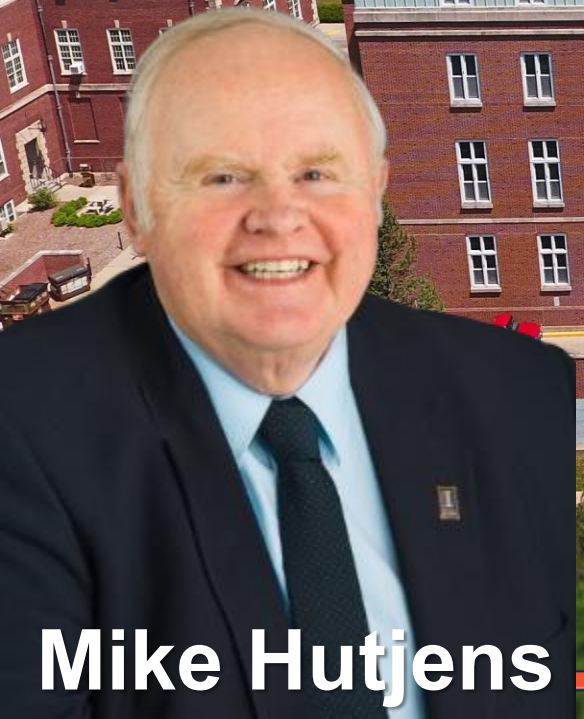
Joining The Eight Pound Club: Focus On Milk Yield

George Dairy Conference



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College of Agricultural, Consumer & Environmental Sciences

What Is the Eight Pound Club?

- Pounds of milk fat and milk protein per cow per day as an index of milk production
  - Includes milk yield
  - Includes percent milk fat and milk protein
- Over 80 percent of U.S. production is based on pounds of milk fat and milk protein
- Focus on milk yield is important in Georgia
- U.S. exports (16-18%) of milk production

Value of Milk Components
(December, 2025)

- **Milk fat** **$1.58 / lb.**
- **Milk protein** **$2.46 / lb.**
- **Other solids** **$0.44 / lb.**

Why Is Export Important?

(Dec 26, 2025 prices)

Product	U.S.	E.U.	NZ
	----------$ / lb----------		
Cheese	1.34	1.59	2.09
Butter	1.40	2.22	2.27
Powder	1.18	1.08	1.12

Milk Yield

Driving Milk Yield

- Peak milk sets the lactation curve and yield.
- Dry matter intake sustains milk yield and components.
- Feed efficiency is a tool to connect milk yield to dry matter intake
- Body condition score can supply energy in early lactation (+) or reduce DMI (-)
- Transition management close-up and fresh cows.

Holstein Milk Production--2025

Lact #	Milk*	Peak Milk	Milk/Peak	Days in Milk			
				1 - 40	41 - 100	101 - 199	200 - 305
1	19,000	68	279	56	62	59	53
	23,000	79	291	63	72	70	64
	26,000	90	289	67	81	81	76
	30,000	98	306	70	87	91	85
2	19,000	84	226	72	76	67	55
	23,000	99	232	84	91	81	66
	26,000	114	228	94	104	95	78
	30,000	124	242	99	113	106	87
3+	19,000	90	211	75	81	71	57
	23,000	107	215	88	97	85	67
	26,000	123	211	97	111	100	80
	30,000	133	226	102	120	110	89

19,000 RHA n = 1,014 herds 23,000 RHA n = 1,998 herds
27,000 RHA n = 1,022 herds 30,000 RHA n = 292 herds

Jersey Milk Production--2025

Lact #	Milk	Peak	Milk/Peak	Days in Milk			
				1 - 40	41 - 100	101 - 199	200 - 305
1	15,000	54	278	45	49	46	42
	17,000	59	288	47	54	51	46
	19,000	65	292	53	60	57	52
	21,000	72	292	56	63	65	58
2	15,000	65	231	57	59	52	43
	17,000	73	233	63	66	59	49
	19,000	79	241	68	72	65	55
	21,000	85	247	71	76	71	59
3+	15,000	71	211	60	64	56	45
	17,000	79	215	65	71	62	51
	19,000	85	224	71	78	69	57
	21,000	92	228	73	81	75	62

15,000 RHA n=121
19,000 RHA n= 59
17,000 RHA n=92
21,000 RHA n=17

Milk Yield Targets For Feed Efficiency

Milk Yield		Feed Efficiency
lb	kg	
55	25	1.25
60	27	1.32
65	30	1.38
70	32	1.44
75	34	1.49
80	36	1.54
85	38	1.58
90	40	1.63

Source:

The Ohio State University

Economics of Feed Efficiency

(80 pounds milk and $0.13 cent pound DM)

Feed Efficiency (lb milk/ lb DM)	DMI (lb/day)	Difference (savings/day)
1.40	57.0	
		$0.52
1.50	53.0	
		$0.39
1.60	50.0	

Grouping Strategies

- Close up dry cow group
  - Manage blood calcium (DCAD or zeolite)
  - Increase amino acid level and energy
- Fresh cow group
  - Adjust nutrients based on DMI (amino acids)
  - Minimize metabolic disorders
  - Manage dry matter intake
- Late lactation group
  - Level of ECM
  - Days pregnant
  - BCS score cows over 3.5
- First calf heifer/1st lactation group

Managing Dry Matter Intake

- Optimizing dry matter intake to milk yield; feed efficiency is a tool
- Evaluating uNDF in ration dry matter
  - Too high limits total dry matter intake (> 12%)
  - Too low leads to rumen disfunction (< 8%)
- Forage quality is the focus area

