

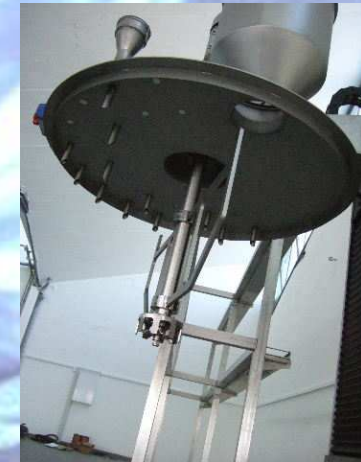
**Birmingham, 21-22/09/11**

**[www.agolin.com](http://www.agolin.com)**

# AGOLIN SA



- AGOLIN SA was founded in 2006
- Experienced management team
- Best-in-class scientific knowledge
- Launch of innovative product line in 2007
- Member of FEFANA and FFAC
- Inauguration of the state-of-the-art production facility in Switzerland, February 2008
- Successful FAMI-QS certification audit by SGS
- Certified as producer of organic products





# What are AGOLIN products?



**AGOLIN RUMINANT** is a blend of high quality plant ingredients designed to optimize feed intake and feed utilization of dairy and beef cattle.

Further product features are its pleasant smell and its physical forms:

- free flowing powders
- dispersible liquids

All compounds used in the AGOLIN products are

- in line with EU, USA and Japanese feed legislation
- of food or pharmaceutical quality and JECFA\* accepted
- GMO-free
- encapsulated or water dispersible and of high stability

More information see [www.agolin.com](http://www.agolin.com)



\* Joint Expert FAO/WHO Committee on Food Additives

# CONCEPT of AGOLIN RUMINANT



## Compounds and their influence on «Rumen Management»

### CARBOHYDRATE metabolism

Decrease of  
methane production  
+  
Increase of  
propionate-acetate  
ratio



### PROTEIN metabolism

Decrease of  
ammonia production



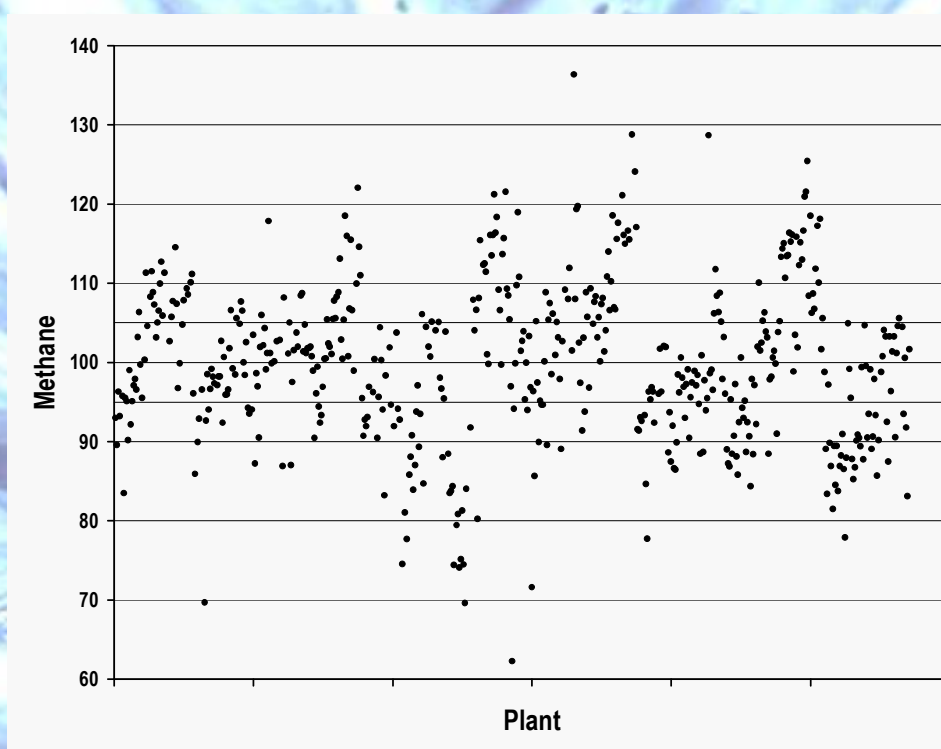
**INCREASED FEED UTILISATION**



**IMPROVED ANIMAL PERFORMANCES**



## Influence on methane production *in vitro*



- Over 500 plant additives were tested.
- Results were expressed relative to the control values.
- Up to 10 plants caused a decrease of  $\geq 25\%$  in methane production.

