

AgroLiquid Alfalfa Quality Trials 2016



Conclusions and summary of the following alfalfa trials

Dan Peterson, Agronomic Sciences, CCA, SSp



The purpose of Dan's 2016 alfalfa trials was to determine the effect that AgroLiquid foliar treatments had on alfalfa fiber digestibility and available energy for dairy cattle. Several trials were also measured for dry matter yield. The digestibility analyses were conducted by Rock River Labs, a certified lab of the National Forage Testing Association. Dairyland Seed Co. was a cooperating participant in the Homeland Dairy, Daane Dairy, and Manitowoc trials. The Olsen trials were independent contract research conducted by Dan Olsen, a well known forage researcher in northeastern Wisconsin.

All of the trials resulted in positive responses to the AgroLiquid foliar applications, either for dry matter yield, fiber digestibility, or both. This is remarkable repeatability across several different AgroLiquid and conventional treatments and is a strong testimony to the beneficial effects that AgroLiquid produces in the plant.

All AgroLiquid treatments resulted in fewer days to maturity between cuttings, in some cases dramatically so. The average was about 4 days. This is significant and could result in an additional cutting for the season.

In most of the trials the AgroLiquid treatments resulted in very significant improvements in the digestibility of the alfalfa, resulting in several more pounds of milk per cow per day. The economic impact of this is highly significant for the dairy producer.

The AgroLiquid treatments consistently improved yield and/or digestibility regardless of conventional fertilizer or manure base treatments and across a variety of AgroLiquid foliar products.

Because the AgroLiquid treatments accelerated the days to maturity, in some trials the AgroLiquid side of the field was cut several days too late for optimum digestibility. This was reflected in some test results and will need to be managed carefully in subsequent trials.

Sure K is proving to be a very efficient potassium in alfalfa - improving yield and digestibility consistently. In addition to consistently higher dry matter yield and increased digestibility of the alfalfa it generally increased the potassium content of the alfalfa. This indicates that the dairy producer may be able to reduce or eliminate conventional potash applications when using Sure K.

The average of these 11 trials show an increase from AgroLiquid foliar treatments of 37.3% in dry matter tons/acre, 2.6 more lbs of milk/cow/day, over 20% faster digestion rate, 5% more protein, and an astonishing 40.5% more milk produced per acre of alfalfa.

Access and S-Calate can be applied foliar in alfalfa at 2-3 gpa with little leaf burn.

AgroLiquid treatments have a significantly positive carry-over effect on subsequent non-treated cuttings as shown in the Engquist "Annie" trial.

The repeatability of the AgroLiquid treatment results across eleven trials in 2016 is much higher than would be expected in agronomic research. This repeatability should give producers confidence in using AgroLiquid foliar fertilizer treatments on their alfalfa.



What are the economic benefits of AgroLiquid? Turn to milk production!

Milk prices received on the farm are down and producers are stressed. AgroLiquid costs more per unit than conventional, commodity fertilizers. This can be a high barrier to selling a prospect who has never used AgroLiquid before. How can you overcome this barrier?

Some Basic "Rules":

1. Every one unit increase in NDFD will result in 0.51 to 0.55 lbs more milk/cow/day. Find the NDFD 48hr parameter on the Jeff Engquist Annie's sheet.
 2. Milk/ton is a calculation using a lab program called "Milk 2006" using certain parameters on the test.
 3. Milk is measured and priced by the pound, and the basic pricing unit is 100 pounds (cwt).
 4. Let's use \$17.30 per cwt as the worksheet price. That's the national weighted average milk price for September.
 5. This producer grows 900 acres of alfalfa.
 6. This producer prospect had been using Helena's ENC 11-8-5 plus micros at 1.0 qt/acre foliar. We are comparing Dan's AgroLiquid program as shown on this trial's sheet.
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Now let's do some math your dairy prospect will understand:

Step one: The difference in treatments for NDFD is 6.63 in favor of AgroLiquid. $6.63 \times 0.51 = 3.38$ more pounds milk. Let's assume this producer's lactation ration is feeding this AgroLiquid alfalfa at 40% of the total Dry Matter intake. 3.38 from the line above $\times 0.40 = 1.35$ more pounds of milk per cow per day in the total mixed ration.