2025 Corn Silage Results

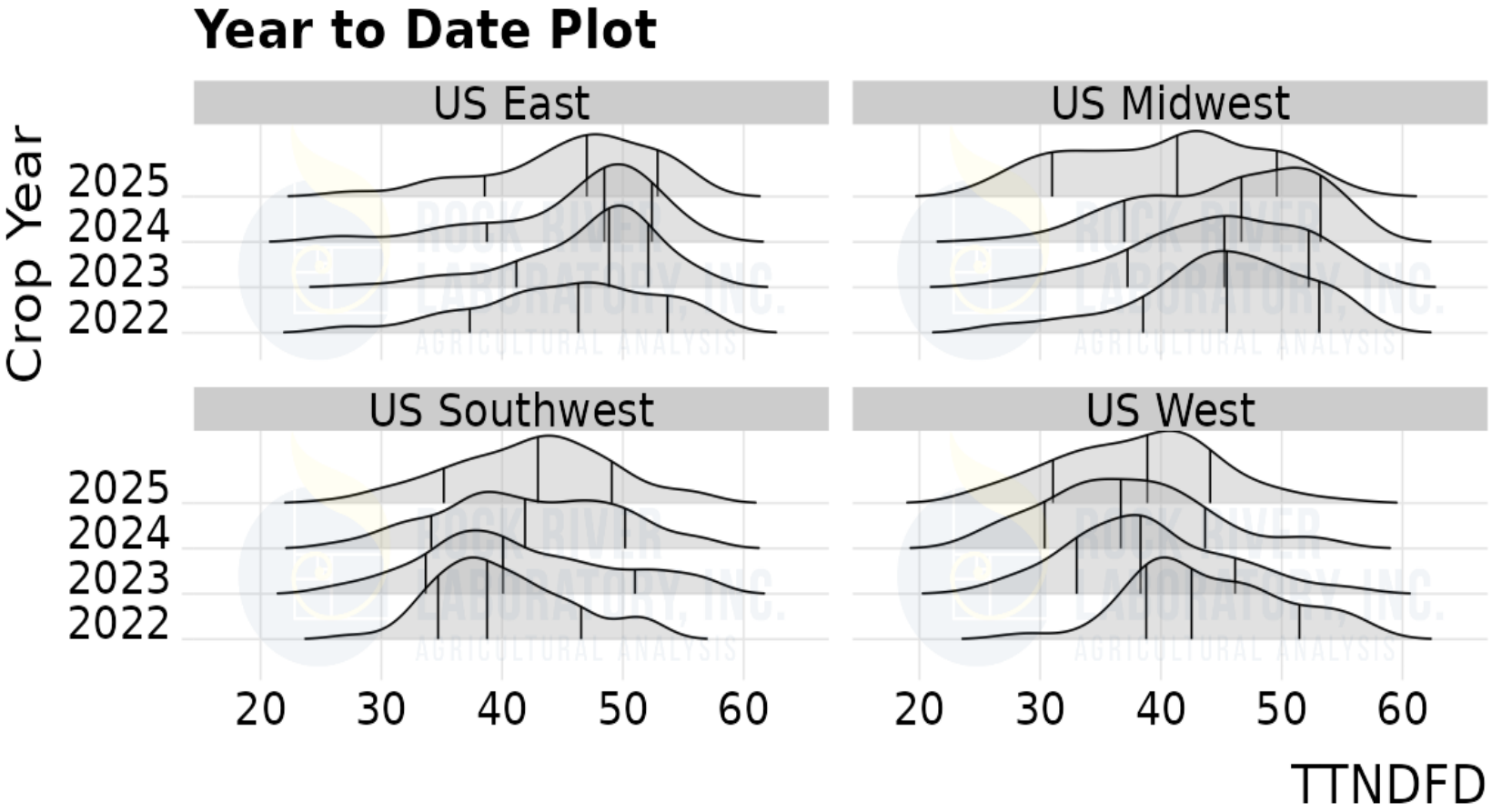
	Midwest CS		All Other Regions CS	
	2025	Prev 3 years	2025	Prev 3 years
Moisture	64.9	62.7	63.0	62.7
Starch	37.2	37.2	34.6	36.8
NDFD30	55.1	57.7	54.7	56.1
uNDFom240	10.3	10.2	11.4	10.5

DAIRYLAND Laboratories, Inc.