# Trials with AGOLIN RUMINANT



- *In situ* trials
  - Methane production
  - VFA production
  - $\text{NH}_4$  production
  - C2/C3 ratio

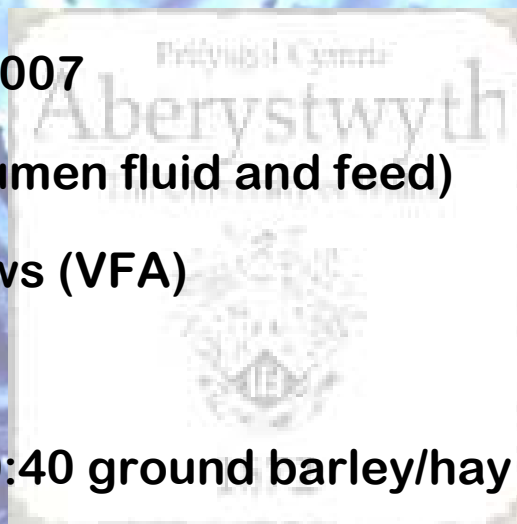




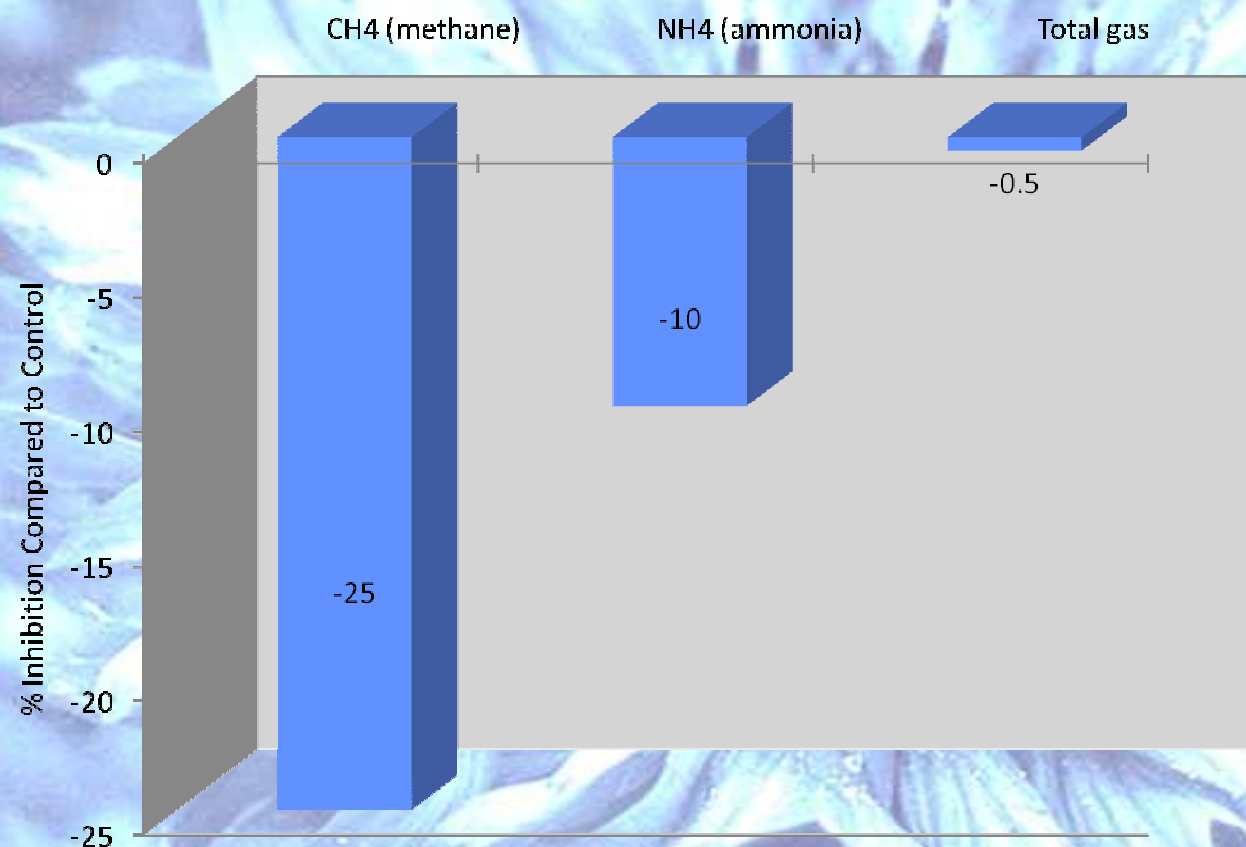
# ***IN SITU* TRIAL with AGOLIN RUMINANT**



