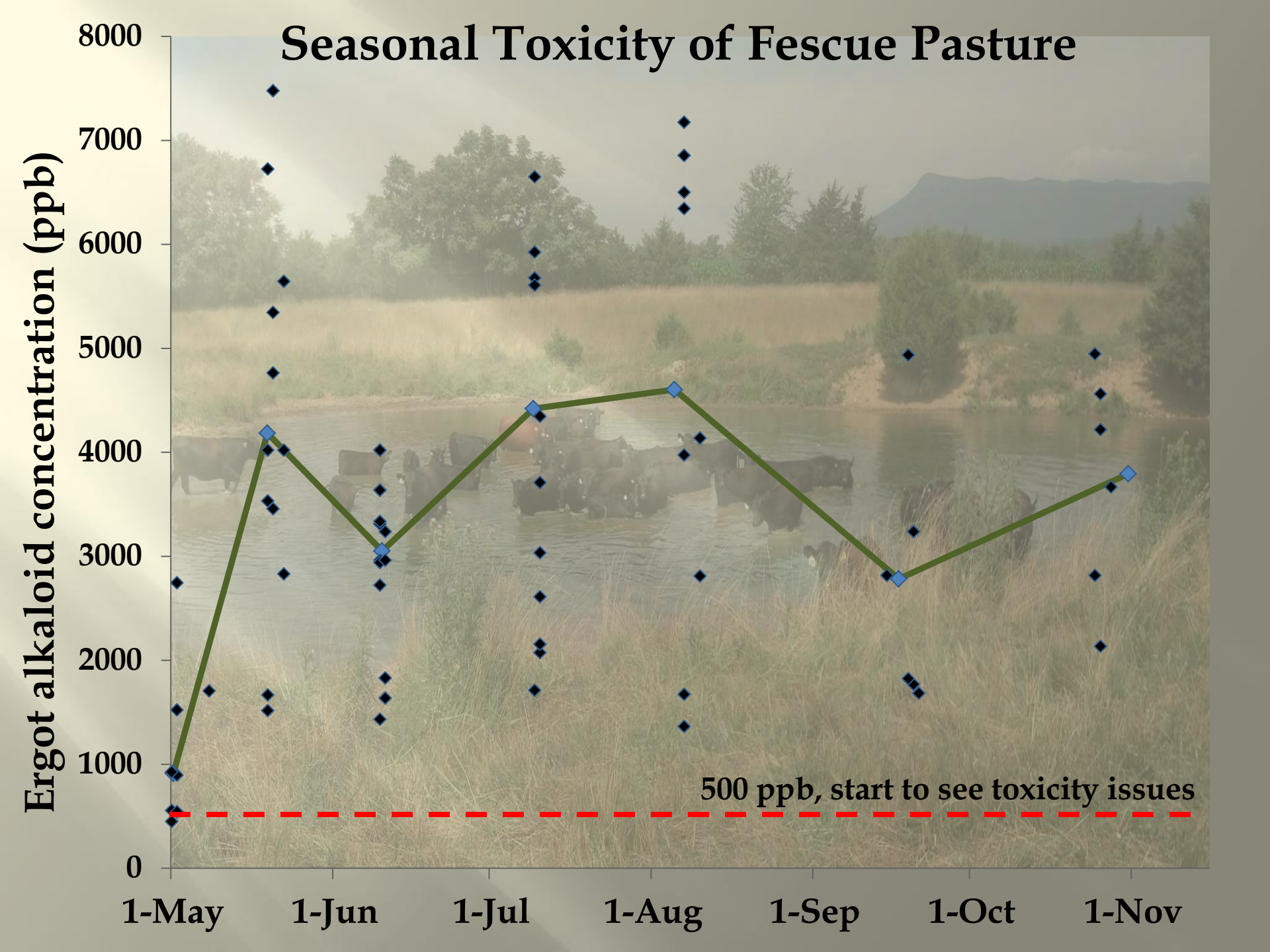


Pasture micronutirent content



Toxicity


Seasonal Toxicity of Fescue Pasture
Ergot alkaloid concentration (ppb)
8000
7000
6000
5000
4000
3000
2000
1000
0