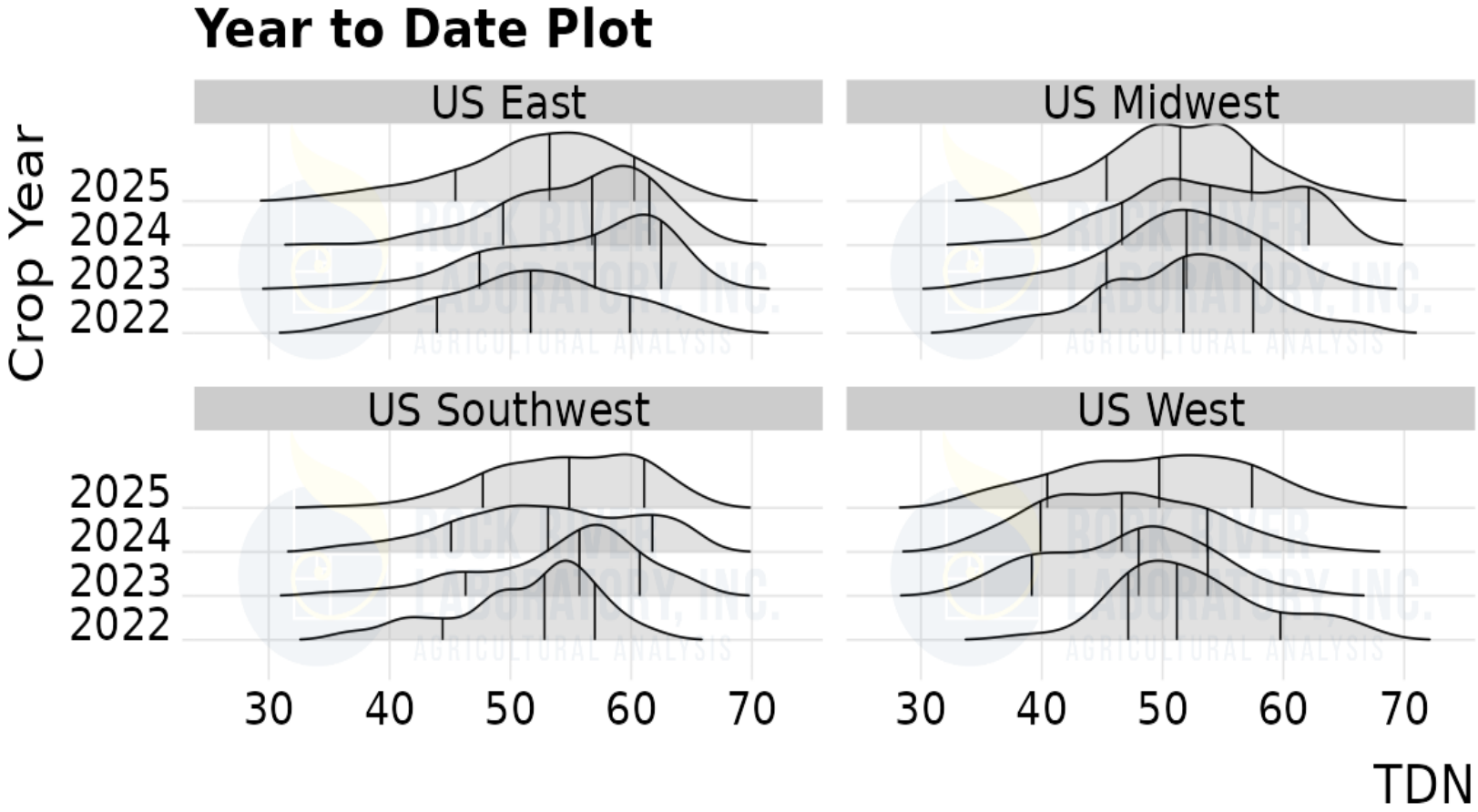
Sorghum Silage Interest

- Less water under drought conditions
- Lower seed costs
- Sources of sorghum silage
  - BMR (higher in fiber digestibility)
  - Brachytic (shorter internode and leafy)
  - Male sterile (no grain and less lodging risk)
  - Photoperiod sensitive (remains vegetative)
- Berry processors available with larger berry
- Research available from Texas A & M

Sorghum TTNDFD



Sorghum TDN


Year to Date Plot
US East
US Midwest
US Southwest
US West
Crop Year
2025
2024
2023
2022
30
40
50
60
70
TDN

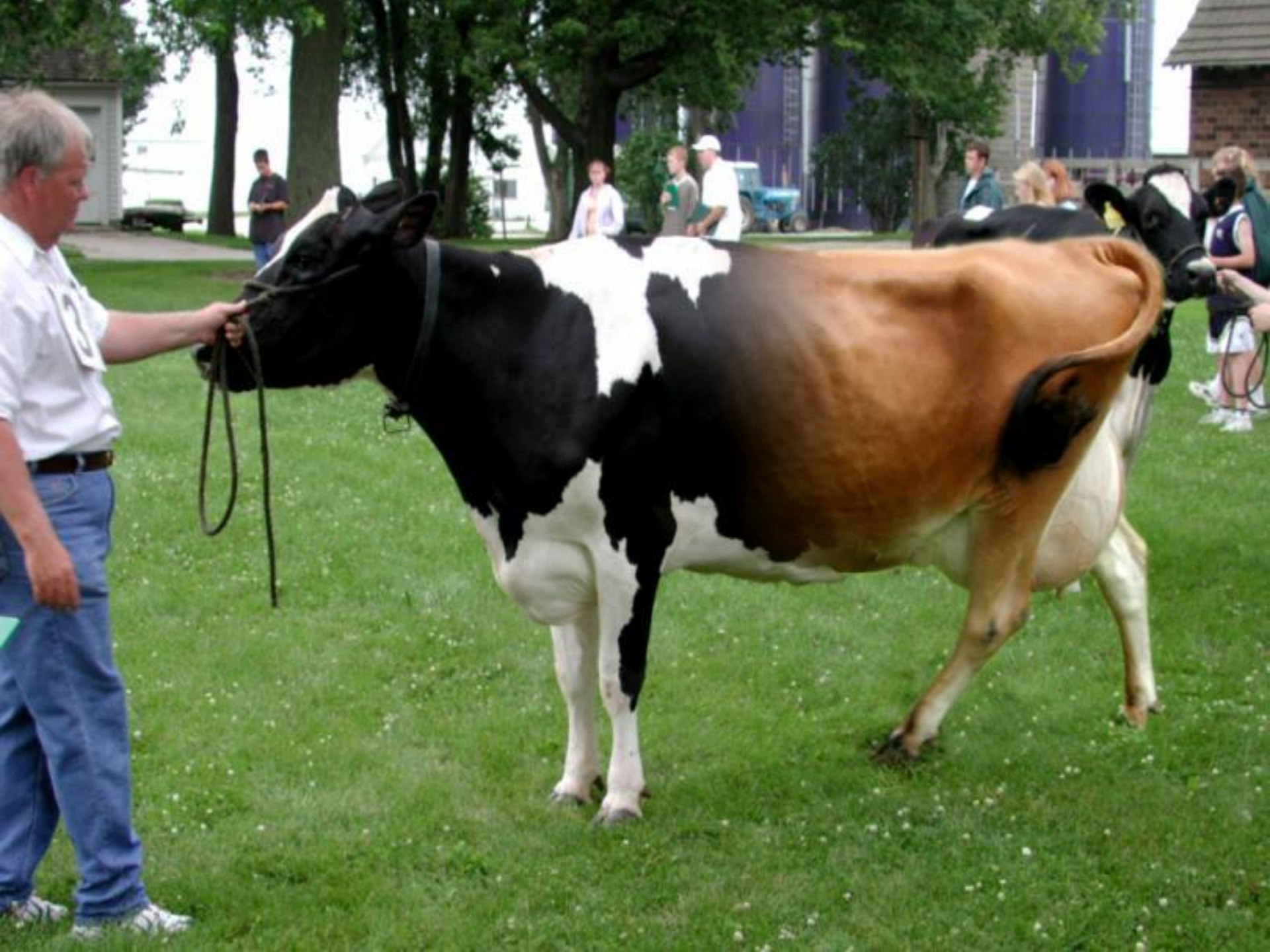
Milk Production Economics

- High producing cows are most efficient and profitable
- Never give up milk
  - One pound of DM costs 13 cents
  - Milk prices at 20 cents per pound
  - One pound of DM can support 2+ pounds of milk ($0.40)
  - Profit of each pound of dry matter is +$0.27/cow/day

Focus On Milk Fat

Sources Of Milk Fat Change

- Genetics—selecting for pounds of milk fat and milk protein (not percent)
- Shifting to Jersey or crossbreeding
- High quality forages—increase acetate production and higher dry matter intake
- Improving rumen efficiency
- Feeding fat—palm fatty acids, soybeans, commercial dry fats, or other oilseed sources



