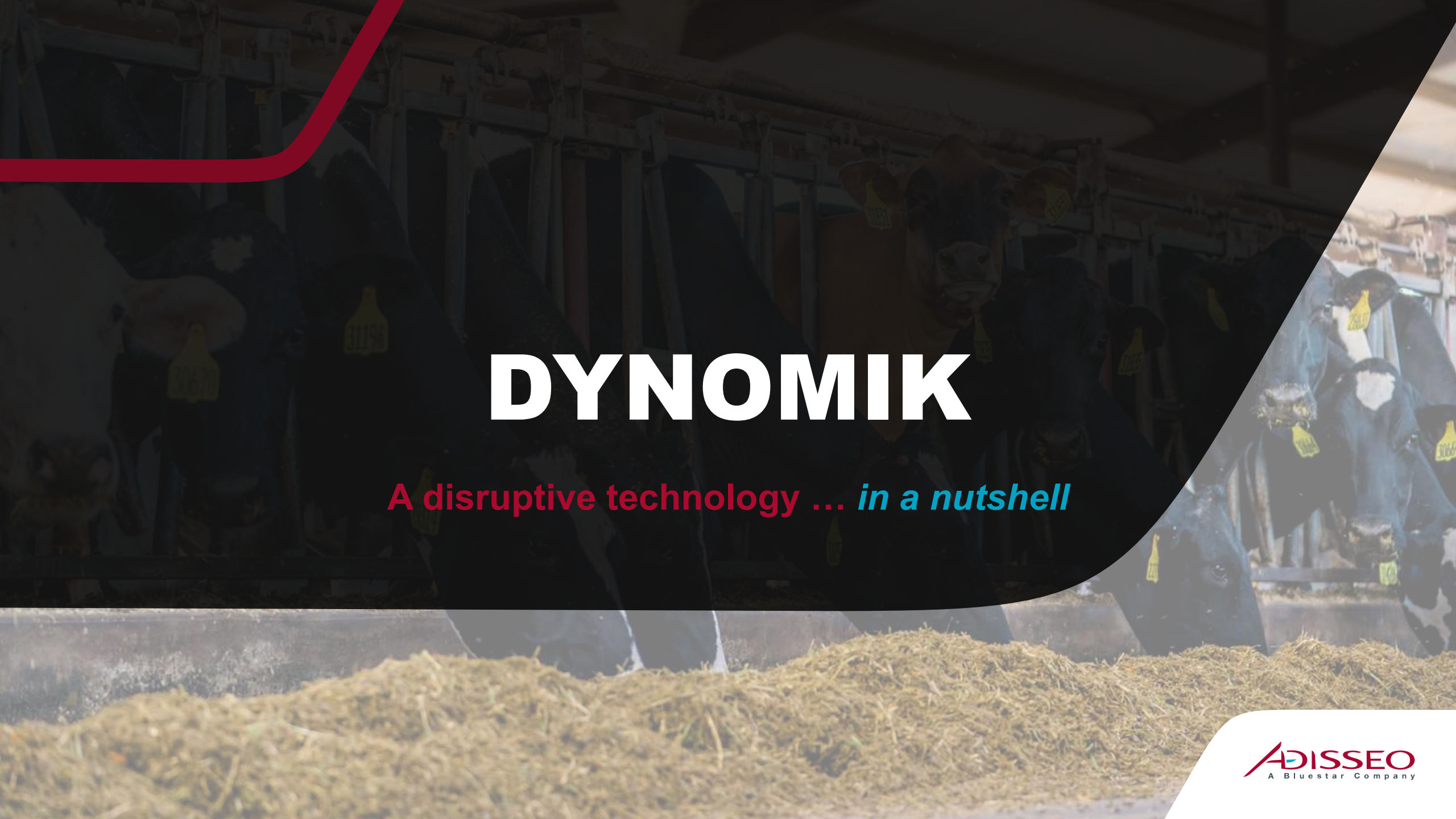

DYNOMIK

A disruptive technology … *in a nutshell*

ADISSEO
A Bluestar Company

DYNOMIK

A disruptive technology … *in a nutshell*

Anacardic acid shifts the rumen

Source: cashew nuts;
Cold-pressed extraction,
patented stabilization

Increase Propionate, DMI, ECM

Proven results:
in vitro, In ruminants,
University research,
Field demos

4:1 ROI

2.5 g/hd/d
6 cents/hd/d
2+ lb ECM

Proven Results

Demos in your region

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From Cashew Nut Shells to Anacardic Acid

the active ingredient

shell

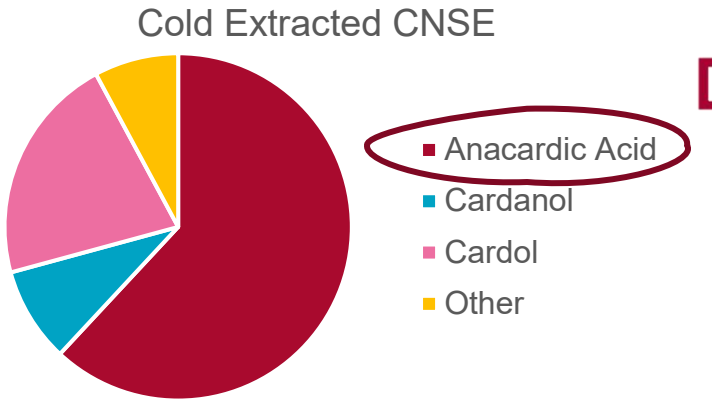
kernel

Cashew Nut Shell Extract

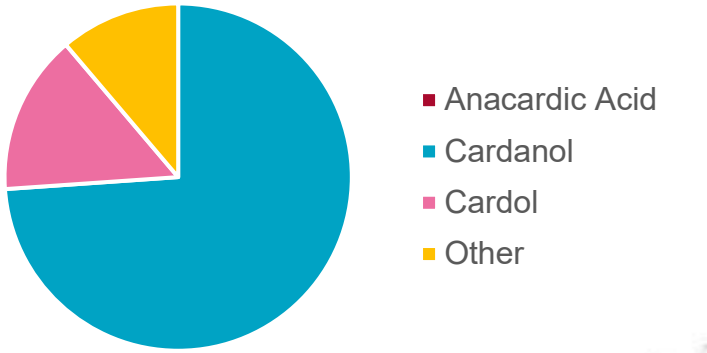
Cold extracted, patented stabilization

Anacardic Acid: Cold-pressed extraction, patented stabilization

Item	Extraction method Of Cashew Nut Shells: Cold	Heated
Ether extract fractions (% of EE)		
Total anacardic acid	**62.3**	**---**
monoenoic (15:1)	28.9	---
dienoic (15:2)	8.8	---
trienoic (15:3)	24.6	---
Total cardanol	**8.9**	**73.9**
monoenoic (15:1)	2.9	28.5
dienoic (15:2)	1.5	18.9
trienoic (15:3)	4.5	26.5
Total cardol	**21.5**	**14.9**
monoenoic (15:1)	3.1	2.5
dienoic (15:2)	4.3	4.2
trienoic (15:3)	14.1	8.2
Quantifiable phenolics in total	92.7	88.8



DynOmik®



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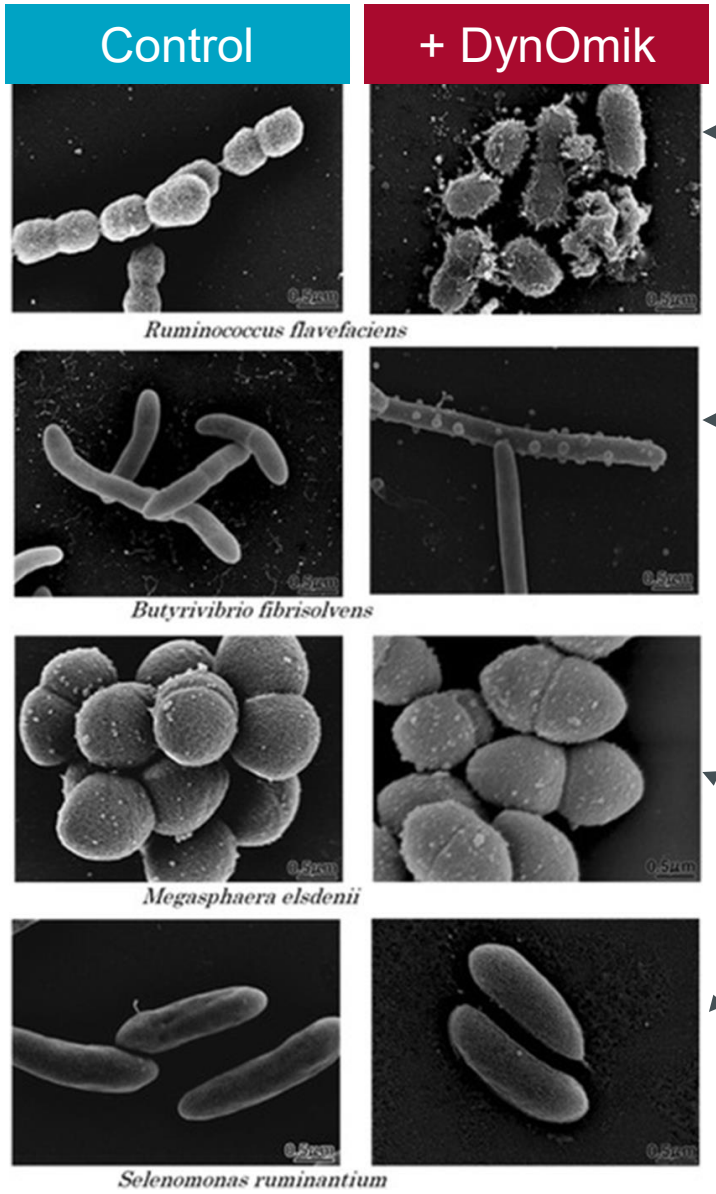
DynOmik Shifts the Rumen Microbes