- Univ. of Aberystwyth, 2007
- 24 h incubation time (rumen fluid and feed)
- 2 cows (CH<sub>4</sub>) and 4 cows (VFA)
- In triplicate
- “Feed” composition: 60:40 ground barley/hay mix
- Agolin Ruminant vs. control



# Effects of AGOLIN RUMINANT on Methane and Ammonia Emissions in the Rumen

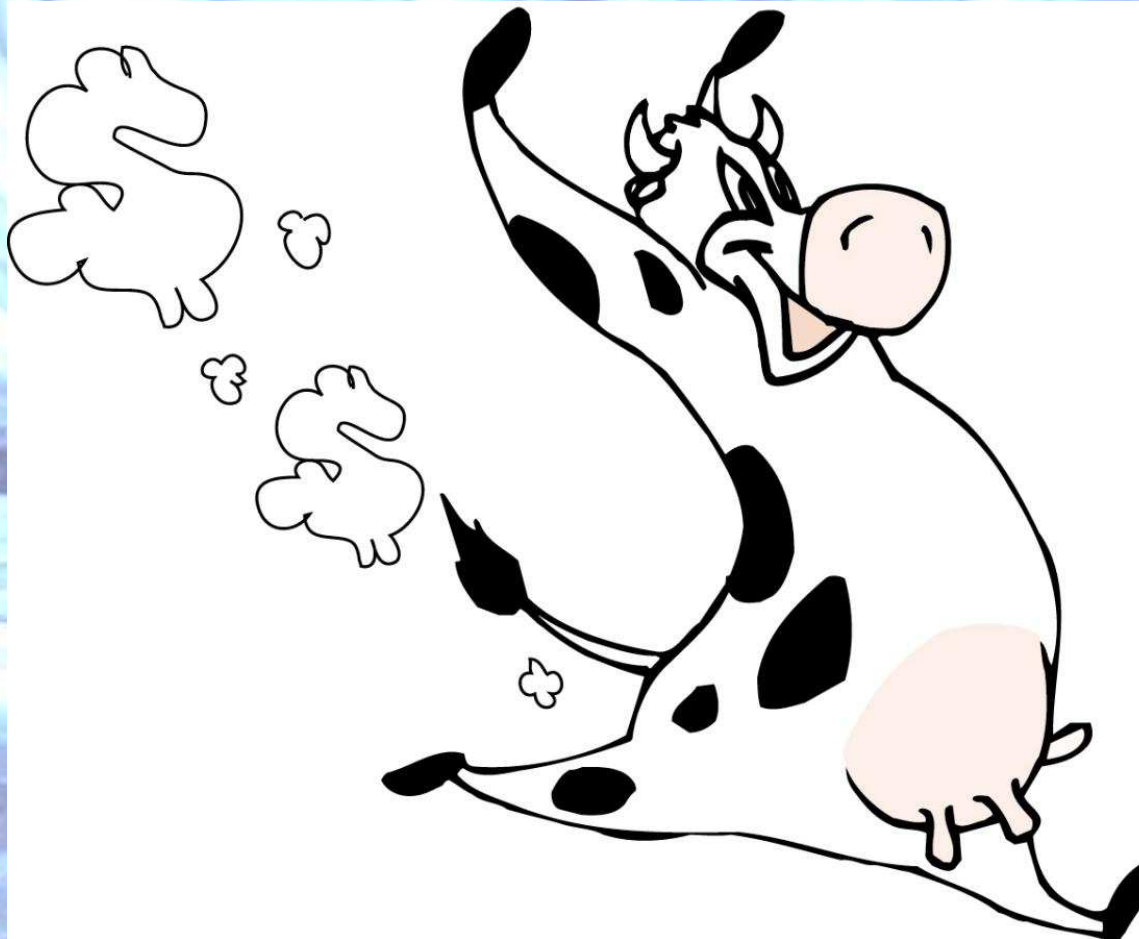


- Rate of Ammonia production reduced by 10% with Agolin.
- Rate of Methane production reduced by 25% with Agolin