Step two: This herd has 1,200 cows in lactation. So multiply $1,200 \times 1.35 = 1,620$ more pounds of milk per day. $1,620/100 = 16.2$ pricing units. $16.2 \times$ unit price of \$17.3 = \$280.26 more gross revenue per day $\times 365$ days = \$102,295 more revenue per year.

Step three: Calculate the difference in cost. Helena ENC is priced at \$85/gal. Application rate of 1.0 quart/acre = \$21.25/acre. AgroLiquid program is \$32.00/acre. $\$32.00 - \$21.25 = \$10.75$ extra cost.

Step four: $\$10.75$ extra cost $\times 900$ acres = \$9,675. \$102,295 more revenue minus \$9,625 cost = profit to the producer of \$92,670 for switching to AgroLiquid!

Other add-in savings: The yield for the AgroLiquid treated alfalfa was approximately twice the ENC side. That means this producer will be able to reduce the number of acres he must devote to alfalfa and he can plant a cash crop instead = more revenue. This producer applies approximately 350 lbs potash/acre/yr to his alfalfa. He would very likely be able to substantially reduce this by using Sure K as a foliar potassium source.

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Average of all 11 trials in 2016 Trials were located in MI, WI, and MN

Parameter	AgroLiquid treatments	Other treatments	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	3063	2231	831	37.3%
CP	22.44	21.40	1.05	4.9%
Avail. CP	26.67	25.45	1.21	4.8%
ADF	31.36	32.01	0.66	2.1%
aNDF	39.43	42.19	2.76	7.0%
RFV	155	147	8	5.6%
RFQ	173	152	22	14.2%
NDFD 48hr	53.40	48.71	4.69	9.6%
Dynamic NDF kd	17.05	14.16	2.89	20.4%
TTNDFD	46.45	43.42	3.03	7.0%
Lignin	6.01	6.37	0.36	5.9%
NEL Mcal/lb	0.637	0.626	0.011	1.8%
NEg	0.383	0.345	0.038	11.2%
NEm	0.648	0.606	0.042	7.0%
Milk/ton	2815	2673	142	5.3%
Tons/acre dry	1.53	1.12	0.42	37.3%
Milk/acre	4271	3040	1232	40.5%
Ash	10.80	10.20	0.60	5.8%
Ca	1.27	1.32	-0.05	-4.0%
P	0.32	0.31	0.01	4.4%
K	2.38	2.10	0.28	11.6%
Mg	0.36	0.37	-0.01	-3.6%
S	0.24	0.24	0.01	2.9%

These trials were across 3 states and include various cuttings and treatments. For the best understanding please read through each trial report and it's summary. The economic advantage to the dairy producer for using AgroLiquid products as foliar treatments as proven in these trials is very significant. The average increase in milk/cow/day across these trials is 2.6 lbs (using the accepted standard of 0.51 to 0.55 lbs milk/day for one number increase in the NDFD), and the average yield increase is an astounding 37.3%. Other important numbers include a 20.4% increase in the Dynamic NDF kd digestion rate, a 40.5% increase in milk/acre, and a nearly 5% increase in protein.

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Dan Olsen contract research
Location	Lena, WI
Crop	Pure alfalfa, new seeding spring 2016
Cutting	1st

Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	2820	2240	580	25.89%
CP	25.78	24.15	1.63	6.7%
Avail. CP	24.90	23.10	1.80	7.8%
ADF	26.55	29.11	2.56	9.6%
aNDF	32.80	36.53	3.73	11.4%
RFV	193	169	24	14.2%
RFQ	205	169	36	21.3%
NDFD 48hr	53.23	48.23	5.00	10.4%
Dynamic NDF kd	8.63	7.78	0.85	10.9%
TTNDFD	50.10	41.44	8.66	20.9%
Lignin	5.47	6.47	1.00	18.3%
NEL Mcal/lb	0.651	0.626	0.025	4.0%
NEg	0.381	0.342	0.039	11.4%
NEm	0.646	0.603	0.043	7.1%
Milk/ton	2904	2726	178	6.5%
Tons/acre dry	1.41	1.12	0.29	25.9%
Milk/acre	4095	3053	1042	34.1%
Ash	12.00	11.78	0.22	1.9%
Ca	1.61	1.59	0.02	1.2%
P	0.35	0.34	0.01	2.9%
K	2.29	2.13	0.16	7.0%
Mg	0.43	0.44	-0.01	-2.3%
S	0.28	0.26	0.02	7.1%

AgroLiquid treatment: 4.0 ProGerminator + 6.0 Sure K + 1.0 S-Calate applied ppi.

