



Dairy Technical Bulletin

Income Over Feed Costs (IOFC) are Improved by Using Molasses and Liquid Supplements in Dairy Cattle Diets

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No doubt about it, scientific research proves that replacing starch with molasses, and liquid supplements in dairy cattle diets improves income over feed cost and ROA. Summarizing 11 university research trials from 2004 through 2012, the replacement of starch with sugar from molasses, liquid supplements or sucrose increased milk fat yield and milk protein yield. Using current milk component prices for milk fat of \$1.63/lb and milk protein of \$3.63/lb (November 2013), the average increase in milk value was \$0.70 per hundredweight. Of this increase in milk value, 42% (\$0.30) came from milk fat and 58% (\$0.40) came from milk protein. The ranges of responses for milk fat and milk protein yield from the 11 trials are presented in the table below. There wasn't a single trial where milk fat yield was not increased. In 9 of 11 trials the value of the additional milk fat was increased more than 10 cents per cow/day and the average increase in milk fat value was 30 cents per cow/day. The impact of liquid supplements or molasses on milk protein yield was either feast or famine. Milk protein yield was increased an average of 0.11 pounds which has a current value of 40 cents per cow/day. In 9 of 11 trials milk protein yield was increased between 0.044 and 0.26 pounds and this would have a value of 16 cents to 94 cents per cow/day. In 2 of 11 trials there was no increase in milk protein yield.

Trial Year	Trial Location	Starch Source	Sugar Source	Increase in Milk Fat Yield, lb/d	Value of Extra Fat Yield, \$	Increase in Milk Protein Yield, lb/d
2004	Wisconsin	HMSC	Dried Molasses	0.20	0.32	0.02
2004	Wisconsin	HMSC	Liquid Molasses	0.04	0.07	0.24
2008	Ohio Trial 1	Ground Corn	Liquid Supplement with Fat	0.24	0.40	0
2008	Ohio Trial 2	Ground Corn	Liquid Supplement with Fat	0.22	0.36	0.26
2008	Ohio Trial 3	Ground Corn	QLF TMR 20	0.18	0.29	0.04
2008	Wisconsin	Corn Starch	Sucrose	0.40	0.65	0.11
2009	Alberta, CN	Cracked Corn	Sucrose	0.20	0.32	0.09
2009	Ohio Trial 1	Ground Corn	QLF Dairy SUGR 38	0.044	0.09	0.09
2009	Ohio Trial 2	Ground Corn	QLF Dairy SUGR 38	0.13	0.22	0.20
2012	Kansas	Ground Corn	Liquid Molasses	0.09	0.14	-0.04
2012	Ontario Canada	HMSC	Liquid Molasses	0.29	0.47	0.20
Average				0.18	0.30	0.11



Feeding liquid supplements increased milk income per hundredweight by 70 cents but dry matter intake was increased in 8 of 11 trials. The average increase in DMI was 2.4 pounds. Feed costs are about 13 cents per pound of DM. So the additional dry matter has a value of 31.2 cents per cow/day. The net change in IOFC for the 11 trials was 39 cents per cow/day. For every 100 cows, this is \$1170 per month or \$14,040 per year. This additional income if invested back into the business would increase ROA.

So what is the risk to try QLF liquid supplements in the dairy diet? When you combine the value of milk fat and milk protein together, only 2 of 11 trials returned less than 25 cents per cow/day in increased income. In the trial from Kansas, DMI was not different among treatments and milk fat income was increased by 14 cents a cow/day when the diet contained 5% molasses as a replacement for ground corn. In trial 1 in 2008 from Ohio, the increase in milk value was 40 cents per cow/day but there wasn't an increase in dry matter intake among the treatments and IOFC was increased. In trial 1 in 2009 from Ohio the value of milk components was increased 39 cents per cow/day without an increase in DMI. IOFC was significantly increased in this trial. So the take home message is that right now the risk is very low to try QLF liquid supplements in the diet. Ten of 11 trials reported increases in IOFC. In 27% of the trials DMI was not increased but milk income was still increased 14 – 39 cents per cow. In 73% of the trials, DMI was increased and IOFC was increased an average of 45 cents per cow/day, ranging from 8 to 98 cents/cow/day. If you don't use QLF liquid supplements, you are leaving money on the table which is important in this time of high feed prices.

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