



**ALFALFA AS PROTEIN SUPPLEMENT
FOR FALL CALVING COWS**

CONNOR BIEHLER

UNIVERSITY OF NEBRASKA EXTENSION, BEEF SYSTEMS EDUCATOR

SCENARIOS TO USE ALFALFA

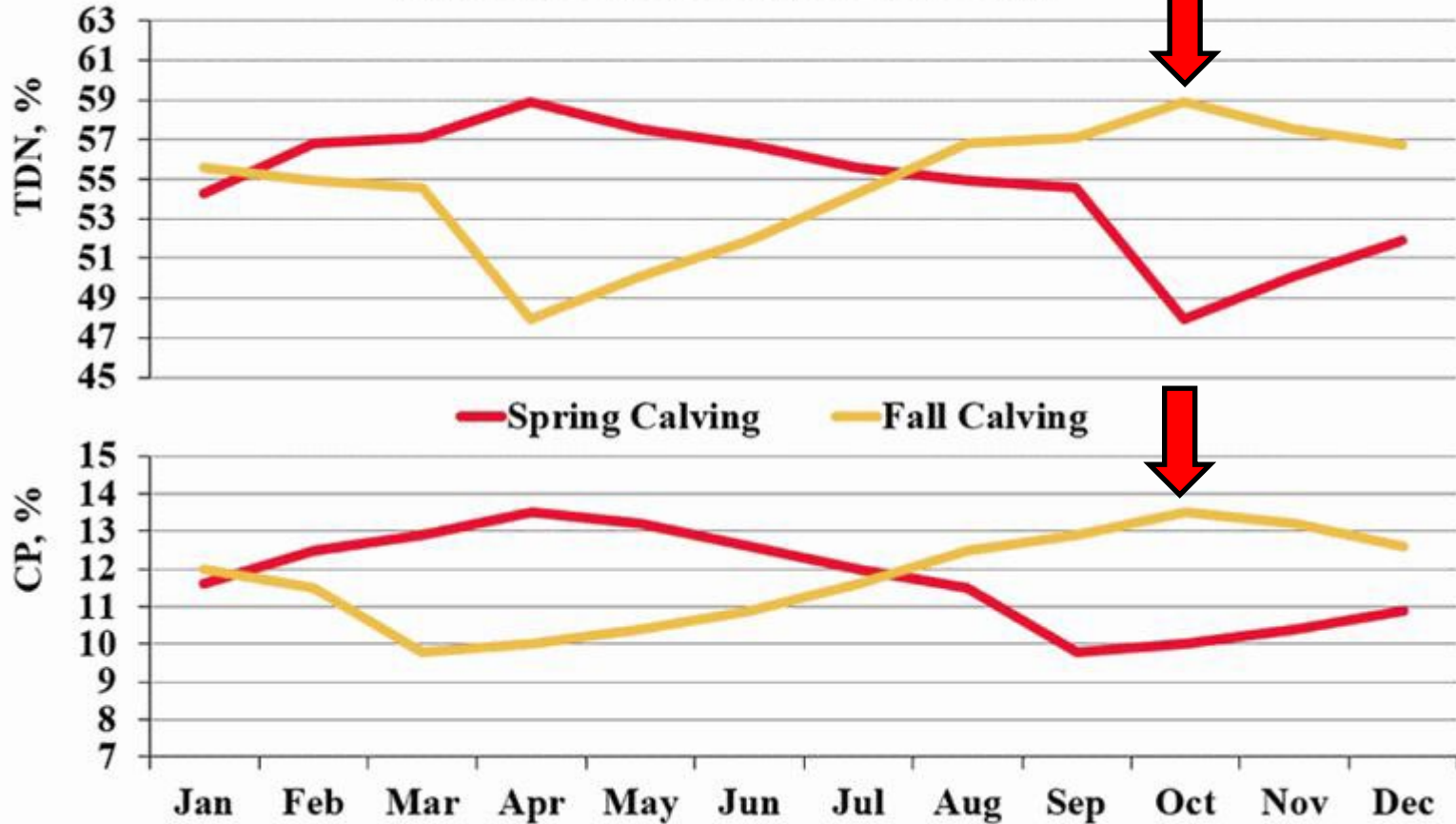
- **Grazing stands**
- **Total Mixed Ration in confinement**
- **Supplement for cornstalks**
- **Supplement for dormant range**