Milk Fat Sources

- **50% - VFA acetate and butyrate (*de novo* synthesis)**
  - C4 to C16 fatty acids
  - Acetate and butyrate precursors
- **50% - Blood lipids (fatty acids)**
  - C16 to C18 (saturated and unsaturated)
  - Dietary fat / oil (oilseeds and commercial sources)
  - Body fat mobilization (NEFA)
  - Liver and microbial synthesis

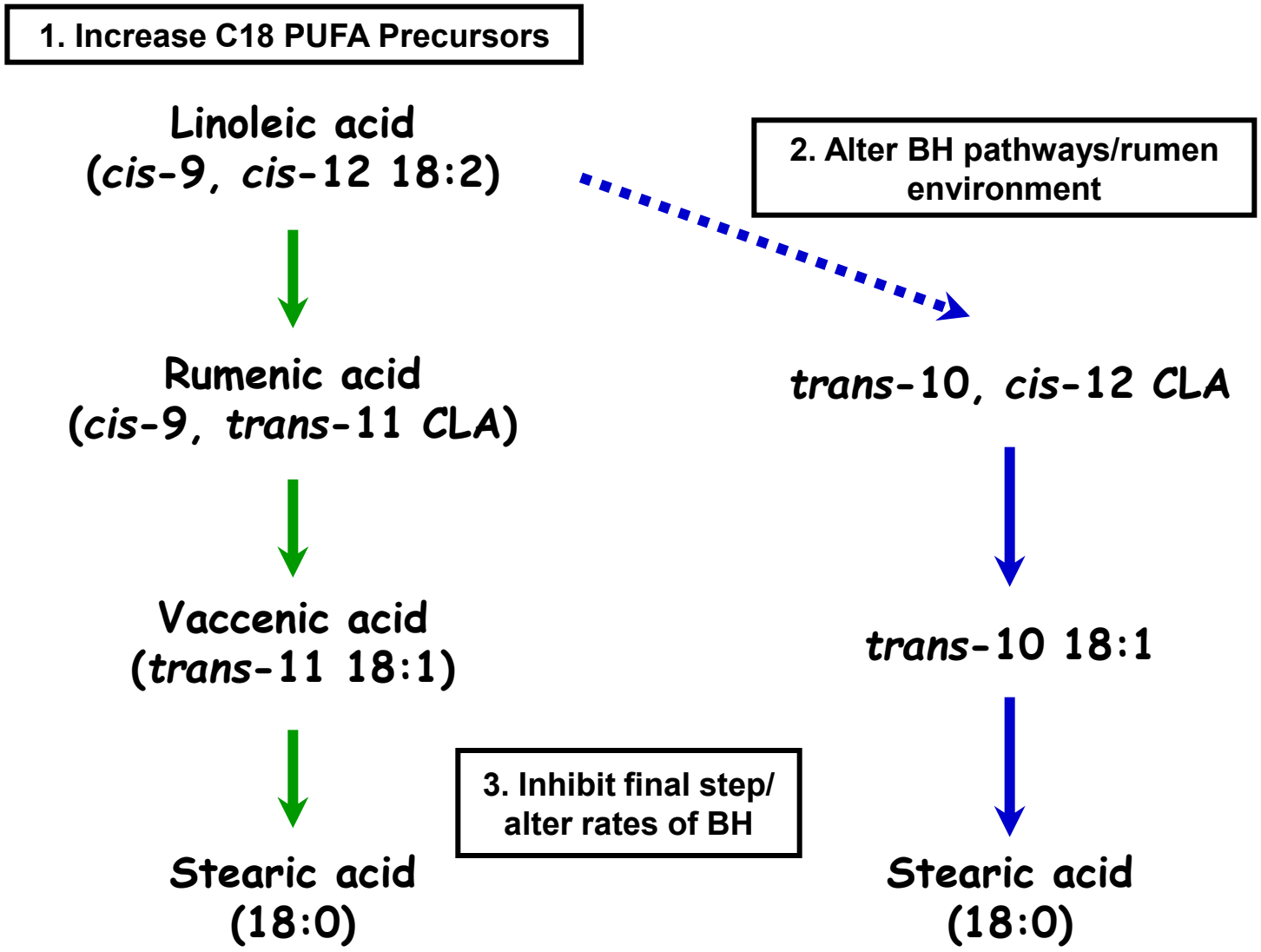
Proportion Fatty Acids (Dann, 2025)

- *De nova* fatty acids: 25% to 30%
- Preformed fatty acids: 40% to 45%
- Mixed fatty acids: Remaining
  - 50% from denova
  - 50% from preformed

High Oleic Soybeans

- Oleic fatty acid is rumen friendly (75% oleic and 7% linoleic); conventional 23% oleic and 54% linoleic.
- No yield reduction or higher cost seed
- Pioneer (Corteva) and Bayer, both GMO
- Recommend roasted soybeans (higher RUP and lysine)
- Reduce purchased protein sources