Control treatment: 175 lbs 0-14-42 + 12 lbs elemental S prills applied ppi.

Compared to the conventional dry fertilizer which was applied at much high rates of nutrients per acre, the AgroLiquid treatment resulted in much higher dry matter yield and a very significant quality and digestibility improvement. This difference amounts to 2.5 lbs more milk per cow per day feeding the AgroLiquid treated alfalfa versus the conventional dry fertilizer plus nearly 26% more dry matter yield per acre. It's hard to over-state the economic advantage to the dairy producer for using AgroLiquid given these results.

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Dan Olsen contract research
Location	Lena, WI
Crop	Alfalfa-grass mixture, new seeding 2016
Cutting	1st

Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	3080	2500	580	23.20%
CP	19.60	15.79	3.81	24.1%
Avail. CP	18.72	14.90	3.82	25.6%
ADF	27.12	24.64	-2.48	-9.1%
aNDF	40.53	35.09	-5.44	-13.4%
RFV	156	185	-29	-15.7%
RFQ	195	185	10	5.4%
NDFD 48hr	70.29	59.33	10.96	18.5%
Dynamic NDF kd	5.95	4.39	1.56	35.5%
TTNDFD	56.89	51.69	5.20	10.1%
Lignin	3.72	2.35	-1.37	-36.8%
NEL Mcal/lb	0.655	0.707	-0.052	-7.4%
NEg	0.430	0.415	0.015	3.6%
NEm	0.701	0.684	0.017	2.5%
Milk/ton	3063	3245	-182	-5.6%
Ton/acre dry	1.54	1.25	0.29	23.2%
Milk/acre	4717	4056	661	16.3%
Ash	11.03	10.28	0.75	7.3%
Ca	1.06	0.78	0.28	26.4%
P	0.35	0.32	0.03	8.6%
K	1.87	2.12	-0.25	-13.4%
Mg	0.44	0.38	0.06	13.6%
S	0.19	0.17	0.02	10.5%

AgroLiquid treatment: 4.0 ProGerminator + 4.0 Sure K + 1.0 S-Calate + 10.0 High-NRG-N + 3.0 NResponse applied ppi.

Control treatment: 175 lbs 0-14-42 + 12 lbs 90% sulfur + 120 lbs urea applied ppi.

This trial with new seeding mixed alfalfa and grass has mixed results. The AgroLiquid treatment resulted in a substantial dry matter yield increase, but it was somewhat lower in certain digestibility parameters. This runs counter to most other trials in which the AgroLiquid treatments showed substantial digestibility improvements. The reasons may include the fact that AgroLiquid tends to accelerate growth versus conventional fertilizer, and the grass in this trial may have been too mature at cutting as a result.

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Dan Olsen contract research			
Location	Lena, WI			
Crop	Pure alfalfa, new seeding spring 2016			
Cutting	3rd			
Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	2280	1940	340	17.53%
CP	24.16	24.98	-0.82	-3.3%
Avail. CP	22.54	23.32	-0.78	-3.3%
ADF	28.42	27.53	-0.89	-3.1%
aNDF	35.71	35.06	-0.65	-1.8%
RFV	174	179	-5.00	-2.8%
RFQ	187	188	-1.00	-0.5%
NDFD 48hr	51.50	50.68	0.82	1.6%
Dynamic NDF kd	10.15	8.74	1.41	16.1%
TTNDFD	46.82	43.48	3.34	7.7%
Lignin	6.15	6.07	-0.08	-1.3%
NEL Mcal/lb	0.649	0.645	0.004	0.6%
NEg	0.352	0.338	0.014	4.1%
NEm	0.614	0.599	0.015	2.5%
Milk/ton	2820	2760	60.00	2.2%
Tons/acre dry	1.14	0.97	0.17	17.5%
Milk/acre	3215	2677	538	20.1%
Ash	10.57	11.09	0.52	4.7%
Ca	1.35	1.47	-0.12	-8.9%
P	0.34	0.36	-0.02	-5.9%
K	2.38	2.03	0.35	14.7%
Mg	0.42	0.46	-0.04	-9.5%
S	0.26	0.26	0.00	0.0%
<p>AgroLiquid treatment: 1.0 ProGerminator + 6.0 SureK + 2.0 S-Calate + 24.0 ounces MicroLink Boron applied after 1st cutting to 6" regrowth.</p> <p>Control treatment: 175.0 0-14-42 + 3.0 dry boron + 12.0 90% sulfur applied topdress after 1st cutting.</p> <p>Once again, AgroLiquid's treatment significantly out-yielded the conventional fertilizer despite a large difference in applied nutrients. There is also a digestibility advantage for the AgroLiquid treatment. The result is 20% more milk/acre.</p>				