Photo Credit: Troy Walz

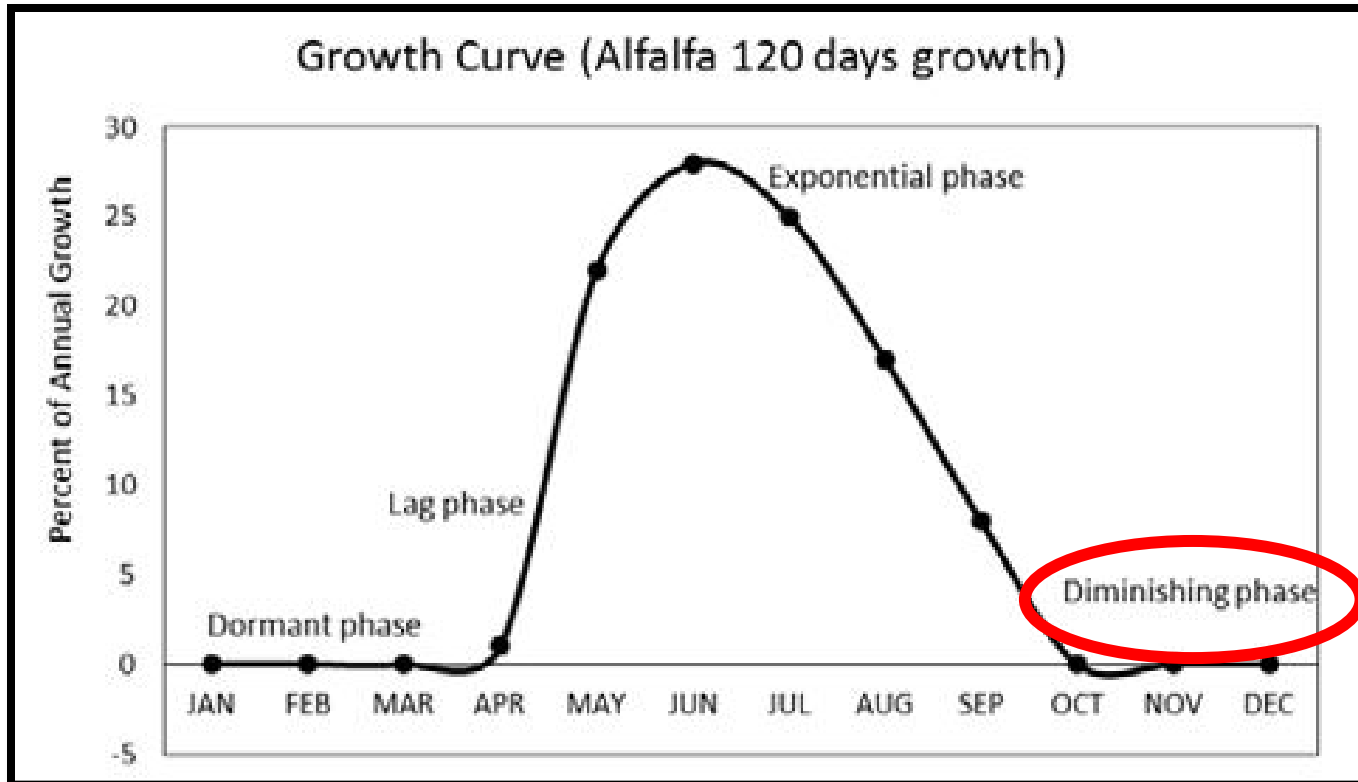
COWS REQUIREMENTS

Nutrient Requirements of Beef Cows

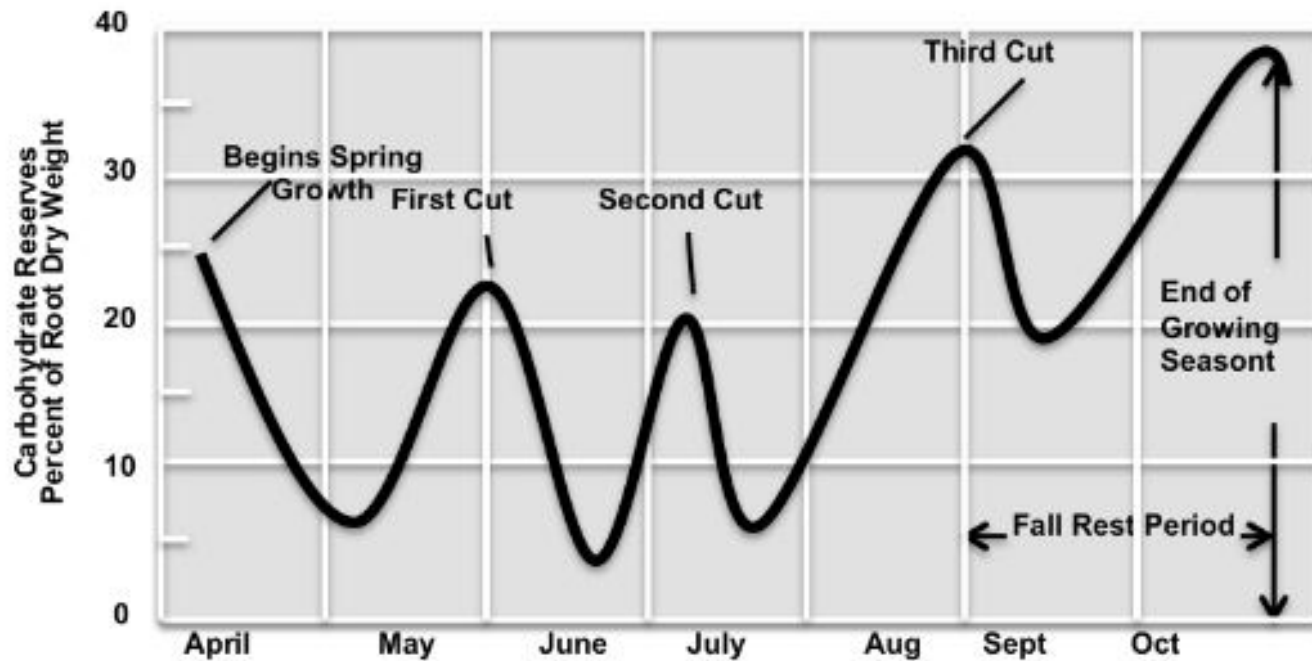


Adapted from NRC, 2000 & NASEM, 2017

ANNUAL ALFALFA GROWTH



CARBOHYDRATE RESERVES



BLOAT MITIGATION

- Turn out full
- Move back to stalks (time limit access)
- Risk highest 3-5 days after freeze (pull cattle off)
- Heavy dew
- Strip grazing balances intake
- Once dried after freezing low bloat risk



Photo: Troy Walz

GRAZING RECOMMENDATIONS

- **Alfalfa needs 6 uninterrupted weeks of growth, (October 5th)**
- **Leave 8 inches of stubble height**
- **Winter grazing should maintain 4 inches of stubble height**
- **Feed additives such as poloxalene and ionophores can limit bloat risk, but require regular consumption to be effective**

BENEFITS OF GRAZING

- **Quality of selection**
- **Eliminates poor drying issue**
- **Requires additional management**
- **Pair with residue fields if possible**
- **Graze when fields are dry and firm**
 - **Hooves can damage plant crowns**
 - **Consider sacrifice area**
- **Times to not use**
 - **Pest pressure or high stress**
 - **Is it worth later spring forage?**

CONSIDERATIONS

- **Increasing plane of nutrition at breeding**
- **Weather events require 0.5-1 lb of extra protein**
- **Improves digestion and increases forage intake**
- **Meet do not exceed protein requirements**
 - **Grinding alfalfa - >18% CP**
 - **Supplemental alfalfa <18% CP**