Some species of fibrolytic bacteria
Cell damage, some cells broken / burst

Some Hydrogen and butyrate producers
Surface bubbles / bumps, increased length and decreased division

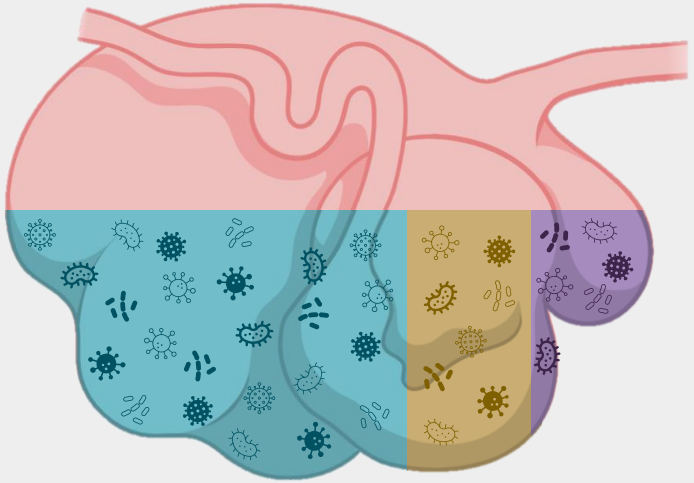
Propionate-producing bacteria
Normal morphology

*DynOmik images from very high dose CNSE (200 ug/mL of rumen sample)

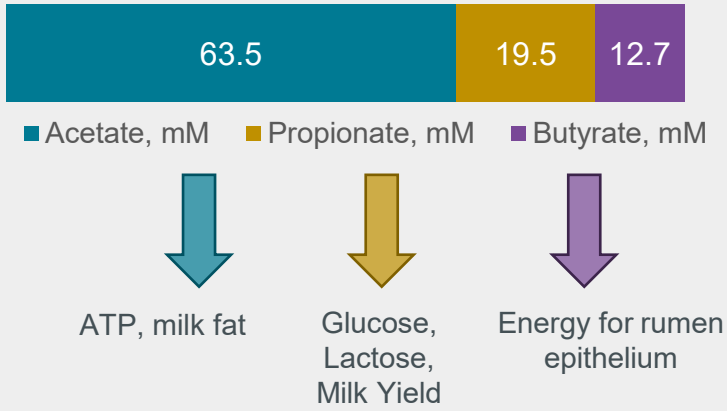
Acetate production is not affected in doses up to 100 ug/mL CNSE, but can reduced at 200 ug/mL dose

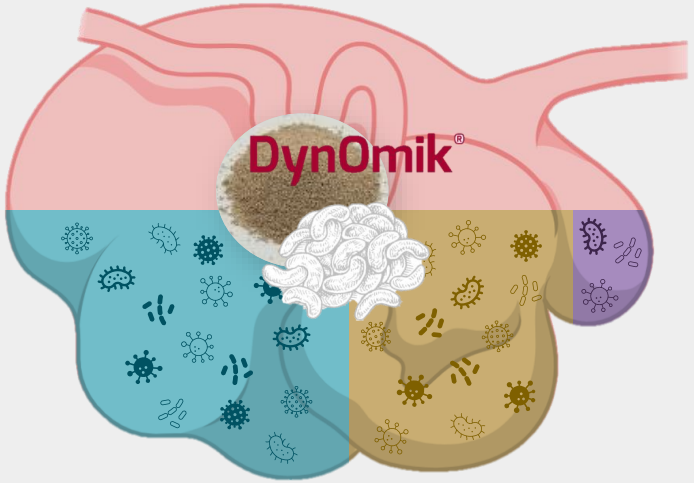
Oh et al., 2017. DOI 10.1186/s40781-017-0150-8

DynOmik Shifts the Rumen Microbes, Increases Propionate

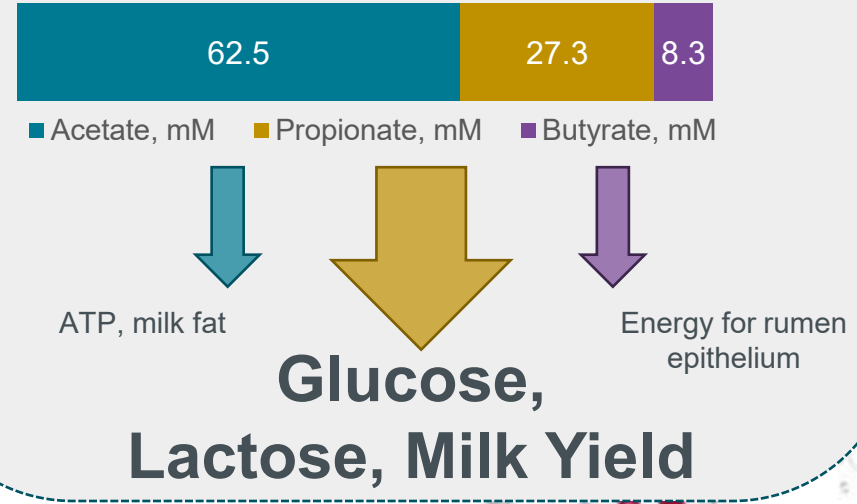


Control $P < 0.05$





DynOmik $P < 0.05$



Adapted from Watanabe et al., 2010; Oh et al., 2017

DynOmik Shifts the Rumen Microbes, Increases Propionate

	DynOmik (µg/mL)					*P*-value	
	0	50	100	200	SEM	Linear	Quadratic
Total VFA, mM	115^{b}	127^{ab}	127^{a}	125^{ab}	1.4	0.14	0.05
Acetate, mM	50^{a}	51^{a}	51^{a}	43^{b}	0.7	0.11	0.03
Propionate, mM	27^{c}	**31^{b}**	**37^{a}**	**39^{a}**	0.6	0.04	0.01
Butyrate, mM	16^{b}	17^{a}	16^{b}	14^{c}	0.2	0.21	0.04

Moderate doses of DynOmik maintain acetate, increase propionate

Conducted as a semi-continuous culture experiment
Watanabe et al., 2010 J. Dairy Sci. 93:5258

7

DynOmik Compared to monensin – A different impact

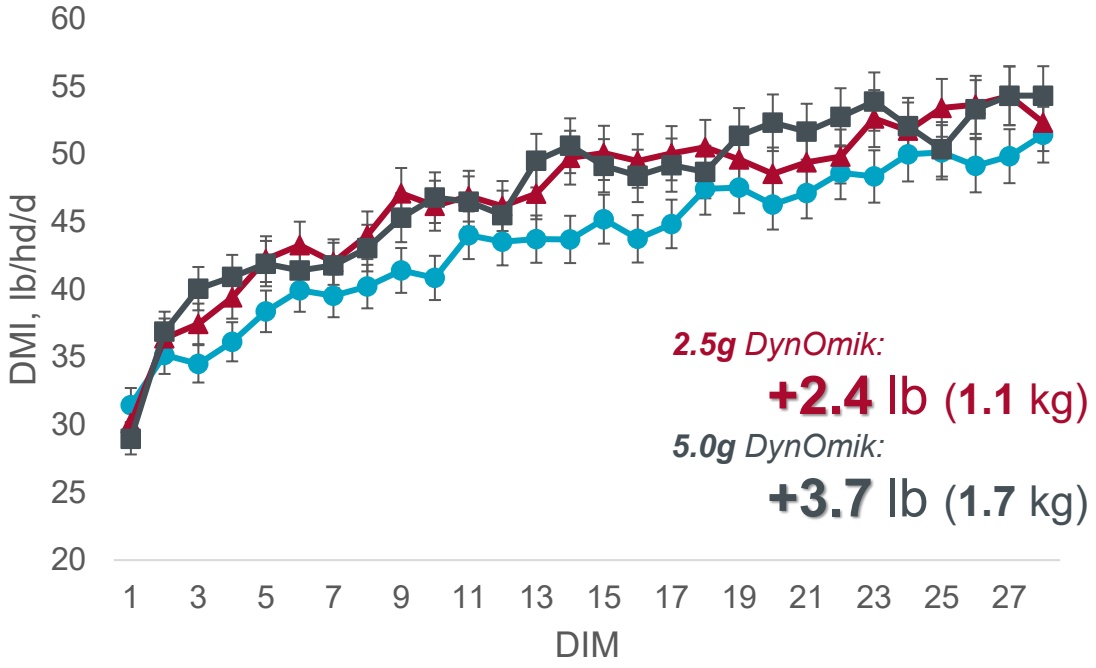
DynOmik	Control	Treatment	% Change Con to Trt	*P*-value
Total VFA	10.26^{bc}	11.36^{a}	**+10.7%**	< 0.01
Acetate	6.72^{a}	6.83^{a}	**+1.6%**	0.05
Propionate	1.90^{cde}	3.32^{a}	**+74.7%**	< 0.001
Butyrate	1.30^{ab}	0.94^{de}	**-27.7%**	0.01