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Jeff Engquist, Home
Location	Cambridge, MN
Crop	Pure alfalfa, new seeding fall 2015
Cutting	1st

Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield				
CP	19.48	17.88	1.60	8.9%
Avail. CP	18.80	16.98	1.82	10.7%
ADF	40.03	45.79	5.76	14.4%
aNDF	47.72	56.63	8.91	18.7%
RFV	113	87	26	29.9%
RFQ	140	106	34	32.1%
NDFD 48hr	64.35	58.56	5.79	9.9%
Dynamic NDF kd	8.70	5.79	2.91	50.3%
TTNDFD	48.29	43.33	4.96	11.4%
Lignin	8.06	9.07	1.01	12.5%
NEL Mcal/lb	0.564	0.544	0.020	3.7%
NEg	0.351	0.332	0.019	5.7%
NEm	0.613	0.592	0.021	3.5%
Milk/ton	2450	2316	134	5.8%
Ton/acre dry				
Milk/acre				
Ash	12.64	10.40	2.24	21.5%
Ca	0.87	1.10	-0.23	-26.4%
P	0.31	0.30	0.01	3.2%
K	3.04	2.57	0.47	15.5%
Mg	0.27	0.30	-0.03	-11.1%
S	0.23	0.21	0.02	8.7%

AgroLiquid treatment: 3.0 Sure K + 2.0 S-Calate + 1.0 AccesS applied foliar at 8"

Other treatment: Conventional dry 50 lbs potash + 50 lbs AMS applied topdress the day before the AgroLiquid treatment

Compared to the conventional dry fertilizer treatment the AgroLiquid treated alfalfa resulted in more milk produced per cow/day. Dairy nutritionists state that for each one unit increase in Neutral Detergent Fiber Digestibility (NDFD) the cow will produce 0.51 more lbs milk/day and 0.37 lbs more dry matter intake. In this trial, the AgroLiquid treated alfalfa would produce 2.4 lbs more milk per cow per day - a very significant result for the producer. The AgroLiquid treated side also shows significantly less ADF and NDF, which means the cow can eat more. Ash is the mineral content of the forage plus the dirt picked up in the harvesting process. Higher minerals = higher ash, more dirt = higher ash.

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Jeff Engquist, Annie's			
Location	Cambridge, MN			
Crop	Pure alfalfa, planted fall 2015			
Cutting	4th, average of two samples taken on each side			
Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield				
CP	23.53	24.13	-0.60	-2.5%
Avail. CP	23.21	23.23	-0.02	-0.1%
ADF	24.59	26.01	1.42	5.8%
aNDF	31.00	36.22	5.22	16.8%
RFV	210	176	34	19.3%
RFQ	236	186	50	26.9%
NDFD 48hr	57.78	51.15	6.63	13.0%
Dynamic NDF kd	4.67	5.36	-0.69	-12.9%
TTNDFD	40.93	38.47	2.46	6.4%
Lignin	3.45	8.89	5.44	61.2%
NEL Mcal/lb	0.690	0.657	0.033	5.0%
NEg	0.437	0.355	0.082	23.1%
NEm	0.708	0.617	0.091	14.7%
Milk/ton	3176	2860	316	11.0%
Ton/acre dry				
Milk/acre				
Ash	9.93	8.89	1.04	11.7%
Ca	1.29	1.54	-0.25	-19.4%
P	0.29	0.27	0.02	6.9%
K	2.41	1.70	0.71	29.5%
Mg	0.30	0.35	-0.05	-16.7%
S	0.25	0.27	-0.02	-8.0%

AgroLiquid treatment: 2.0 Sure K + 0.5 FertiRain + 2.0 S-Calate + 0.25 Liberate Ca + 0.125 B applied foliar at 8" after 2nd cut. This is an overlay after spring broadcast potash.