COMMODITY COSTS

	\$/Ton	CP (% DM)	TDN (% DM)	\$/lb of CP	\$/lb of TDN
Alfalfa (bales)	190	17.5	55	0.54	0.17
Alfalfa (Ground)	215	19.6	55	0.55	0.20
DDGS	195	30	108	0.33	0.09
Whole Corn	183	9	88	1.01	0.11
20% DDG Cube (Bulk/50# Bag)	320	20	75	0.80/1.50	0.21
30% Liquid Feed (includes mineral)	371	30	--	0.61	--

RATION PRICES

Commodity	Pounds AF	% BW (DMI)	\$/Day
Bromegrass	33.3	2.5	2.83
DDGS	5.5	0.42	0.53
Total	38.8	2.92	3.36

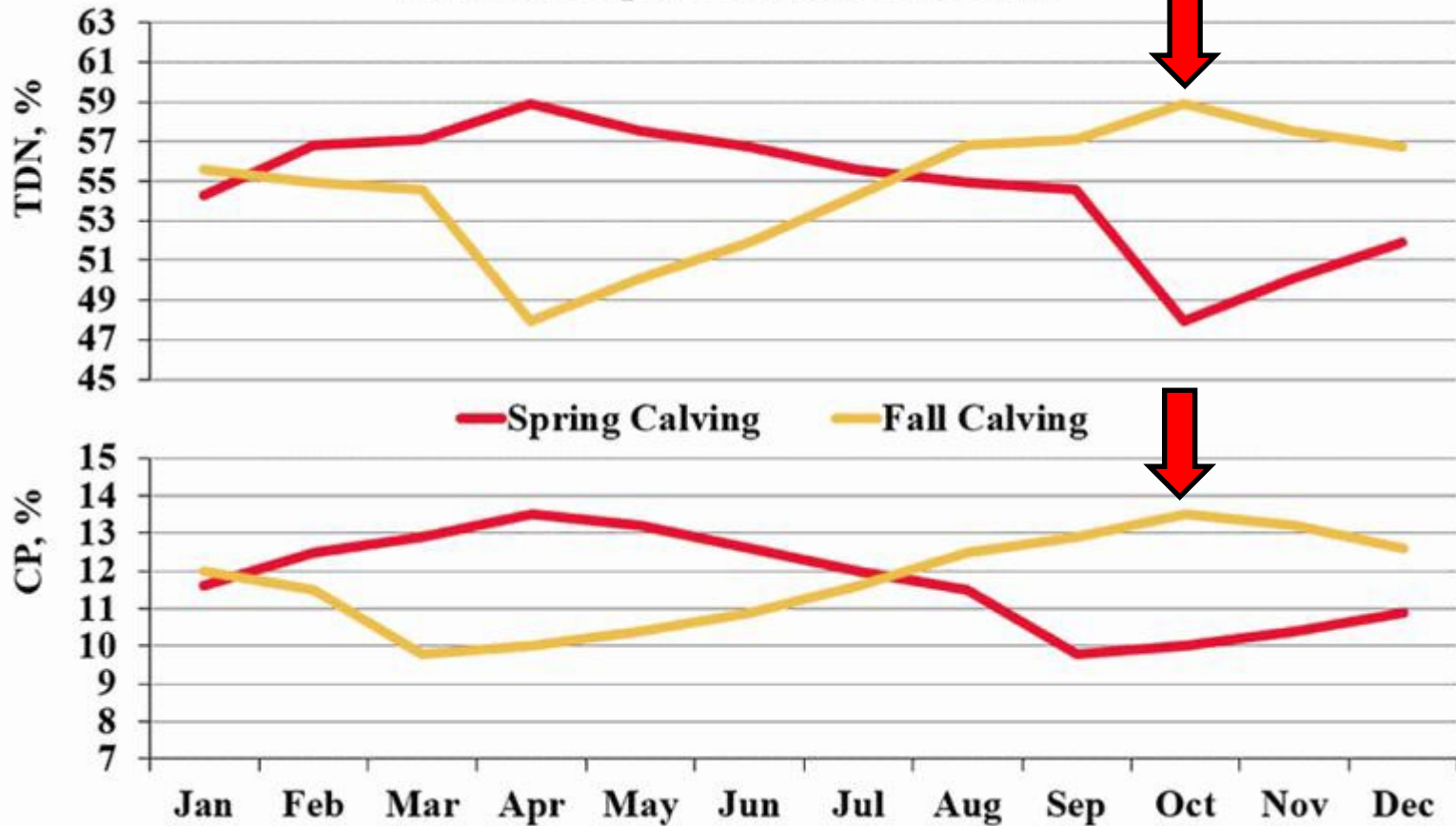
Commodity	Pounds AF	% BW (DMI)	\$/Day
Alfalfa	27.5	2	2.28
Whole Corn	8.8	0.66	0.72
Total	36.3	2.66	3