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
500 ppb, start to see toxicity issues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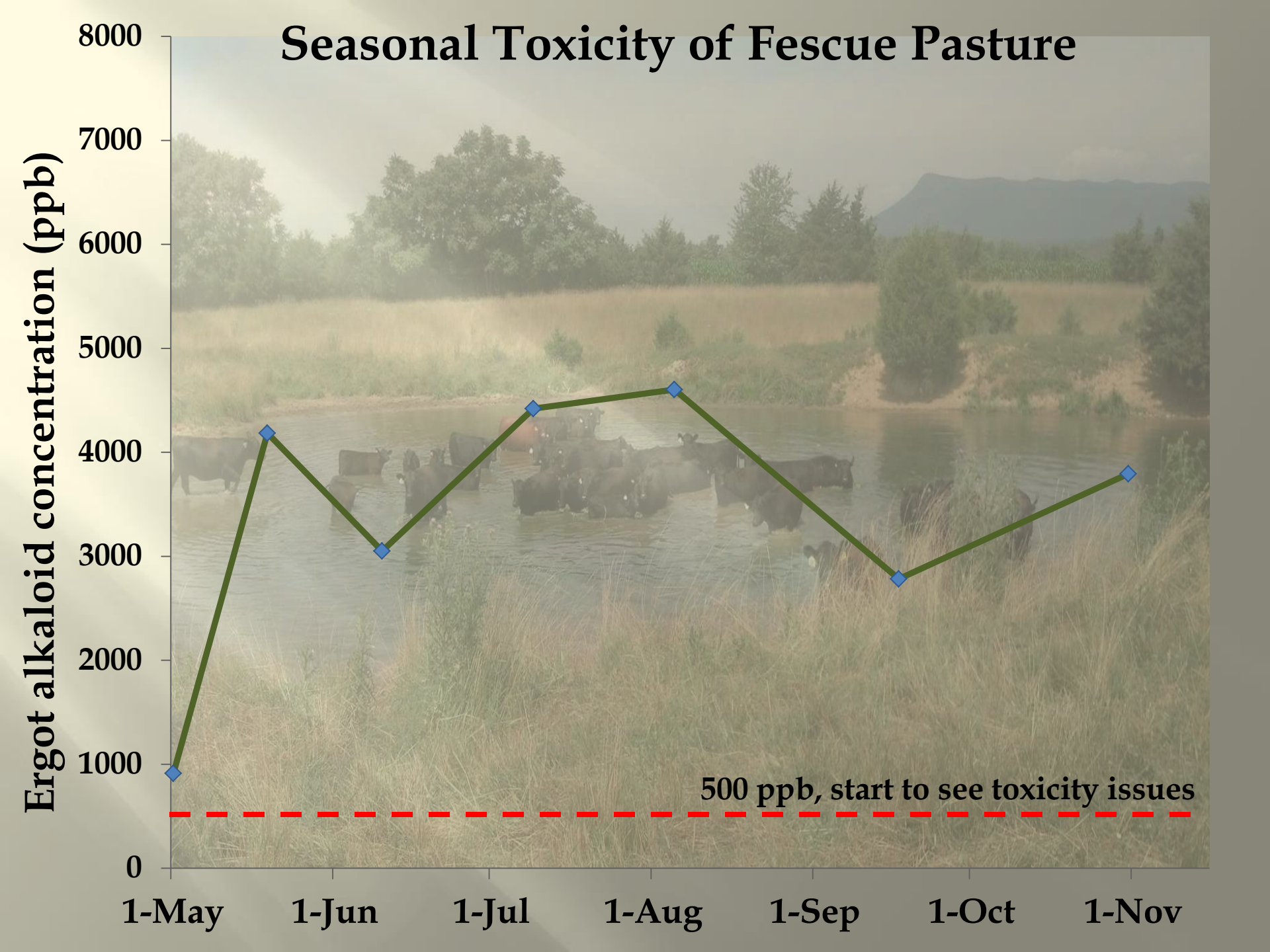
What affects alkaloid content of fescue?