Other treatment: 1.0 Helena ENC 11-8-5 plus micros Zn, Cu, Fe, B applied foliar same day as the AgroLiquid after 2nd cut. This is an overlay after spring broadcast potash.

The treatments were applied to the 3rd crop. That 3rd crop was not sampled due to miscommunication with the producer. These results are from the 4th crop (cutting) taken on 10/25/16 and measure the treatment carry-over efficacy. The AgroLiquid treatment carried over strongly and the AgroLiquid alfalfa will result in more milk produced per cow/day - in this case 3.4 lbs more milk per cow per day, a very significant result. The AgroLiquid treated side also showed significantly less ADF and NDF. Although the two treatments were not scaled for dry matter yield, the AgroLiquid side had approximately twice the plant mass (thicker stems, broader leaves, several inches more height) than the Helena side.

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Dave Johnson			
Location	Stephenson, MI			
Crop	Pure alfalfa, 2 year stand			
Cutting	2nd			
Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield				
CP	23.88	21.64	2.24	10.4%
Soluble. CP	48.07	46.63	1.44	3.1%
ADF	33.27	34.85	1.58	4.7%
aNDF	38.58	40.17	1.59	4.1%
RFV	152	143	9	6.3%
RFQ	146	129	17	13.2%
NDFD 30hr	41.50	37.04	4.46	12.0%
NDFD 120hr	54.82	46.12	8.70	18.9%
TTNDFD	41.71	38.96	2.75	7.1%
Lignin	6.60	7.11	0.51	7.7%
NEL Mcal/lb	0.612	0.602	0.01	1.6%
NEg	0.344	0.310	0.03	11.0%
NEm	0.605	0.568	0.04	6.5%
Milk/ton	2685	2578	107	4.2%
Ton/acre dry				
Milk/acre				
Ash	11.12	10.46	0.66	6.3%
Ca	1.36	1.34	0.02	1.5%
P	0.34	0.30	0.04	13.3%
K	2.64	2.31	0.33	14.3%
Mg	0.32	0.32	0.00	0.0%
S	0.26	0.24	0.02	8.3%

AgroLiquid treatment: 6.0 Sure K + 1.0 eNhance + .125 B applied foliar at 8" on base treatment of 300# potash.

Other treatment: Base treatment of 300# potash, no foliar.

This trial shows that compared to the conventional dry fertilizer treatment alone the AgroLiquid foliar treated alfalfa will result in significantly more milk produced. Dairy nutritionists state that for each one unit increase in Neutral Detergent Fiber Digestibility (NDFD) the cow will produce 0.51 more lbs milk/day and 0.37 lbs more dry matter intake. In this trial, the AgroLiquid treated alfalfa would produce approximately 3.0 lbs more milk per cow per day - a very significant economic result for the producer. The AgroLiquid treatment also shows significantly less ADF and NDF, which means the cow can eat more.

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Jon Bruins, Homeland Dairy
Location	Waupun, WI
Crop	Pure alfalfa, 2 year stand
Cutting	2nd

Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	4000	3200	800	25.00%
CP	22.10	23.30	-1.20	-5.2%
Soluble. CP				
ADF	37.20	33.60	-3.60	-10.7%
aNDF	45.20	42.00	-3.20	-7.6%
RFV	123	139	-16.00	-11.5%
RFQ	141	159	-17.80	-11.2%
NDFD 30hr	45.80	47.70	-1.90	-4.0%
Dig. Rate, KD	6.10	7.00	-0.90	-12.9%
TTNDFD	41.50	45.90	-4.40	-9.6%
Lignin	7.30	6.40	-0.90	-14.1%
NEL Mcal/lb				
NEg				
NEm				
Milk/ton	2281	2595	-314	-13.8%
Tons/acre dry	2.00	1.60	0.40	25.0%
Milk/acre	4454	4074	380	9.3%
Ash				
Ca				
P				
K				
Mg				
S				

AgroLiquid treatment: 1.0 FertiRain + 2.0 Sure K + 0.5 AccesS + 0.25 LiberateCa + 24 oz B applied foliar at 10" on base treatment of 250# potash.

Other treatment: Base treatment of 250# potash, no foliar.