Monensin	Control	Treatment	% Change Con to Trt	*P*-value
Total VFA	8.71^{ab}	9.03^{ab}	**+3.7%**	< 0.001
Acetate	5.24^{ab}	5.16^{ab}	-1.5%	0.42
Propionate	2.19^{bcd}	2.65^{ab}	**+21.0%**	< 0.001
Butyrate	1.03^{abc}	1.04^{abc}	**+1.0%**	< 0.001

Effect of cashew nut shell liquid and monensin supplementation with a 1:1 ratio of forage to concentrate on in vitro gas production
Oh et al., 2017. DOI 10.1186/s40781-017-0150-8

DynOmik Increases DMI, Milk Yield

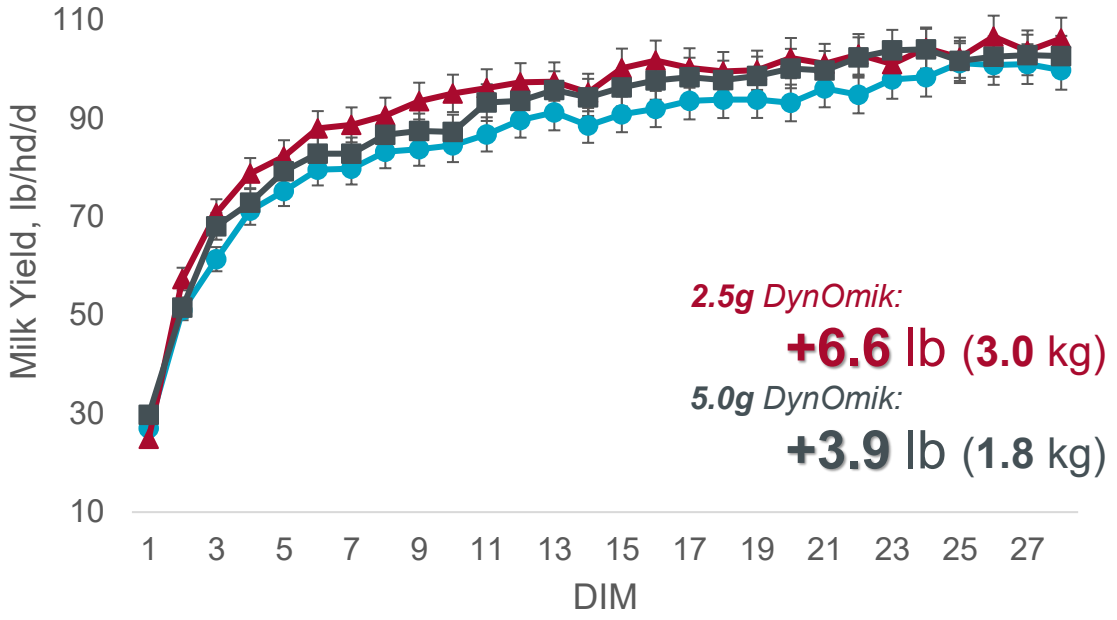
Dry Matter Intake



***2.5g** DynOmik:*
+2.4 lb (**1.1** kg)
***5.0g** DynOmik:*
+3.7 lb (**1.7** kg)

Trt: *P* = 0.02; CON vs CNSE: *P* = 0.01

Milk Yield



***2.5g** DynOmik:*
+6.6 lb (**3.0** kg)
***5.0g** DynOmik:*
+3.9 lb (**1.8** kg)

CON vs CNSE: *P* = 0.06

Control **2.5 g DynOmik** **5.0 g DynOmik**

Goetz et al., 2023 (IA State) DOI:https://doi.org/10.3168/jds.2023-23563
51 Multiparous Holsteins, 2.5g or 5g CNSE (avg. response illustrated) from -21 to +28 DIM

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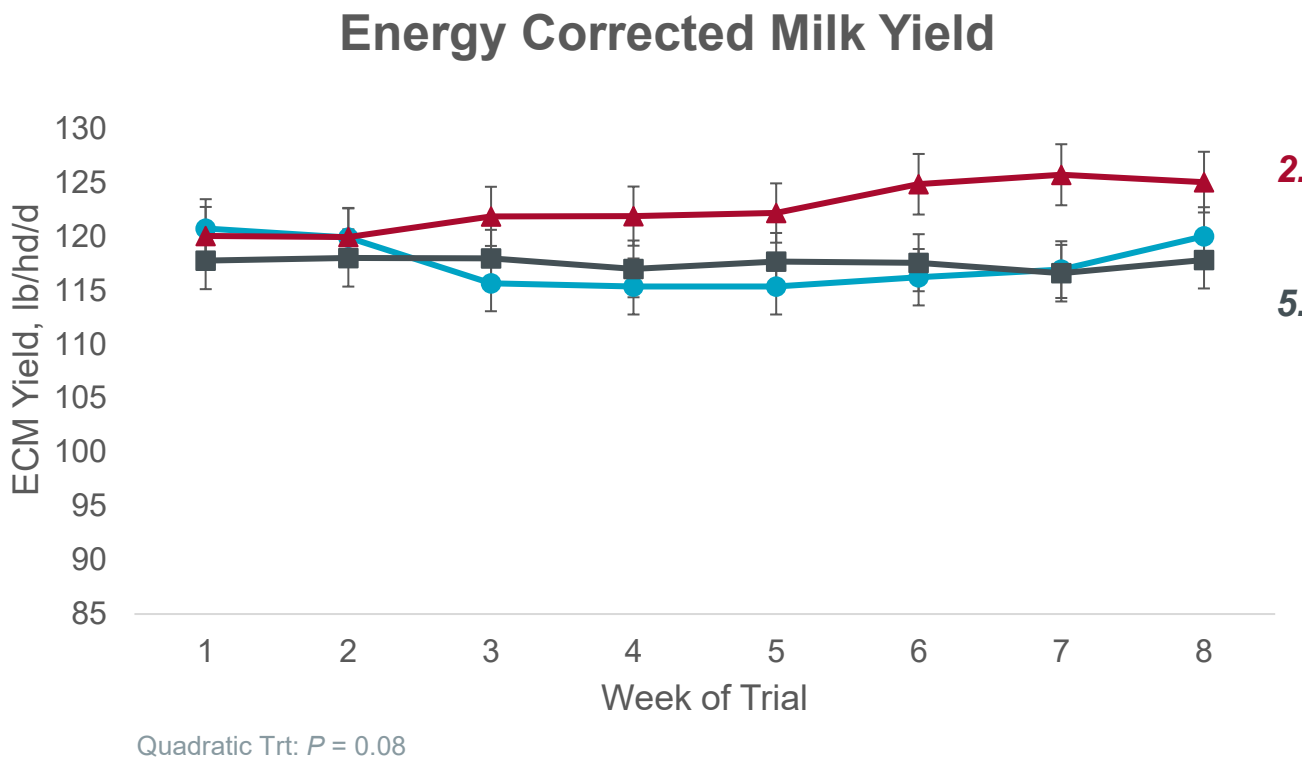
2.5g DynOmik Increases ECM, milk fat yield



***2.5g** DynOmik:*

+7.0 lb ECM (**3.2** kg)

***5.0g** DynOmik:*

+0.8 lb ECM (**0.4** kg)

Schuling, 2025. 117 Holstein cows (39 primiparous & 78 multiparous). Robotic DeLaval voluntary herd. Avg. 100 +/- 58 DIM at start. Monensin included in base ration