Source: Univ. of Aberystwyth, UK, 2007



**Remember:  
Ruminants lose between 3 – 8% of GE as methane**



# Effects of Agolin on Rumen VFA Production



Production of Volatile Fatty Acids, micromol/g feed

	Control	AGOLIN RUMINANT	Change, %
Acetate	1925	2050	+ 6.49%
Propionate	569	640 *	+ 12.48%
Butyrate	517	544	+ 5.22%
Propionate: Acetate Ratio	0.296	0.312	+ 5.62%



# Trials with AGOLIN RUMINANT



- *In vivo* trial  
- proof of concept on lambs



# Effect of Agolin Ruminant on Methane, Propionate and Animal Performance



## Objective

Evaluate live animal methane production, propionate levels and animal performance following inclusion of **AGOLIN RUMINANT**

## Trial details

- Number of animals:** 12 castrate store lambs
- Duration:** 21 days adaptation, 3 days in metabolism chambers 20 days grow out.
- Diet:** 1.1 kg/day (fresh weight) of dry diet based on chopped hay, barley, soyabean meal, molasses and vitamins/mineral mix (50:30:10:9.5:0.5)
- Supplementation:** 100 mg/head/day AGOLIN RUMINANT to treatment group
- Trial Protocol:** Individually housed, animals were weighed weekly. Treatments were randomised between metabolism chambers to avoid any bias. Methane production was measured over three consecutive days. Rumen fluid was collected from whole rumen contents immediately at slaughter at end of trial.



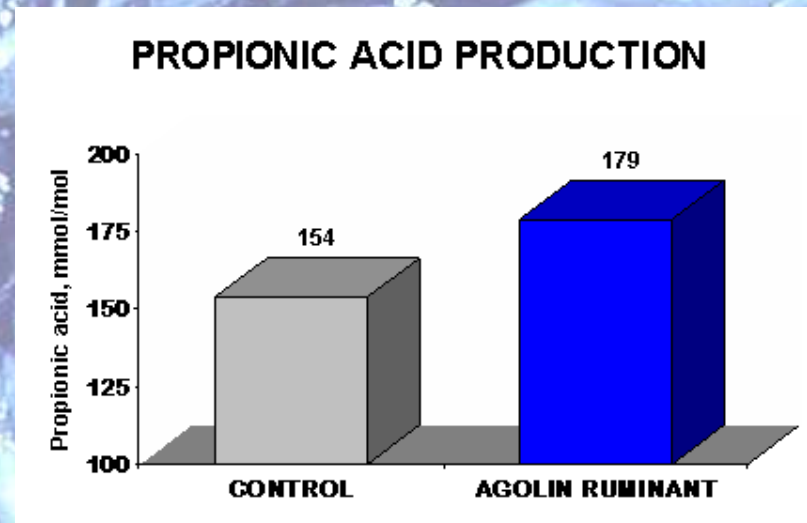
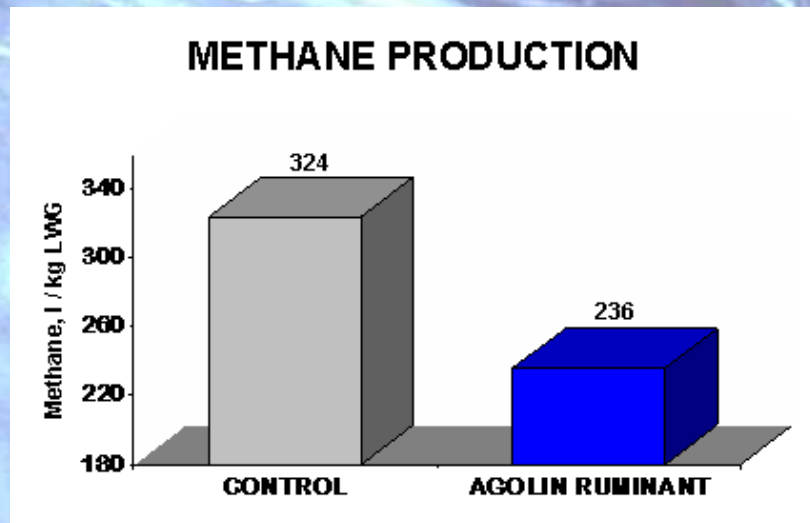


# Effect of Agolin Ruminant on Methane, Propionate and Animal Performance

## Results

**AGOLIN RUMINANT** treated animals produced 27% less methane than control animals (236 litres vs 324 litres/kg lwt gain).