This strip trial shows a pronounced dry matter yield increase from the AgroLiquid foliar treatment over the potash base fertilizer application. It also matured the crop 3-4 days faster. Because the treated/untreated were harvested and sampled the same day, the increased maturity of the AgroLiquid treated alfalfa put it at a disadvantage for the digestibility results. Had the AgroLiquid side been taken 3-4 days earlier as it should have been the digestibility results would likely have been in AgroLiquid's favor. The results reinforce the consistent observation across several trials that AgroLiquid foliar reduces the days to maturity from cut to cut.

AgroLiquid Alfalfa Quality Trials 2016



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Producer	Daane Dairy
Location	Waupun, WI
Crop	Pure alfalfa, 2 year stand
Cutting	2nd

Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	2800	2000	800	40.00%
CP	23.50	15.50	8.00	51.61%
Soluble. CP				
ADF	30.80	39.80	9.00	29.22%
aNDF	38.80	60.50	21.70	55.93%
RFV	155	89	66	74.2%
RFQ	194	139	55	39.7%
NDFD 30hr	53.10	54.90	-1.80	-3.4%
Dig. Rate, KD	11.30	5.70	5.60	98.2%
TTNDFD	54.30	49.20	5.10	10.4%
Lignin	5.50	6.10	0.60	9.8%
NEL Mcal/lb				
NEg				
NEm				
Milk/ton	2900	2345	555	23.6%
Tons/acre dry	1.40	1.00	0.40	40.0%
Milk/acre	4112	2415	1696	70.2%
Ash				
Ca				
P				
K				
Mg				
S				

AgroLiquid treatment: 1.0 FertiRain + 2.0 Sure K + 0.5 AccesS + 0.25 LiberateCa + 24 oz B applied foliar at 10" on base treatment of 250# potash.

Other treatment: Base treatment of 250# potash, no foliar.

This strip trial shows a spectacular result from the AgroLiquid foliar treatment. Dairy nutritionists state that for each one unit increase in Neutral Detergent Fiber Digestibility (NDFD) the cow will produce 0.51 more lbs milk/day and 0.37 lbs more dry matter intake. Using the improved NDFd method of TTNDFD the AgroLiquid treated alfalfa would theoretically produce 2.8 lbs more milk per cow per day. The AgroLiquid treated side also shows significantly less ADF and NDF, which means the cow can eat more. With the improved digestibility along with the 40% dry matter yield increase, the AgroLiquid treated alfalfa produced a staggering 70% more milk/acre!

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Producer	Brock Farms
Location	Stephenson, MI
Crop	Pure alfalfa, 2 year stand
Cutting	2nd

Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield				
CP	21.89	21.69	0.20	0.9%
Soluble. CP	30.42	30.01	0.41	1.4%
ADF	32.05	33.79	-1.74	-5.4%
aNDF	40.69	44.32	-3.63	-8.9%
RFV	146	131	15	11.5%
RFQ	146	120	26	21.7%
NDFD 30hr	42.86	39.26	3.60	9.2%
NDFD 120hr	62.40	56.86	5.54	9.7%
TTNDFD	37.47	38.31	-0.84	-2.2%
Lignin	6.76	8.06	1.30	19.2%
NEL Mcal/lb	0.641	0.603	0.04	6.3%
NEg	0.386	0.320	0.07	20.6%
NEm	0.651	0.578	0.07	12.6%
Milk/ton	2887	2604	283	10.9%
Ton/acre dry				
Milk/acre				
Ash	8.28	8.50	-0.22	-2.7%
Ca	1.37	1.45	-0.08	-5.8%
P	0.28	0.27	0.01	3.7%
K	2.03	1.86	0.17	9.1%
Mg	0.34	0.36	-0.02	-5.9%
S	0.24	0.25	-0.01	-4.2%

AgroLiquid treatment: 7.0 Sure K + .5 Micro 500 + 2.0 AccesS + 24 oz Mn + 24 oz B applied foliar at 8" after 1st cutting.

Other treatment: Liquid manure, rate unknown, applied topdress after 1st cutting.

The most significant result of this trial was that the AgroLiquid treatment resulted in the alfalfa maturing a full week ahead of the manure treated side. Because both sides were cut the same day, the AgroLiquid treated side was placed at a sharp disadvantage for the digestibility results. The producer noted this, however, and understands that the AgroLiquid digestibility would have been substantially better had it been cut at the proper time. The producer reported that the AgroLiquid treated side was taller and darker green in color, and yielded noticeably better, although it was not scaled to prove the increase. Despite the maturity disadvantage, the AgroLiquid treated alfalfa still shows an increase in theoretical milk production over the manure treatment.