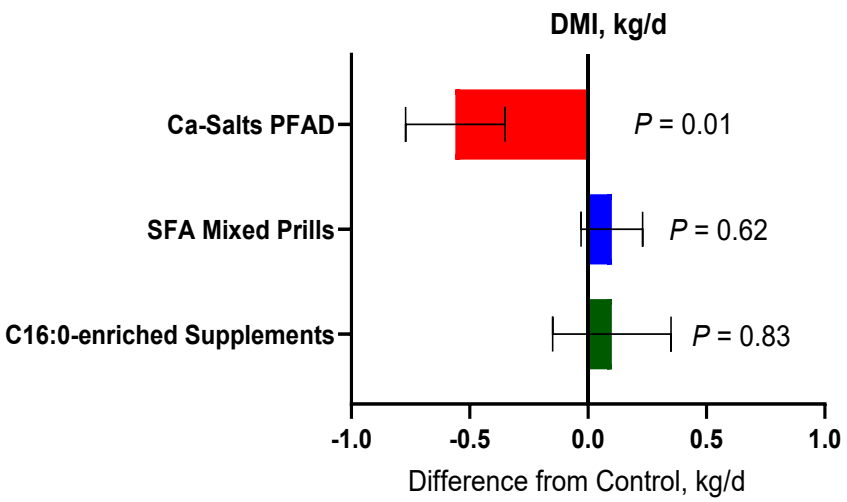
Fatty Acids Impact MFD

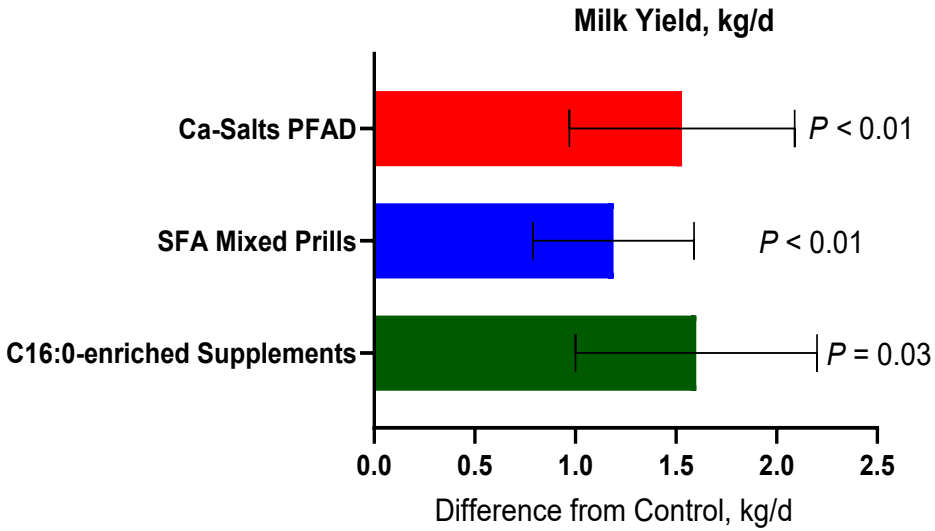


Michigan State Research

- Optimal level is 8 to 15% of the ration dry matter or 4 to 6 pounds per cow
- Adding sodium acetate to high oil soybeans was additive leading more milk
- Adding palmitic fatty acid to HOSB was additive leading to more milk
- Increase of $1 to $1.40 IOFC per cow per day compared to control diets (milk fat yield and lower feed costs)

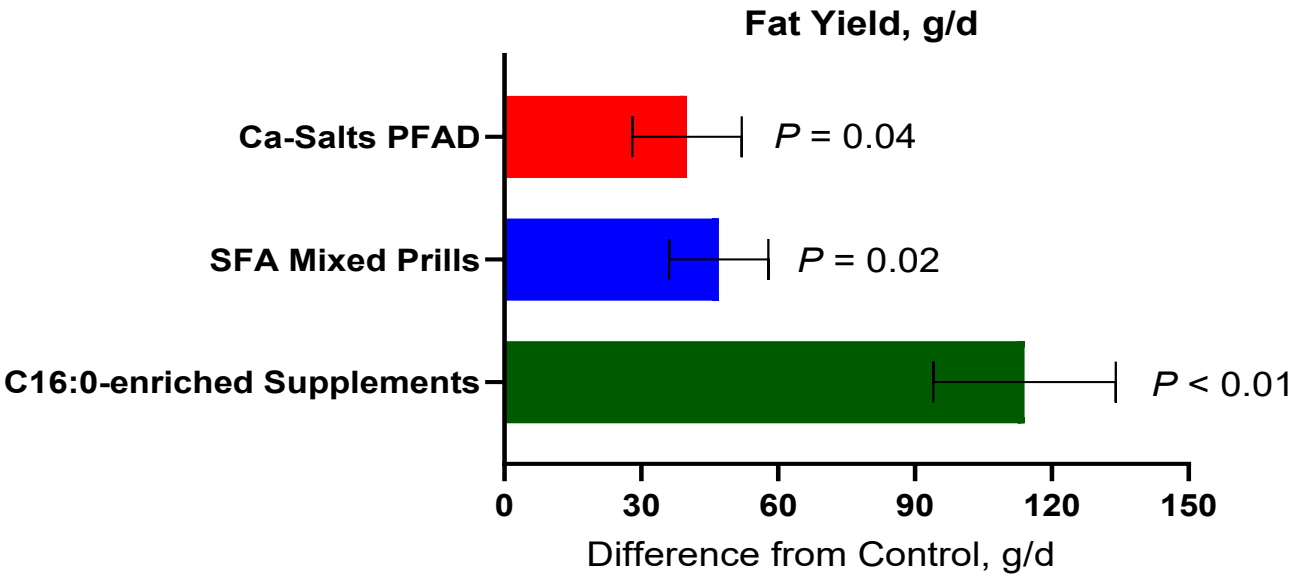
Response to Fat Supplements





(Lock et al., 2025)

Response To Fat Supplements



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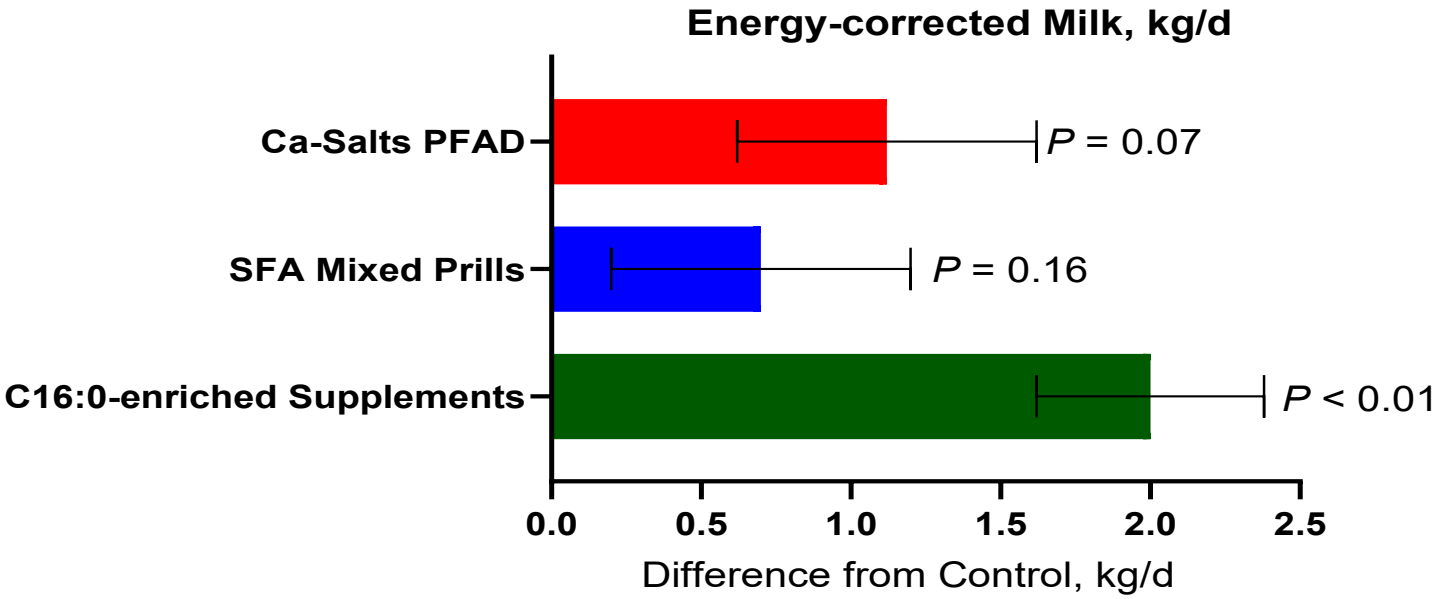
Response To Fat Supplements