Field Demo Results

11 US Dairies; 21,232 cows

2.5g/hd/d DynOmik

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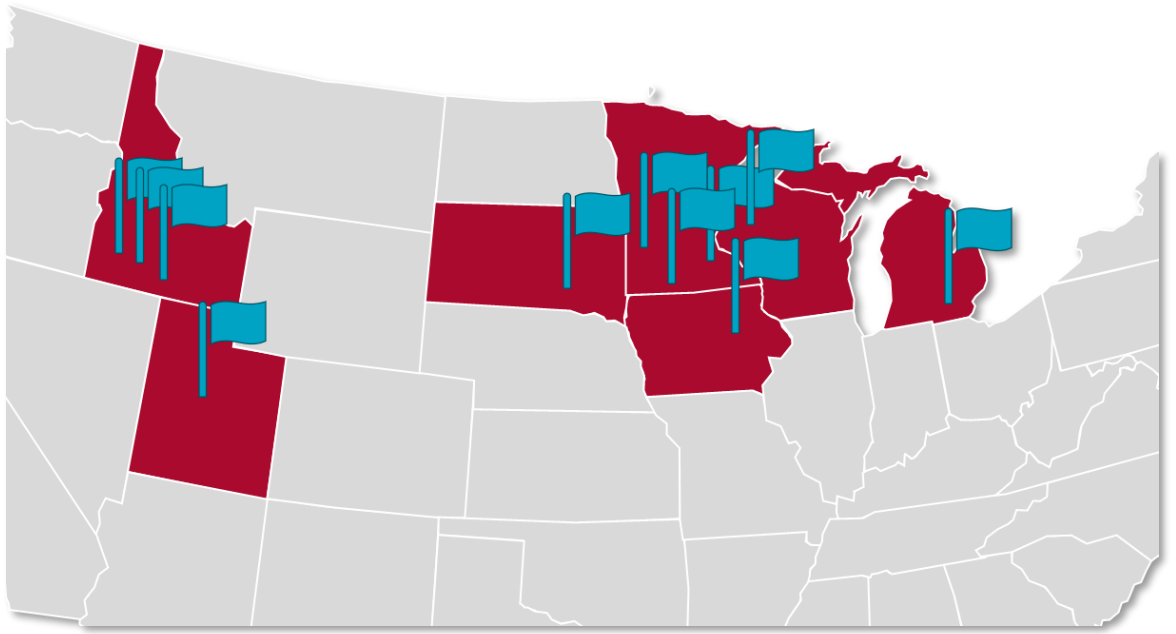
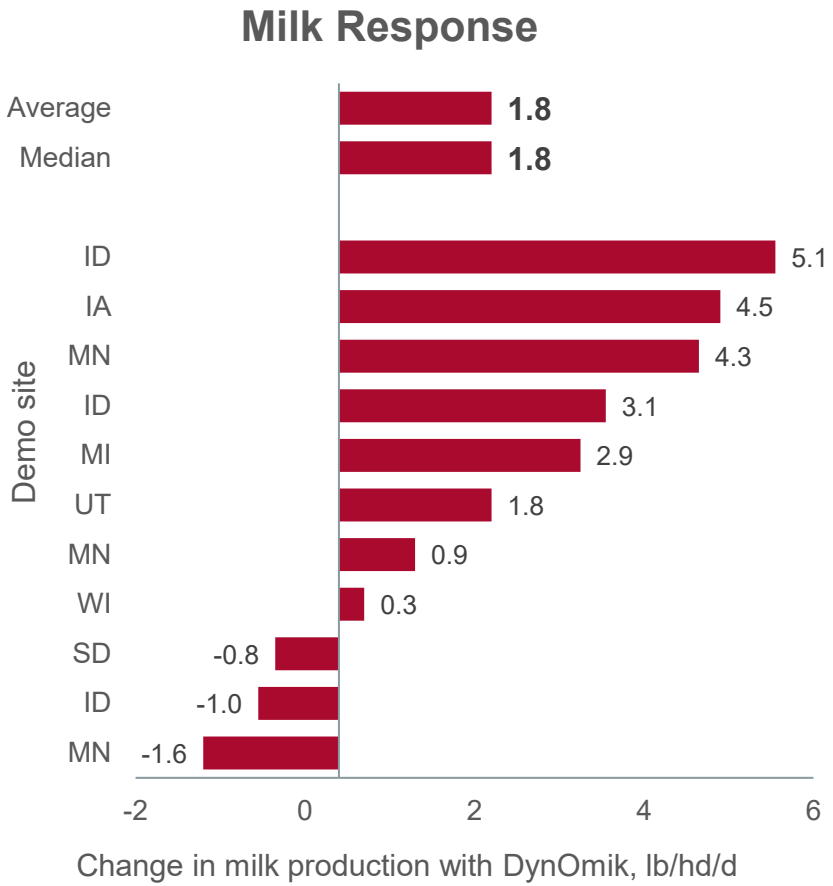
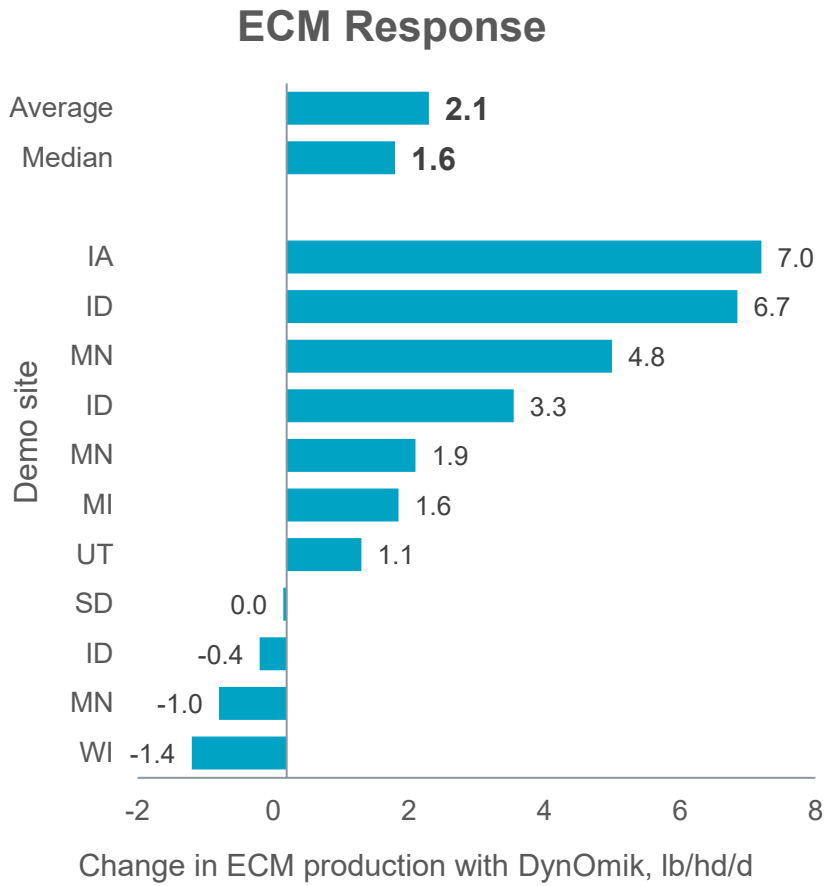
Field Demos: Before – During – After DynOmik

- 11 US Dairies; 21,232 cows
- Performance Compared before, during, and after DynOmik (2.5 g/hd/d)
- DynOmik feeding for ~5 – 7 weeks
- First 3-weeks dropped to allow for rumen adaptation
- Response calculated as performance on DynOmik compared to average of before/after