AgroLiquid Alfalfa Quality Trials 2016



Dan Peterson, Agronomic Sciences, CCA, SSp



Producer	Dairyland Seeds/Dow Agrosiences			
Location	Manitowoc, WI			
Crop	Pure alfalfa, 3 year stand			
Cutting	2nd			
Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	4140	2040	2100	102.9%
CP	19.30	22.66	-3.36	-17.4%
Soluble. CP				
ADF	33.50	28.91	-4.59	-13.7%
aNDF	41.80	39.41	-2.39	-5.7%
RFV	140	157	-17	-12.1%
RFQ	155	135	20	14.8%
NDFD 48hr	52.74	41.95	10.79	25.7%
Dig. Rate (Kd)	7.67	3.66	4.01	109.6%
TTNDFD				
Lignin	6.78	4.75	-2.03	-42.7%
NEL Mcal/lb				
NEg				
NEm				
Milk/ton	2842	2585	257	9.9%
Tons/acre dry	2.07	1.02	1.05	102.9%
Milk/acre	5879	2650	3229	121.8%
Ash				
Ca				
P				
K				
Mg				
S				

AgroLiquid treatment: 2.0 Hi-NRG-N + 2.0 ProGerminator + 3.0 SureK + 3.0 Kalibrate + 1.0 LiberateCa + 0.125 Mn + 0.0625 B applied foliar at 6 -8" This follows 2015 application of 6.0 Sure K applied twice (12 gal total).

Other treatment: 300# potash applied topdress 2015, no foliar

This was a "push the envelop" AgroLiquid foliar treatment that resulted in an astonishing increase in dry matter yield and milk produced/acre. The digestibility of the AgroLiquid treated alfalfa is also remarkably higher, equal to approximately 5.4 lbs more milk per cow/day! Just look at the digestion rate on line 19. Dairy nutritionists state that for each one unit increase in Neutral Detergent Fiber Digestibility (NDFD) the cow will produce 0.51 more lbs milk/day. A bit of a puzzle is that the AgroLiquid treatment showed increases in ADF and NDF. These numbers demonstrate how important it is to analyze the actual digestibility of a forage using the calibrated NIR NDFD method.

AgroLiquid Alfalfa Quality Trials 2016



Dan Peterson, Agronomic Sciences, CCA, SSp



Producer	Dairyland Seeds/Dow AgroSciences			
Location	Manitowoc, WI			
Crop	Pure alfalfa, 3 year stand			
Cutting	3rd			

Parameter	AgroLiquid	Other treatment	AgroLiquid Difference	% AgroLiquid Advantage
Dry matter yield	2320	1700	620	36.5%
CP	23.65	23.65	0.00	0.0%
Soluble. CP				
ADF	31.39	28.11	-3.28	-11.7%
aNDF	40.91	38.18	-2.73	-6.7%
RFV	147.00	164.00	-17.00	-11.6%
RFQ	163.00	155.00	8.00	4.9%
NDFD 48hr	54.28	47.05	7.23	15.4%
Dig. Rate (Kd)	7.16	4.32	2.84	65.7%
TTNDFD				
Lignin	6.36	4.81	-1.55	-24.4%
NEL Mcal/lb				
NEg				
NEm				
Milk/ton	2960	2789	171	6.1%
Tons/acre dry	1.16	0.85	0.31	36.5%
Milk/acre	3429	2353	1076	45.7%
Ash				
Ca				
P				
K				
Mg				
S				

AgroLiquid treatment: 2.0 Hi-NRG-N + 2.0 ProGerminator + 2.0 Sure K + 3.0 Kalibrate applied foliar at 6 -8". Follows 2015 application of 12.0 Sure K.

Other treatment: 300# potash 2015, no foliar

The AgroLiquid foliar treatment resulted in a substantial increase in dry matter yield and nearly 46% more milk per acre. The digestibility of the AgroLiquid treated alfalfa is higher, equal to a theoretical 3.6 lbs more milk per cow/day! Dairy nutritionists state that for each one unit increase in Neutral Detergent Fiber Digestibility (NDFD) the cow will produce 0.51 more lbs milk/day. A bit of a puzzle is that the AgroLiquid treatment showed increases in ADF and NDF. These numbers demonstrate how important it is to analyze the digestibility of a forage with a calibrated NIR NDFD test.