Summary Of Fat Supplements

- Under a scenario using $1400/ton for Ca-salts, $1600/ton for mixed prills, and $1800/ton for palmitic
  - Ca-salts of palm FA : – 10 cents/cow return
  - Mixed prill: – 35 cents/cow return
  - Palmitic acid: + 24 cents/cow return

Point 1 To Ponder

- Cost of dry fat product
  - 70 to 90 cents a pound
  - Added 1.8 to 2.0 percent of the diet
  - 1 pound of added fat (50 lb dry matter intake)
- Milk fat response (50 to 110 grams or 1/4 pound of milk fat)
- Farmers are paid currently is $1.58 a pound of milk fat
- Economics: 80 cents cost; 40 cents return

Point 2 To Ponder

- May not be able to consume or export excess U.S. milk fat
- Ratio of milk protein to milk fat for cheddar cheese is 0.82 (current Holstein milk is 0.73)
- Cheese makers must remove fat or add milk casein (both are not profit centers)
  - Potential milk fat quota in cheese regions
  - Limit milk fat < 4.5% (Holstein)

Focus on Protein / Amino Acids

The Ohio State University Trial

	LP	LP-AA
CP (%)	16.9	16.9
Milk (lb)	94.4	102.5
Protein (%)	2.99	3.09
MUN (mg/dl)	14.3	13.5

LP-aa: HDCB plus balanced lysine and methionine

Benefits Of Feeding Rumen-Protected Amino Acids

1. Milk protein increase
   - About 0.1 percentage unit
   - Usually occurs within 3 days
   - Occurs when ruman undegraded protein is low in methionine and / or lysine

2. Milk yield increase
   - 0 to 5lb/cow/day
   - Usually occurs only during early lactation

3. Milk fat increase
   - 0 to 0.2 % unit when RPMet is fed
   - Response may be restricted to RPMet products that are partially degraded in the rumen

On-Farm Tools and Interpretations

Milk Fat and Milk Protein Relationship

(Hoard's Dairyman—August, 2025)

	Fat %	Protein %	Protein vs Fat	Fat vs Protein
Ayrshire	3.93	3.15	80%	1.25
Brown Swiss	4.23	3.43	81%	1.23
Guernsey	4.62	3.34	74%	1.38
Holstein	4.22	3.20	76%	1.32
Jersey	5.08	3.77	74%	1.35

Holstein Milk Component--2025

Lact #	Fat %				Protein %				Milk (kg)
	1-40	41-100	101-199	200-305	1-40	41-100	101-199	200-305	
1	4.5%	4.1%	4.3%	4.67%	3.2%	3.0%	3.3%	3.5%	19.000
	4.6%	4.2%	4.3%	4.6%	3.2%	3.1%	3.3%	3.5%	23,000
	4.7%	4.2%	4.4%	4.6%	3.2%	3.1%	3.3%	3.5%	26,000
	4.8%	4.3%	4.4%	4.6%	3.2%	3.1%	3.3%	3.5%	30,000
2	4.4%	4.1%	4.3%	4.5%	3.2%	3.1%	3.3%	3.6%	19,000
	4,5%	4.1%	4.3%	4.68%	3.3%	3.1%	3.3%	3.6%	23,000
	4.6%	4.2%	4.3%	4.6%	3.3%	3.1%	3.3%	3.6%	26,000
	4.8%	4.2%	4.3%	4.6%	3.3%	3.1%	3.3%	3.6%	30,000
3+	4.5%	4.0%	4.2%	4.4%	3.2%	3.0%	3.3%	3.5%	19,000
	4.6%	4.0%	4.2%	4.4%	3.2%	3.0%	3.3%	3.5%	23,000
	4.6%	4.0%	4.2%	4.4%	3.2%	3.0%	3.2%	3.5%	26.000
	4.6%	4.0%	4.2%	4.4%	3.2%	3.0%	3.2%	3.5%	30,000

19,000 RHA n=1,288 herds, 23,000 RHA n=1,777 herds;
26,000 RHA n=1,786; 30,000 RHA n=399 herds

Jersey Milk Components--2025

Lact #	Milk (lbs)	Fat %				Fat/Prot	Protein %				Milk (kg)
		1-40	41-100	101-199	200-305	1-40	1-40	41-100	101-199	200-305	
1	15,000	3.1	3.7	4.3	4.8	1.29	2.4	2.8	3.3	3.6	6,804
	17,000	3.6	4.0	4.6	4.9	1.29	2.8	3.0	3.5	3.7	7,711
	19,000	4.1	4.3	4.8	5.2	1.32	3.1	3.2	3.6	3.8	8,618
	21,000	4.0	4.2	4.6	5.0	1.29	3.1	3.2	3.5	3.7	9,525
2	15,000	3.3	3.7	4.3	4.6	1.27	2.6	2.8	3.3	3.5	6,804
	17,000	3.6	4.1	4.6	4.9	1.29	2.8	3.1	3.5	3.7	7,711
	19,000	4.0	4.3	4.8	5.1	1.29	3.1	3.2	3.6	3.9	8,618
	21,000	4.2	4.3	4.6	5.0	1.20	3.5	3.3	3.5	3.8	9,525
3+	15,000	3.8	4.1	4.6	4.9	1.27	3.0	3.1	3.5	3.8	6,804
	17,000	4.3	4.4	4.8	5.0	1.30	3.3	3.3	3.6	3.8	7,711
	19,000	4.4	4.3	4.8	5.0	1.33	3.3	3.2	3.6	3.8	8,618
	21,000	4.3	4.4	4.6	4.9	1.26	3.4	3.3	3.5	3.8	9,525