Total VFA concentration in the rumen showed no significant change. However, there was a strong trend toward increased molar proportion of propionate (+16.2%) in treated animals (179 vs 154 mmol/mol).



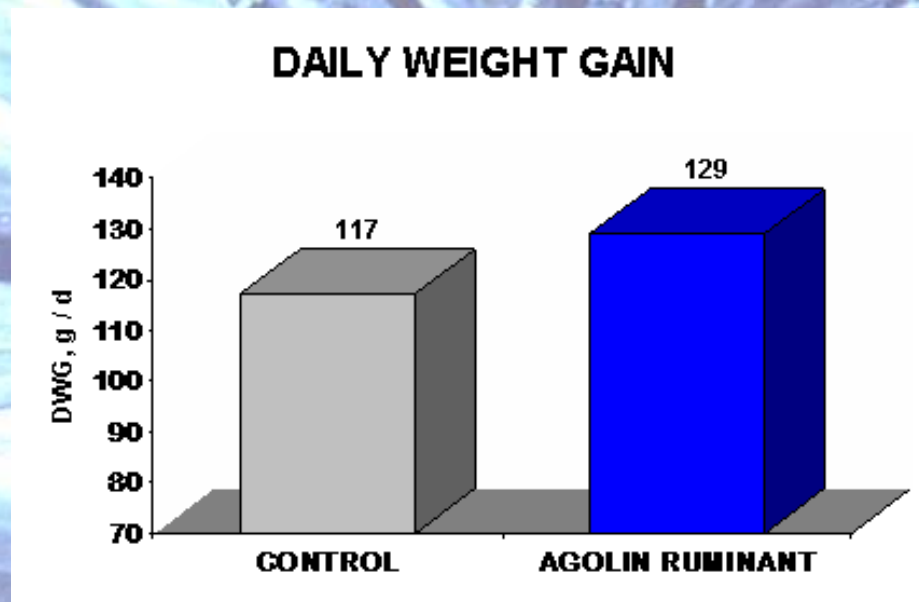
Source: University of Wales, Aberystwyth, UK, 2009

# Effect of Agolin Ruminant on Methane, Propionate and Animal Performance



## Results

Daily weight gain in AGOLIN RUMINANT treated animals was 10% higher than in the control group (129 vs 117 g/day).



Source: University of Wales, Aberystwyth, UK, 2009



# Effect of AGOLIN RUMINANT on dairy cow performance



**Trial objective** Monitor the influence of AGOLIN RUMINANT on dry matter intake, milk yield, milk protein and feed conversion efficiency.

**Location** Farm in UK with a year round calving herd of 240 cows (Holstein).

**Layout**

All cows were fed the same standard TMR during the trial

Pre-trial w/o AGOLIN (control)	trial with AGOLIN (experimental)	Post-trial w/o AGOLIN (control)
Nov. 2010 4 weeks	Dec. 2010 4 weeks	Jan. 2011 4 weeks

**Supplementation** 1.0 g AGOLIN RUMINANT / head and day.

**Duration** November 2010 – January 2011

**Data collection** TMR production was measured and recorded via KEENAN pace system every day.  
Daily milk yield measurements.

# Composition of base ration



Base Ration (per head/day)	kg
Grass silage	18.0
Wholecrop Wheat	4.0
Straw	0.5
Draff	5.5
Blend	7.5
Caustic Wheat	5.5
Molaferm 20	0.8
Limestone	0.1
Mins	0.2
Megalac	0.3
Dry matter	44.7 %



# Performance



	<b>Control (Nov. 2010)</b>	<b>AGOLIN (Dec. 2010)</b>	<b>Difference %</b>	<b>P</b>
<b>Dry matter intake, kg / head / day</b>	21.9	21.9	0	NS
<b>Daily milk yield, kg</b>	31.0	32.0	+3.3	<0.05
<b>Milk protein, %</b>	3.26	3.26	0	NS
<b>Feed conversion effic., kg milk / kg DM</b>	1.19	1.23	+3.4	<0.001