Commodity	Pounds AF	% BW (DMI)	\$/Day
Alfalfa	40		

Commodity	Pounds AF	% BW (DMI)	\$/Day
Corn Silage	60	1.66	1.69
DDGS	4.4	0.33	0.43
Total	64.4	1.99	2.12

COWS REQUIREMENTS

Nutrient Requirements of Beef Cows



Adapted from NRC, 2000 & NASEM, 2017

SUPPLEMENTING ON CORNSTALKS



FEEDING HARVESTED ALFALFA

- **KSU Study by Vanzant and Cochran 1994**
 - **1100 lb cows on dormant range supplemented with alfalfa**
 - **Nutrient Quality: 19.4% CP and 47.9% ADF**
 - **Supplemented at 3 levels:**
 - **5.3 lb**
 - **7.9 lb**
 - **10.6 lb**

FEEDING HARVESTED ALFALFA

Conclusions

- Conception rate not effected by alfalfa supplementation
- Increased supplementation level supported shorter interval to conception
- Cows fed 10.6 lb weaned heavier calves
- Improvements in performance were greatest when supplement was increased from 5.3 to 7.9

SUPPLEMENTING ON NATIVE RANGE

- **Bridging the gap to meet requirements**
- **Feed accurate weights**
- **Feeding daily causes less waste (10-15%)**
- **Consider using by-products in late gestation**
- **Increases digestibility of lower quality forages**

QUALITY EFFECT ON INTAKE

- **Influence of alfalfa supplementation on performance of steers consuming low-quality forage (Weder et al, 1999)**
- **3 treatment groups**
 - **Control (no supplement)**
 - **Low-quality alfalfa (15.2% CP)**
 - **High-Quality alfalfa (18.8% CP)**
- **Low quality fed at 0.55% BW daily**
- **High-Quality fed at 0.45% BW daily**

HIGH VS LOW PROTEIN ALFALFA SUPPLEMENT

	Control	Low Quality	High Quality
Meadow Grass DMI (lb/d)	10.15	8.95	10.7
Supplement DMI (lb/d)	--	3.05	2.5
Total DMI (lb/d)	10.15	12	13.2
Intake (%BW)	1.85	2.18	2.41
TDN (% DM)	51.2	56.3	54.7
TDN (lb/d)	5.2	6.75	7.2
CP (% DM)	5.2	15.2	18.8
CP (lb/d)	0.53	0.93	1.03
CP from Supplement (lb/d)	--	0.46	0.47

RESULTS

- **Total DMI increased by 18% and 30% for supplemented groups**
- **Intake of TDN was 30 and 38% greater for supplemented groups**
- **DM digestibility was 5% and 9% greater**
- **Alfalfa hay is effective protein supplement for low-quality roughages**

FINAL TAKEAWAYS

- **Test your forages**
- **Run the numbers**
- **Protein supplementation increases performance**
- **Save less-bulky supplements for later gestation**
- **Supplementation with alfalfa is not recommended in late gestation**
- **Weigh all your options**

THANK YOU

Connor Biehler

cbiehler2@unl.edu

Office: 402-624-8007

X @BigRedBeefTalk

<https://bigredbeefstalk.unl.edu/>



Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska–Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska–Lincoln and the United States Department of Agriculture.