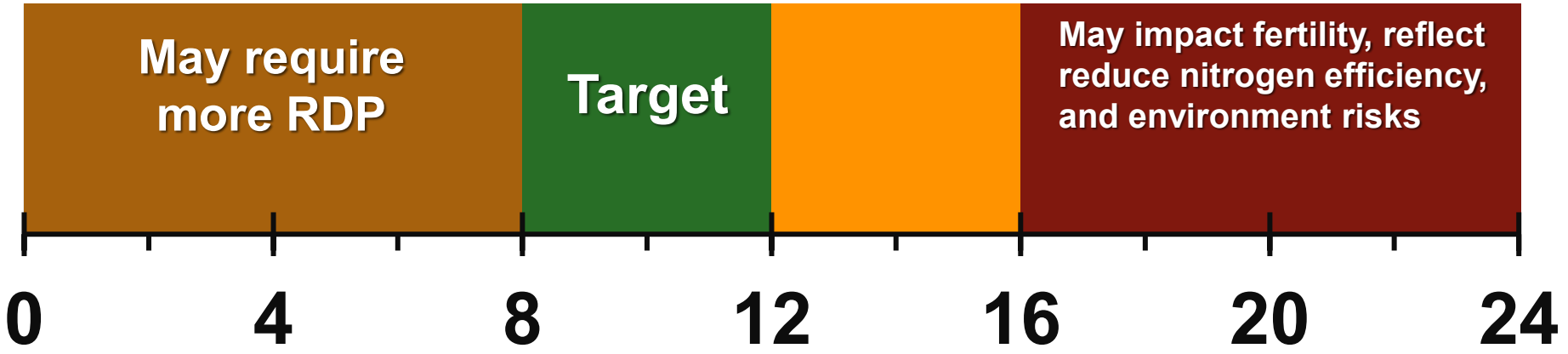
15,000 RHA n=121 17,000 RHA n=92
19,000 RHA n=59 21,000 RHA n=17

Evaluating Individual Fat Test

- **Milk fat inversions are cows that are 0.2% milk protein above milk fat percent. Example: Cows 3.2% milk protein and < 3.0% fat**

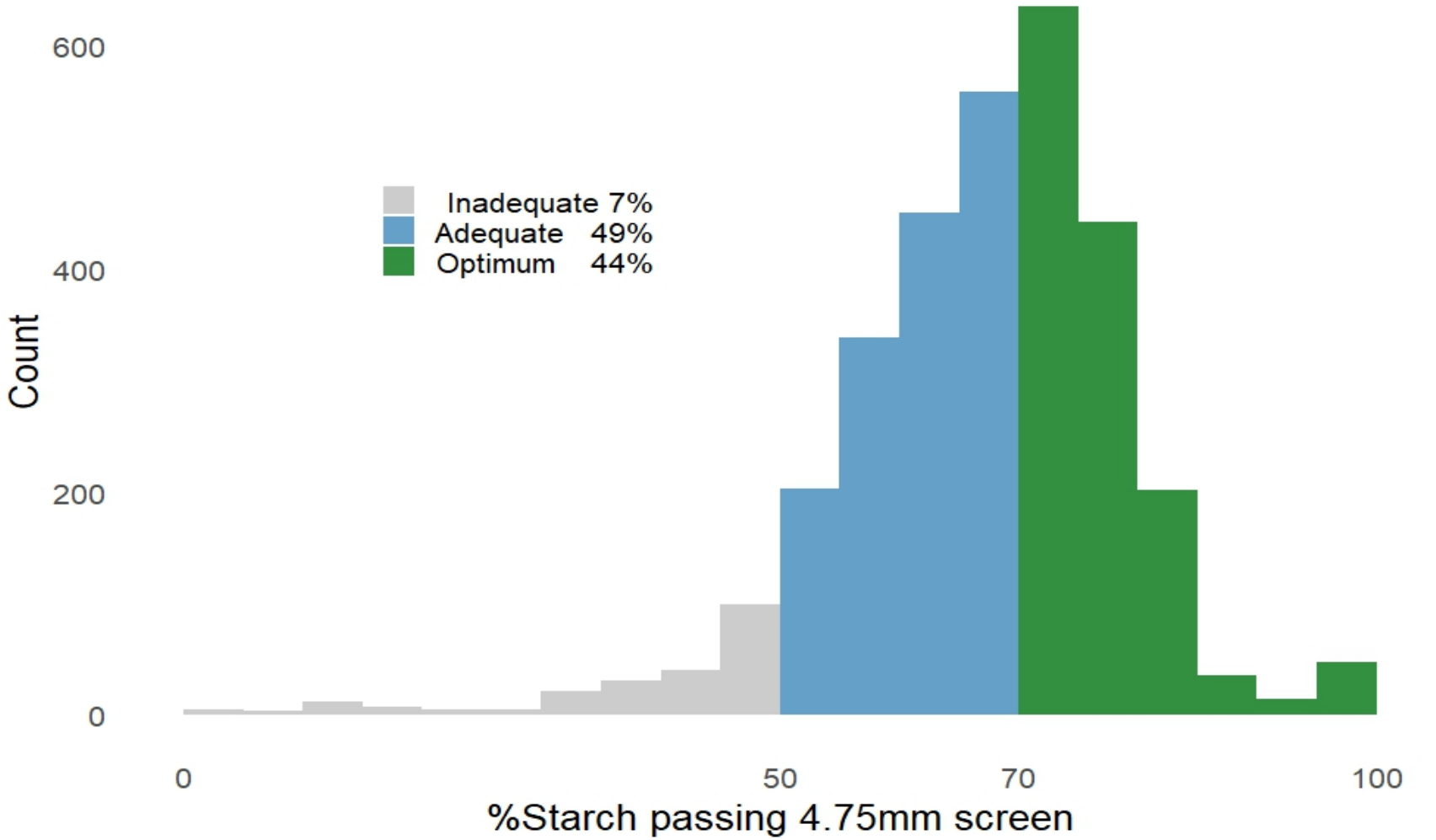
- **Milk fat depressions more than 1.0 fat percentage below the herd average. Example: Cows under 3.0% when the herd average is 4.0%**