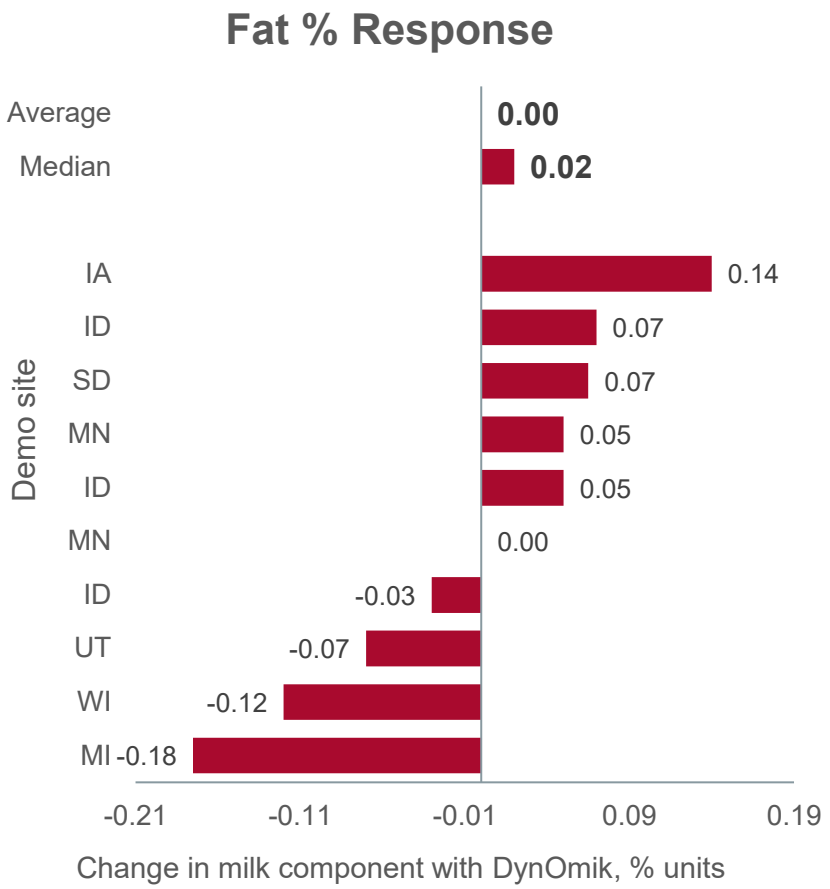
Production Response to DynOmik

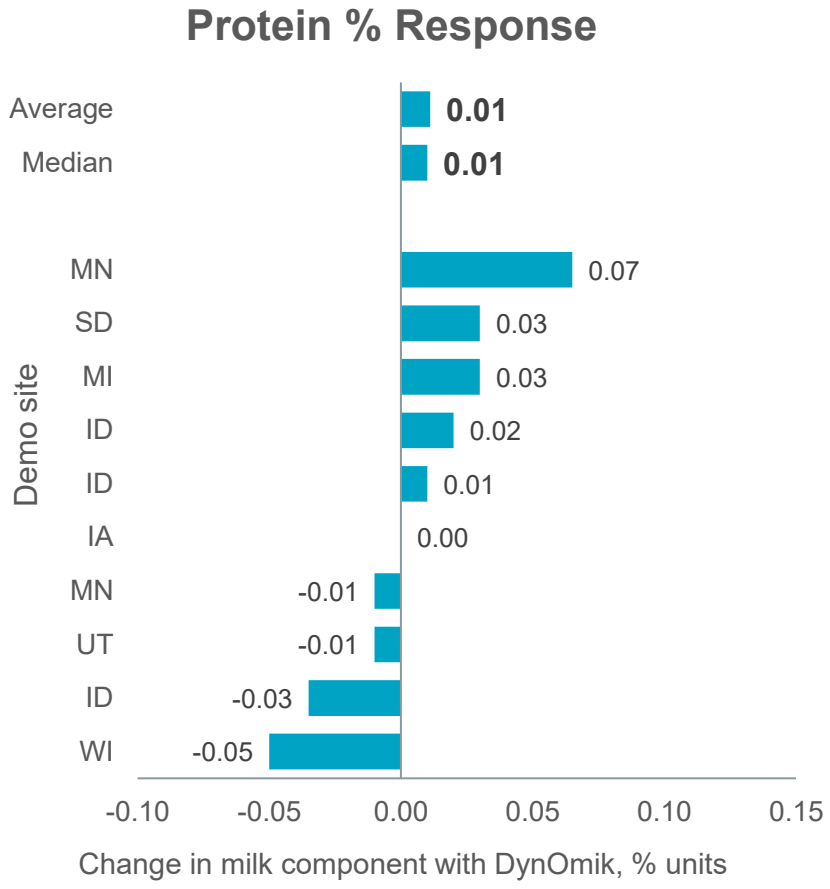




Processor data averaged per lactating cow.
Response calculated as performance on DynOmik compared to average before/after

Component % Response to DynOmik

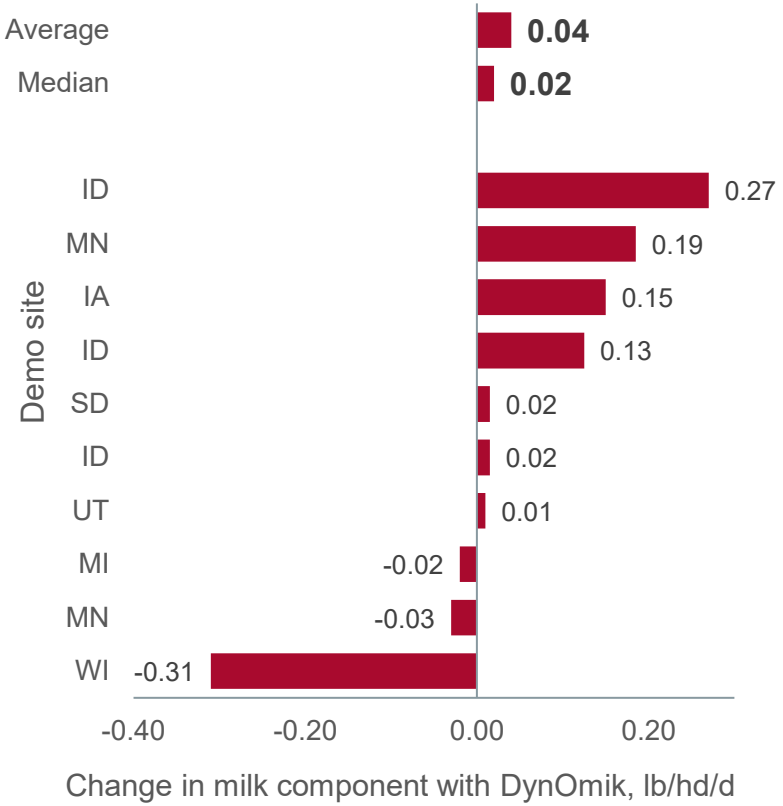




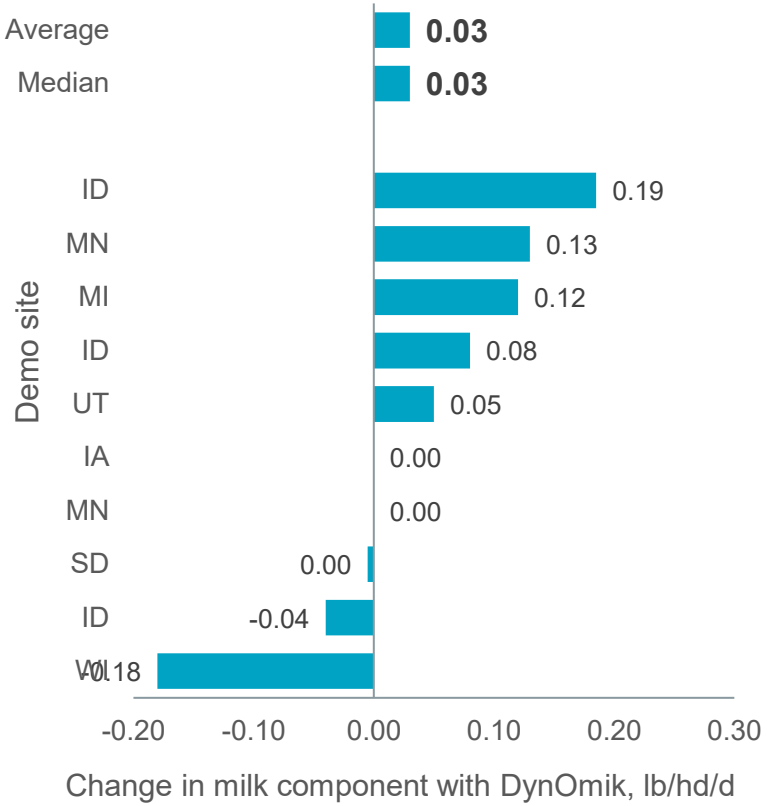
Processor data averaged per lactating cow.
Response calculated as performance on DynOmik compared to average before/after