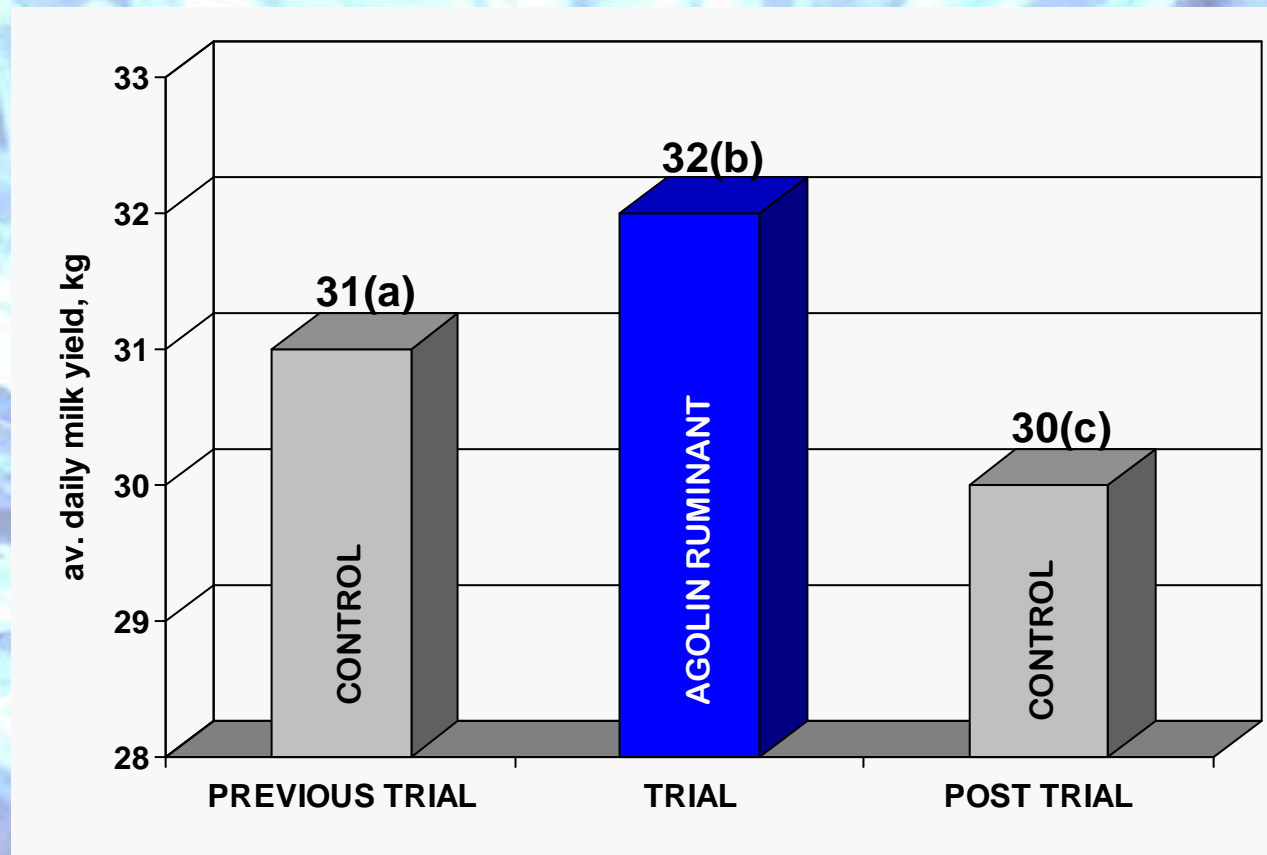
# Performance



	<b>AGOLIN (Dec. 2010)</b>	<b>CONTROL (Jan. 2011)</b>	<b>Difference %</b>	<b>P</b>
<b>Dry matter intake, kg / head / day</b>	<b>21.9</b>	21.1	<b>+3.0</b>	<b>&lt;0.01</b>
<b>Daily milk yield, kg</b>	<b>32.0</b>	30.0	<b>+5.3</b>	<b>&lt;0.001</b>
<b>Milk protein, %</b>	<b>3.26</b>	3.16	<b>+3.1</b>	<b>&lt;0.001</b>
<b>Feed conversion effic., kg milk / kg DM</b>	<b>1.23</b>	1.18	<b>+3.4</b>	<b>&lt;0.001</b>