- Plant genetics
- Temperature, moisture
- Nitrogen fertility
- Plant maturity

1. Our fescue is hot!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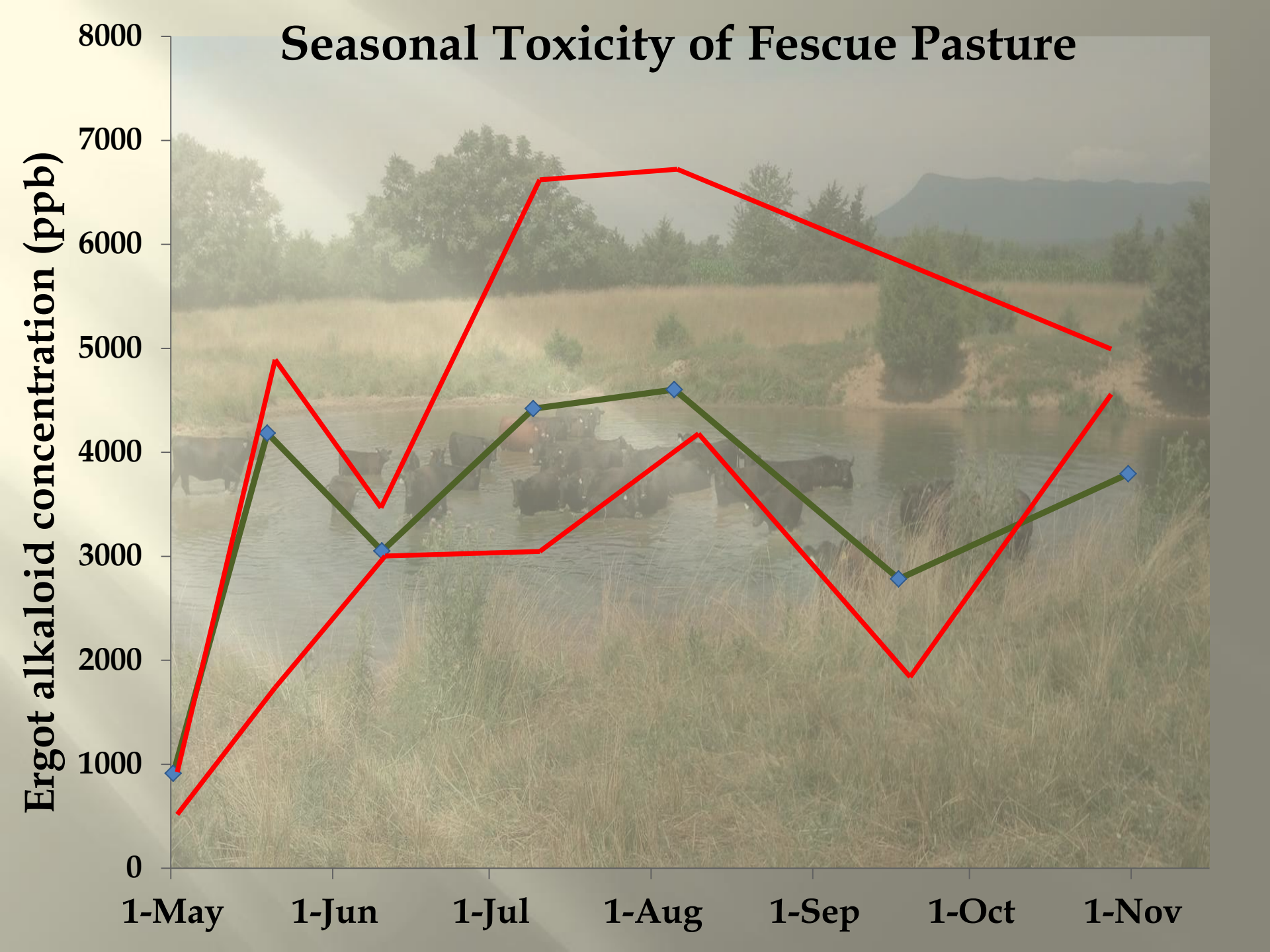
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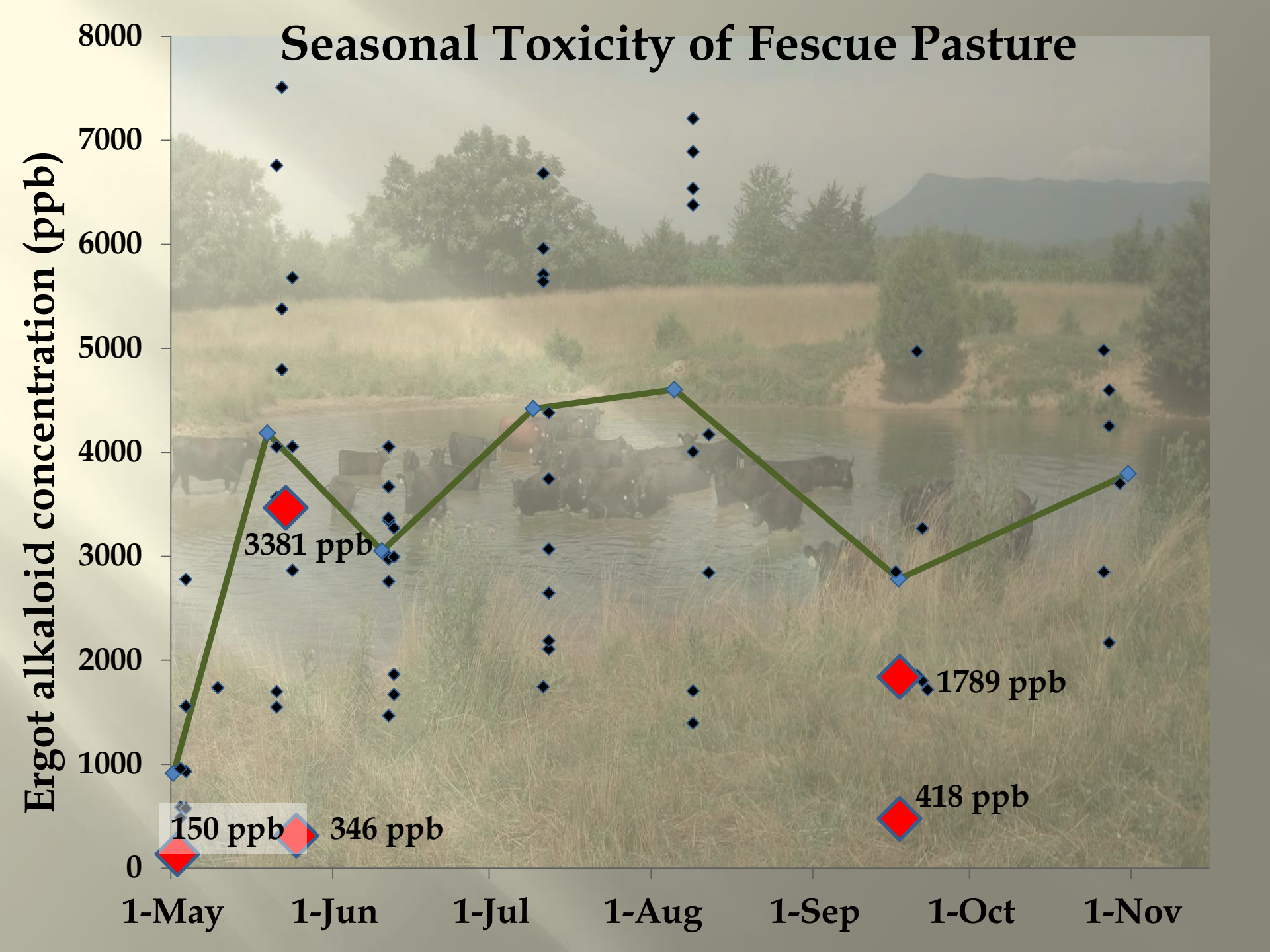
1-Oct
1-Nov