Component Yield Response to DynOmik

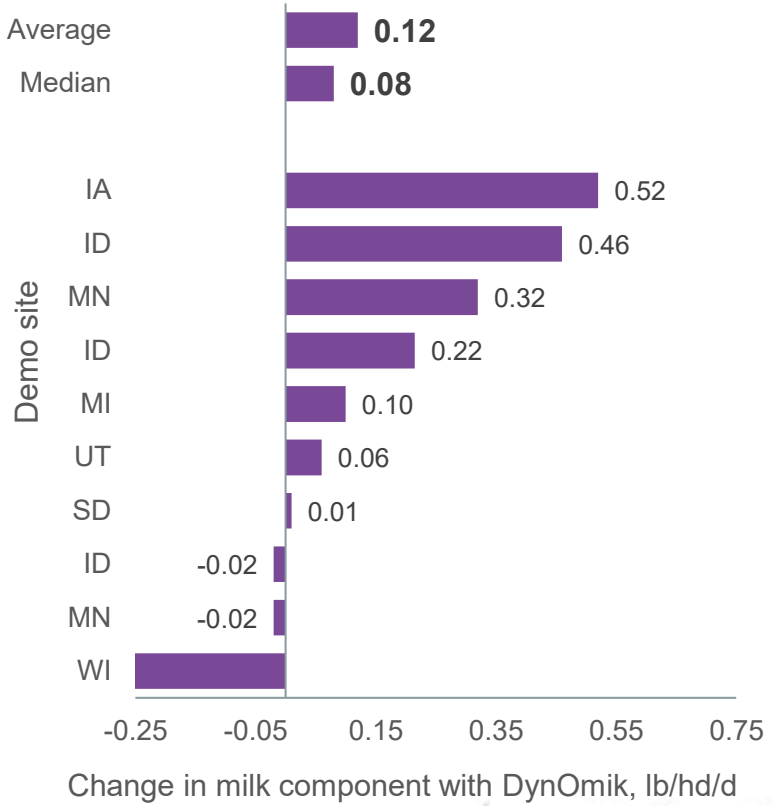
Fat lb Response



Protein lb Response

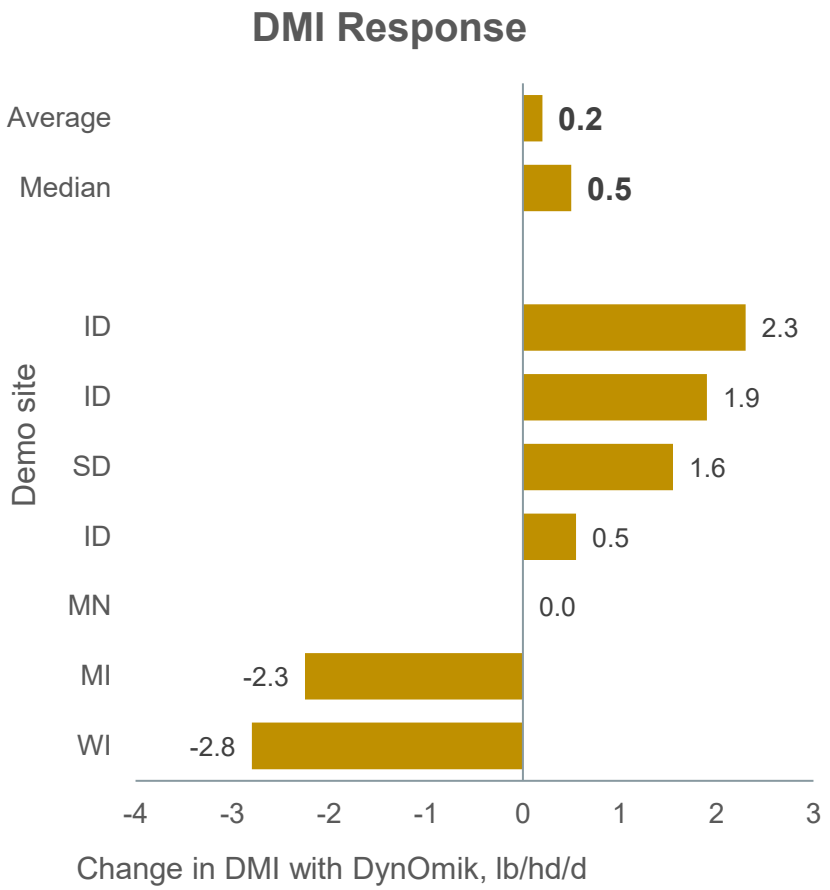


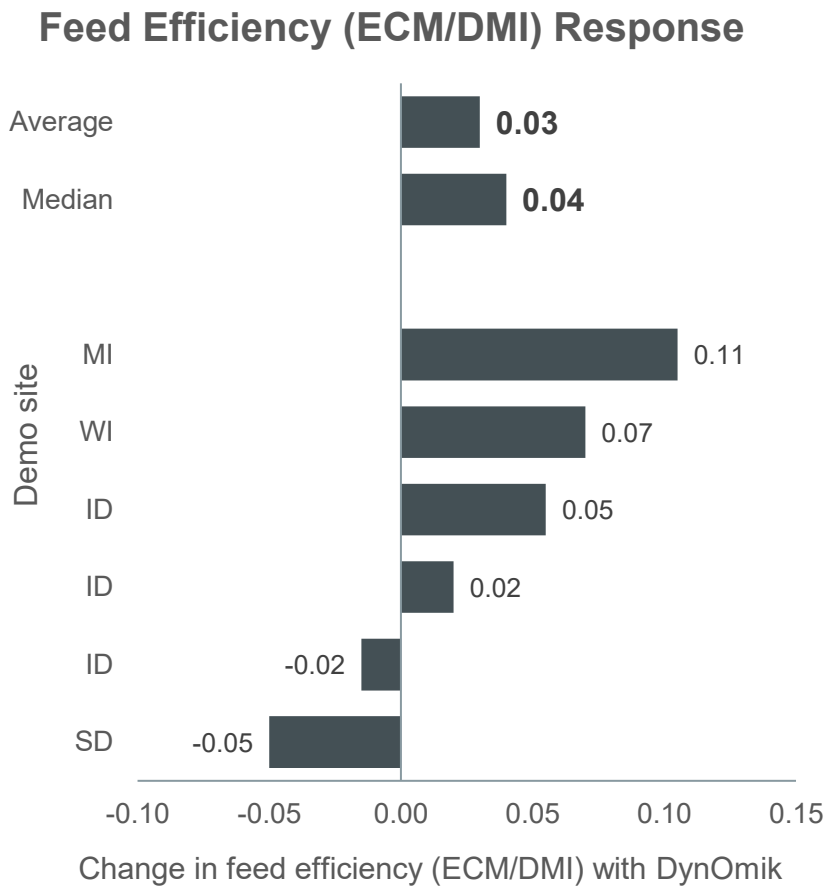
Fat+Protein lb Response



Processor data averaged per lactating cow.
Response calculated as performance on DynOmik compared to average before/after

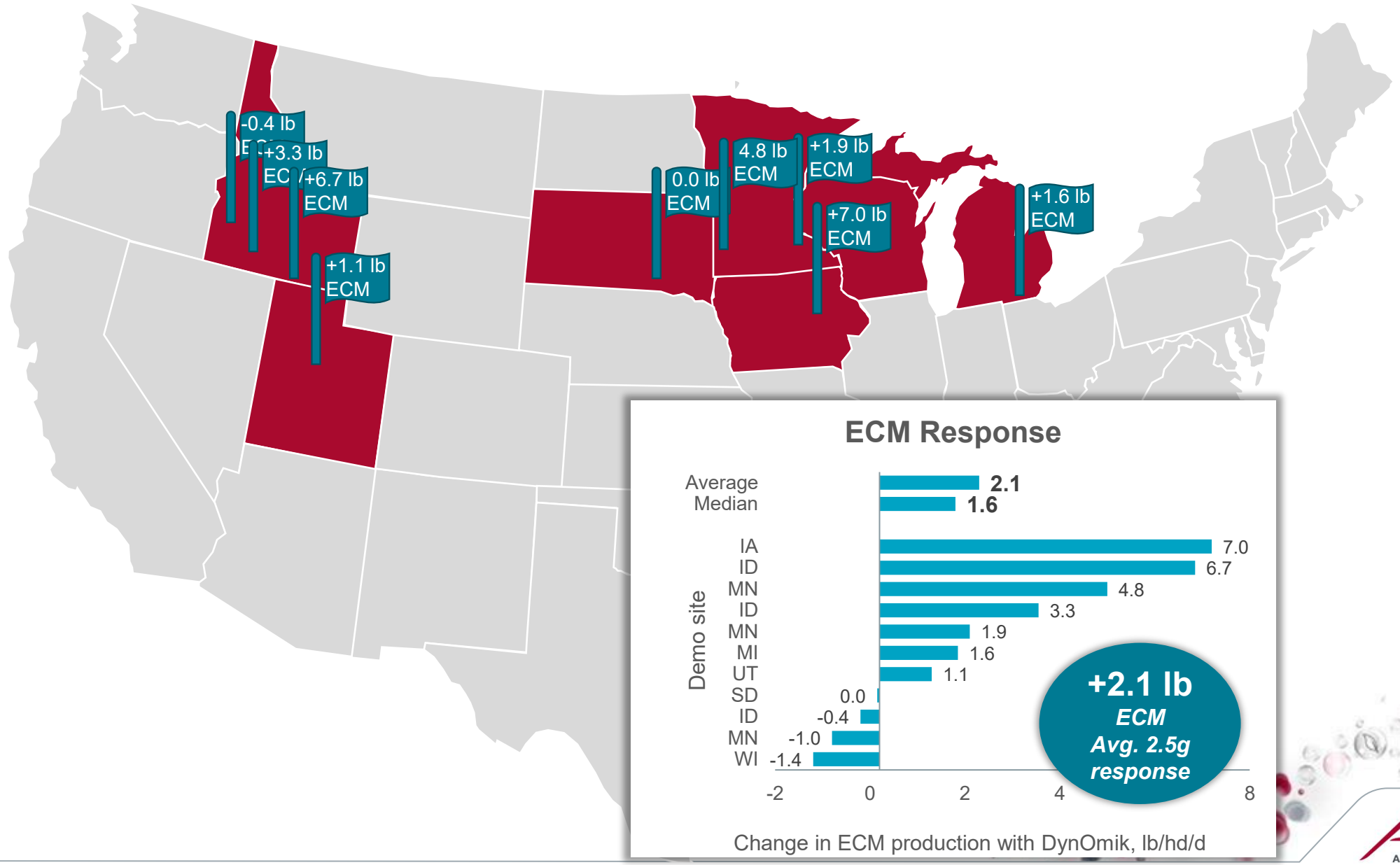
Feed Intake and Feed Efficiency Response to DynOmik