Fine Tune MUN Levels



Corn silage processing score distribution

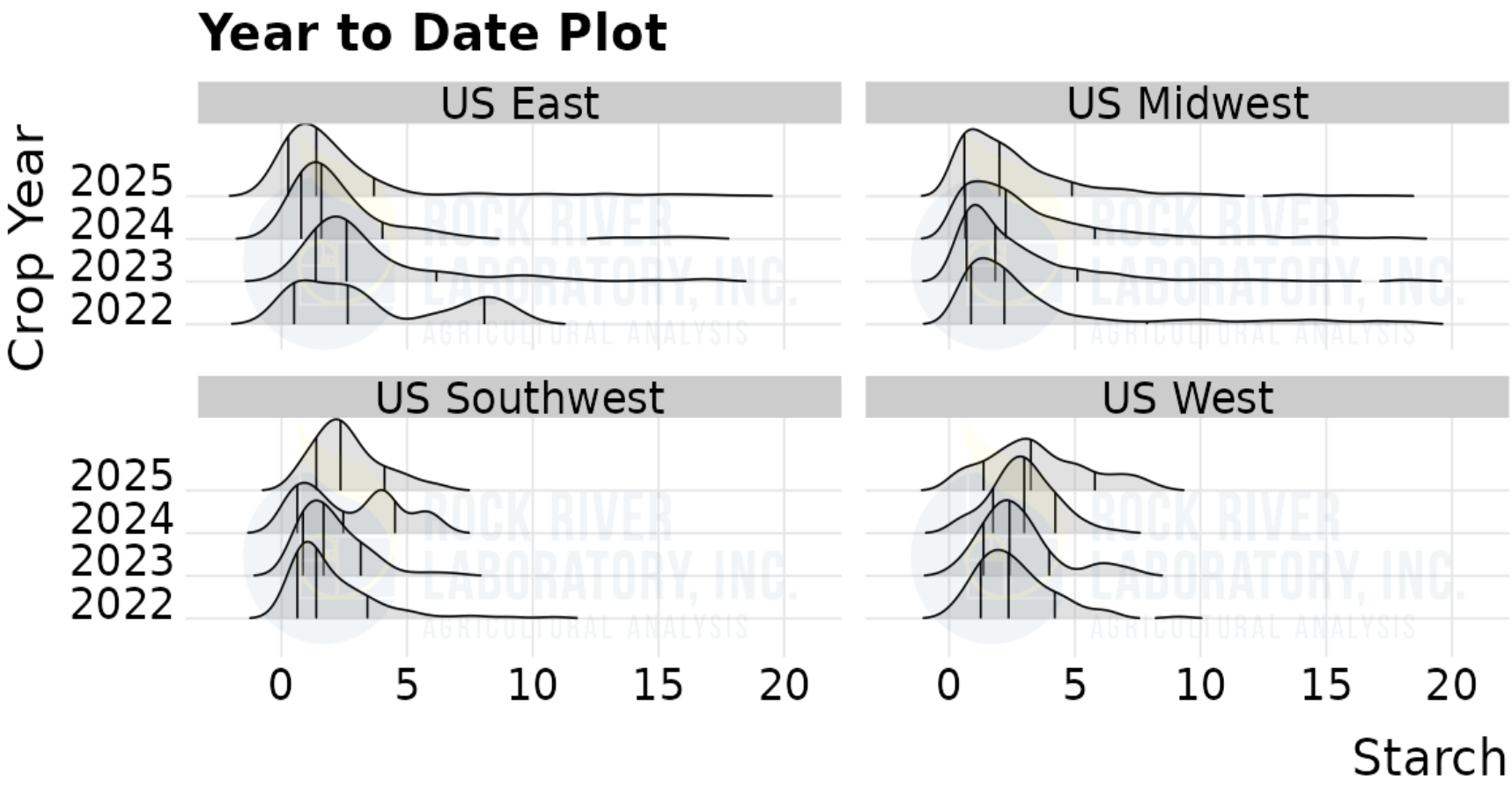
(2023-2024 crop years)



Date source: Dairyland Laboratories Inc.

Fecal Starch Goals

(less than 3 percent)



Penn State Box Separator Guidelines

		Top	2nd	3rd	Bottom
1.1mm 3rd Box	TMR	2 - 8	> 50	< 20	< 25
	Haylage	10-15	> 50	20-30	< 5
	Corn Silage*	3 - 8	> 50	< 30	< 5
4.0mm 3rd Box	TMR	2 - 8	> 50	< 20	< 25
	Haylage	10-15	> 50	20 - 30	< 5
	Corn Silage*	3 - 8	> 50	< 20	< 5

*3/4" (1.9 cm) TLC-Process

Feed Benchmarks 2026 — Illinois

Feed costs per cow day	**$6.42**	
1. Feed cost per lb. DM	0.13	
	Milk Production	
	80 lb.	**70 lb.**
2. Feed cost per 100 lb. milk	$8.04	$9.17
3. Income over feed costs/cow	11.90	$10.83
4. Feed efficiency (lb. milk/lb. DM)	1.63	1.43

Is 8+ Pounds Possible?

- Top Illinois Holstein herd
- 421 lactating registered cows
- Averaging 110 pounds of milk
- Producing 132 pounds of ECM
- 4.8% milk fat test
- 3.3% true protein test
- 173 days in milk
- 8.9 pounds of fat / protein

Take Home Messages

- Milk yield will continue to be important.
- Evaluate lactation number and days in milk
- Use tools to measure your herd
  - Breed average vs. your herd (keeping up)
  - Ratio of milk protein to milk fat (risks)
  - Feed efficiency (milk conversion)
  - MUN value (using amino acids)
  - Fecal starch (using starch)
  - Corn silage processing optimal (rumen health)


Question?