Ergot alkaloids: 3309 ppb
Ergot alkaloids: 1714 ppb

2. Practices that result in better grass growth can lead to increased toxicity.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8000
7000
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5000
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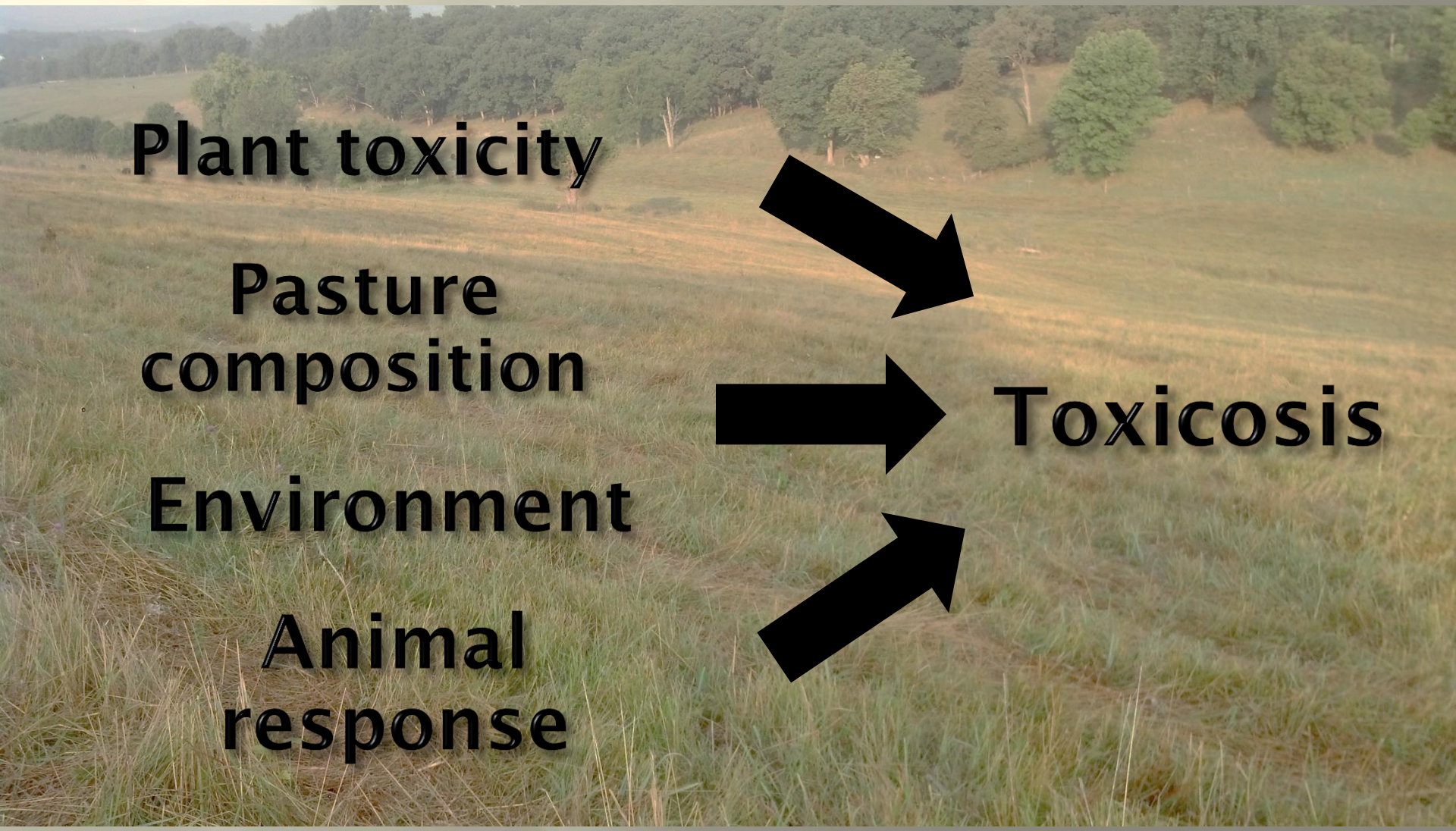
2000
1000
0
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
3381 ppb
1789 ppb
418 ppb
150 ppb
346 ppb

3. Pasture diversity is a great tool to dilute pasture toxicity

Summary: What have we learned from a season of testing alkaloids?

- **We have the potential for alkaloid levels far above the threshold**
- **There can be large differences between farms**
- **Seasonal fluctuations mirror plant growth**
  - **Vigorously growing plants**
  - **Nitrogen fertilizer**


Plant toxicity
Pasture composition
Environment
Animal response
Toxicosis