Processor data averaged per lactating cow.
Response calculated as performance on DynOmik compared to average before/after

2+ lb ECM Across Field Demos



Controlled Field Trial Results

10 US Dairies; 20,733 cows

2.5g/hd/d DynOmik

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Summer 2025 Controlled DynOmik Field Trial

Experimental units (N= 20 dairy farms)
10 control farms vs. 10 DynOmik farms

Control (basal diet) vs. DynOmik (basal diet + 2.5g/hd/d)
All diets contained monensin

DynOmik feeding started around June-July 2025
7 weeks of feeding

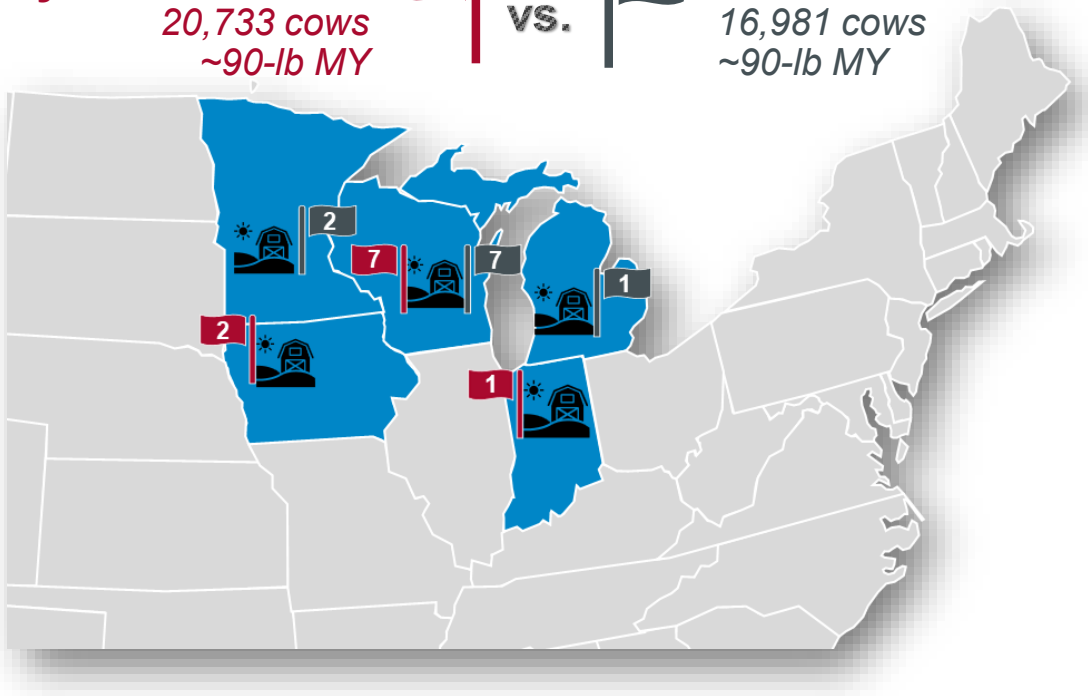
First 3-weeks dropped to allow for rumen adaptation

7-d forward rolling average was used to smooth out daily datapoints

DynOmik Farms 10
20,733 cows
~90-lb MY

vs.

10 **Control Farms**
16,981 cows
~90-lb MY



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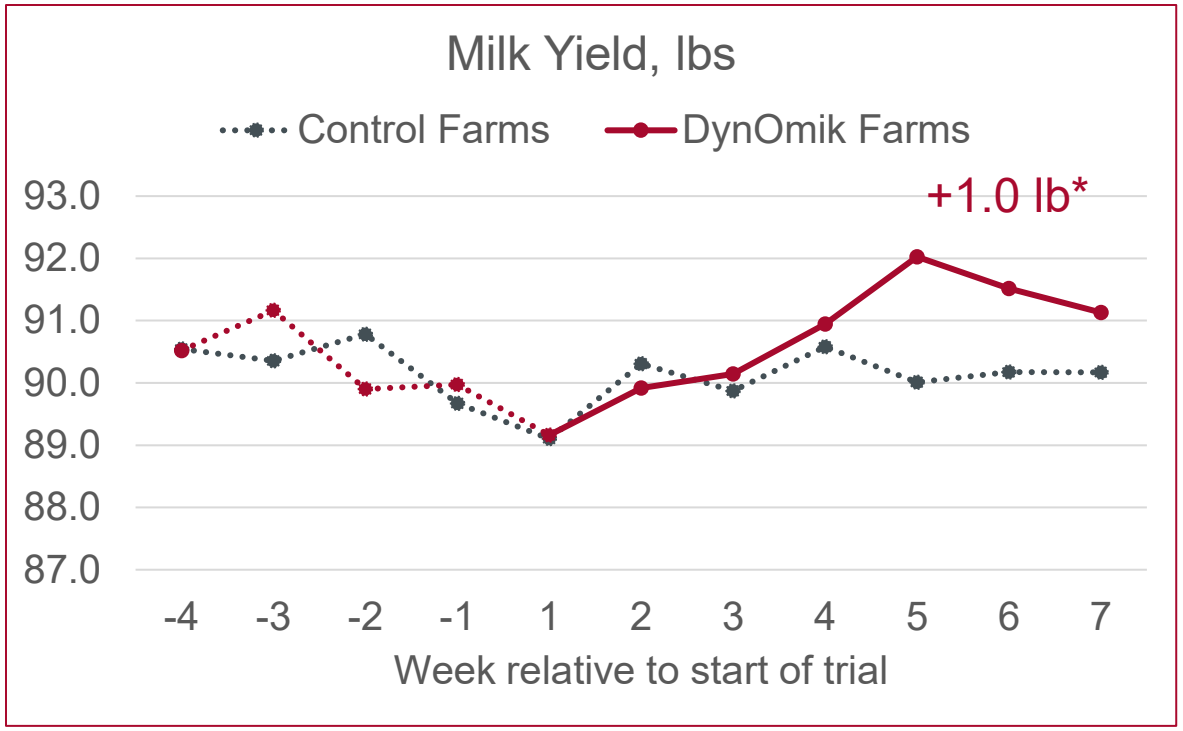
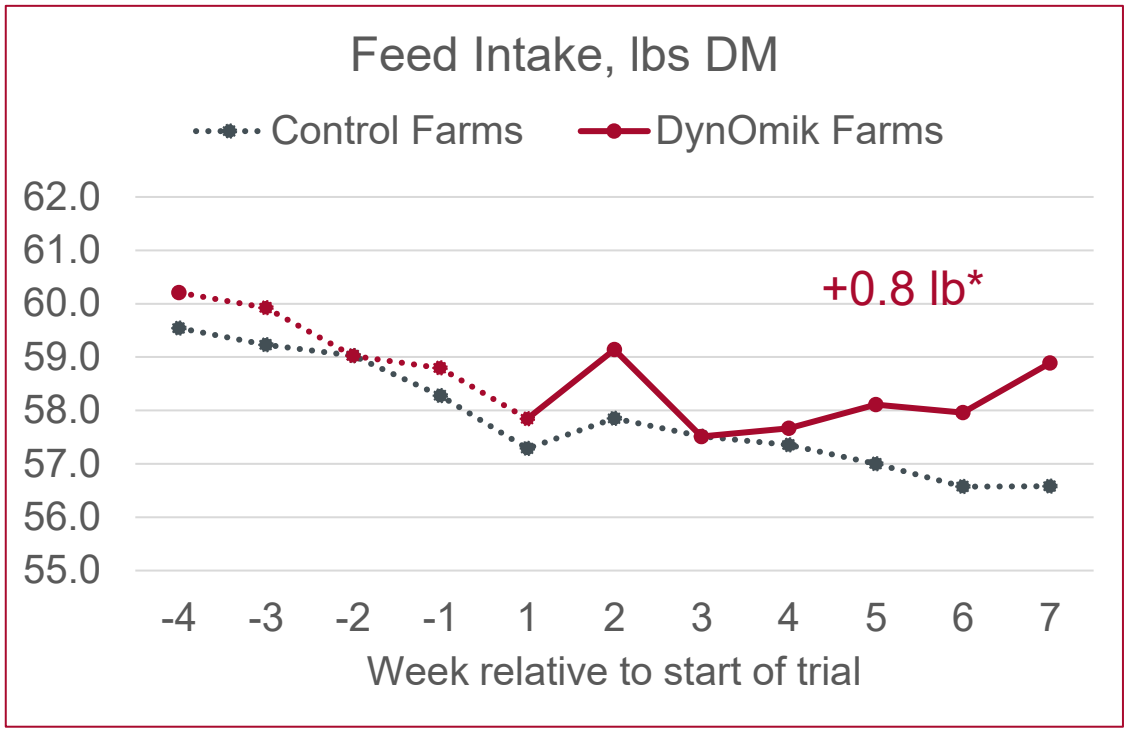
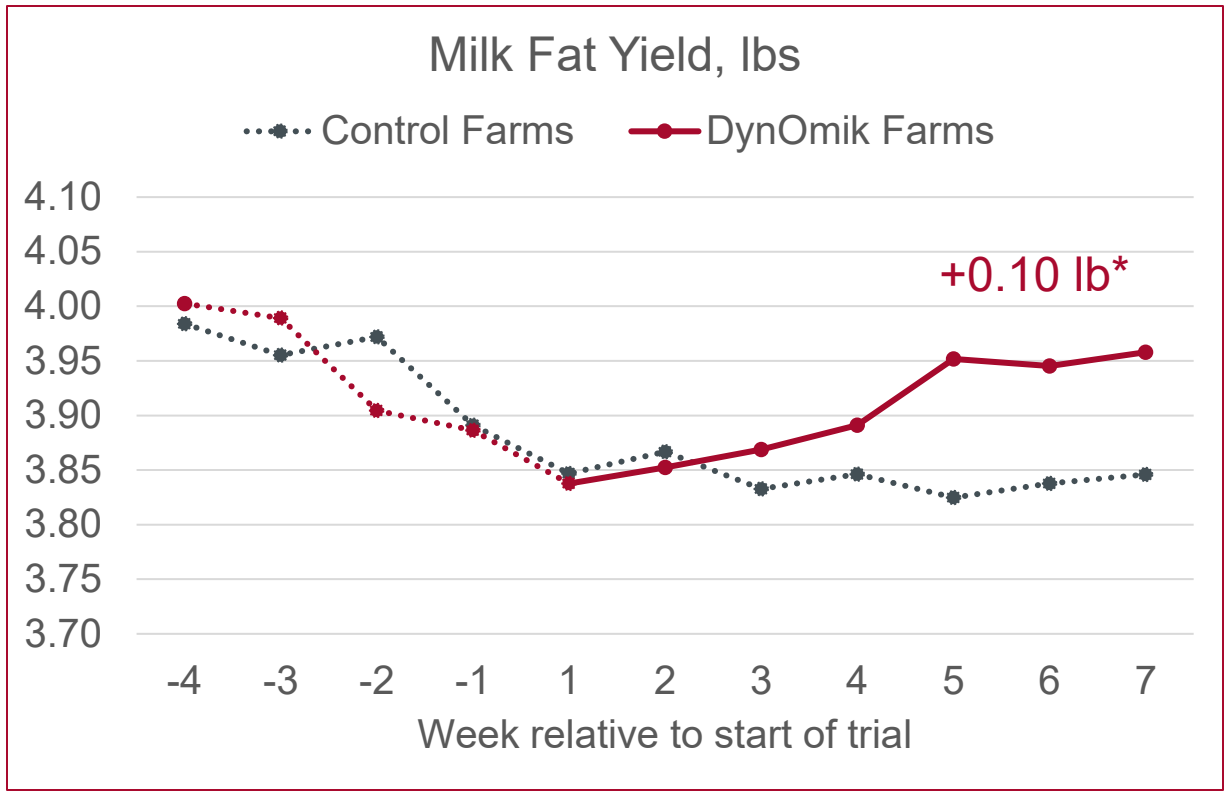
Milk Yield and Feed Intake

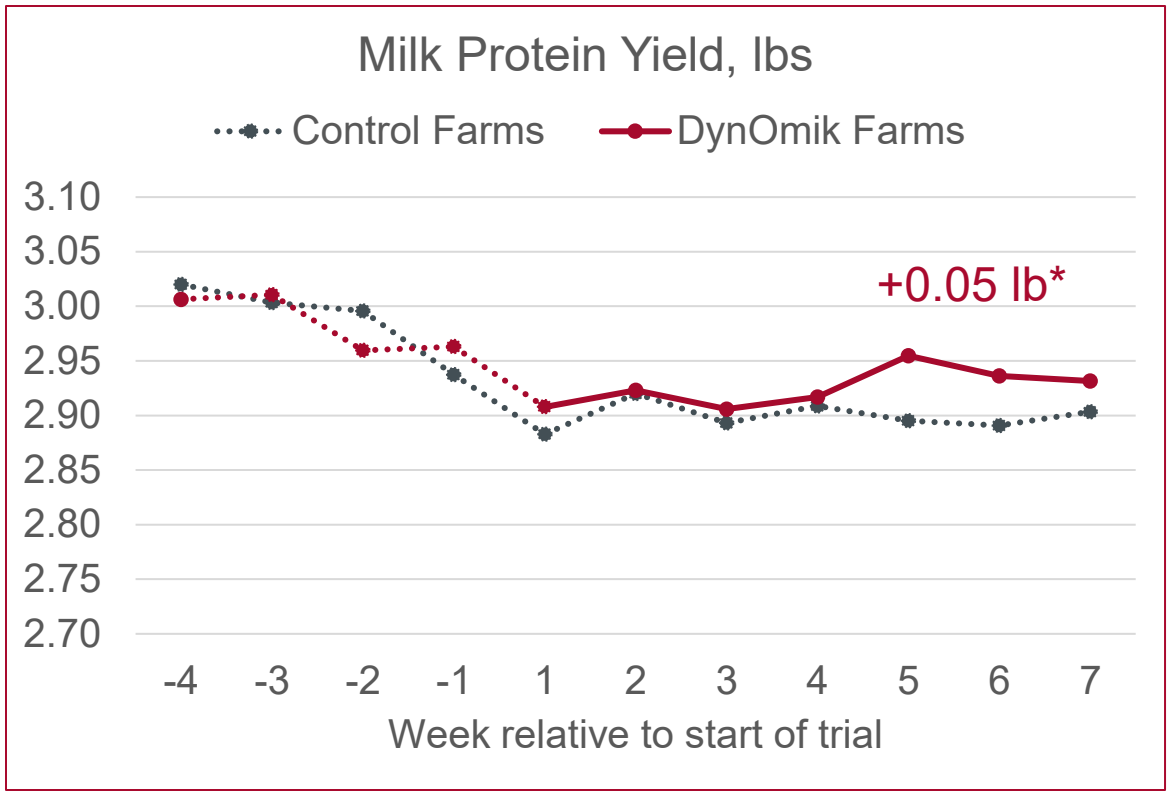




*Relative difference between treatments was adjusted for pre-trial baselines

Milk Solids (lbs)





ECM = 0.327 x milk pounds + 12.95 x fat pounds + 7.2 x protein pounds = 2.0 lb ECM*

*Relative difference between treatments was adjusted for pre-trial baselines

Economics

	Inputs and herd responses with DynOmik	Milk Pay FMMO and costs	$/cow/d
Milk Fat	+0.1 lbs	$2.19/lb	+$0.22
Milk Prot	+0.05 lbs	$2.71/lb	+$0.13
Milk Other Solids	+0.05 lbs	$0.32/lb	+$0.02
Feed Intake DM	+0.8 lbs	$0.13/lb	-$0.10
DynOmik	+2.5 g	$9.5/lb	-$0.06
IOFC			**+$0.21**

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Source: cashew nuts;
Cold-pressed extraction,
patented stabilization

Increase Propionate, DMI, ECM

Proven results:
in vitro, In ruminants,
University research,
Field demos

4:1 ROI

2.5 g/hd/d
6 cents/hd/d
2+ lb ECM

Proven Results

Demos in your region

Data visualization options with Connecterra

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