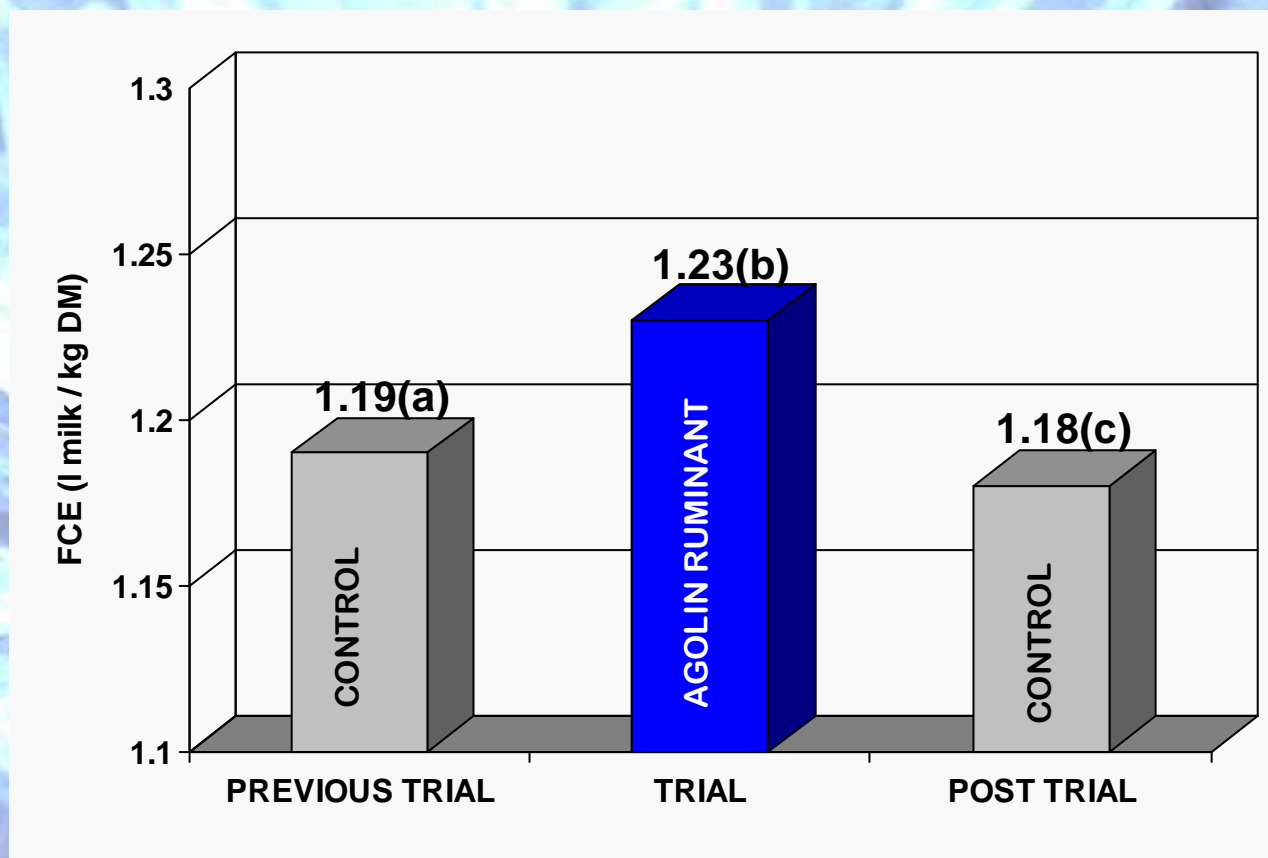


## Average daily milk yield



a, b =  $p < 0.05$   
b, c =  $p < 0.001$

# FEED CONVERSION EFFICIENCY



a, b =  $p < 0.001$   
b, c =  $p < 0.001$



# Effect of AGOLIN RUMINANT on beef cattle performance



Size of farm:	> 1000 beef cattle	
Number of animals in trial:	85 Hungarian Simmental bulls (with Agolin) 40 Hungarian Simmental bulls (without Agolin)	
Duration:	April 2008 – January 2009	
Feed ration:	Vinasse (by product of molasses)	20%
	Straw	20 %
	Concentrate*	60 %
	DM of feed ration	82 %
Nutritional values:	ME “beef“ MJ/kg ration	8.9
	g starch / kg ration	113
	g protein /kg ration	163
	g fibers / kg ration	162
Supplementation:	~200 mg AGOLIN RUMINANT / 100 kg LW / day	



\* Wheat gluten feed, malt sprout, rye bran, cereal (wheat/barley) pulp, wheat bran, rape seed cake, soya oil

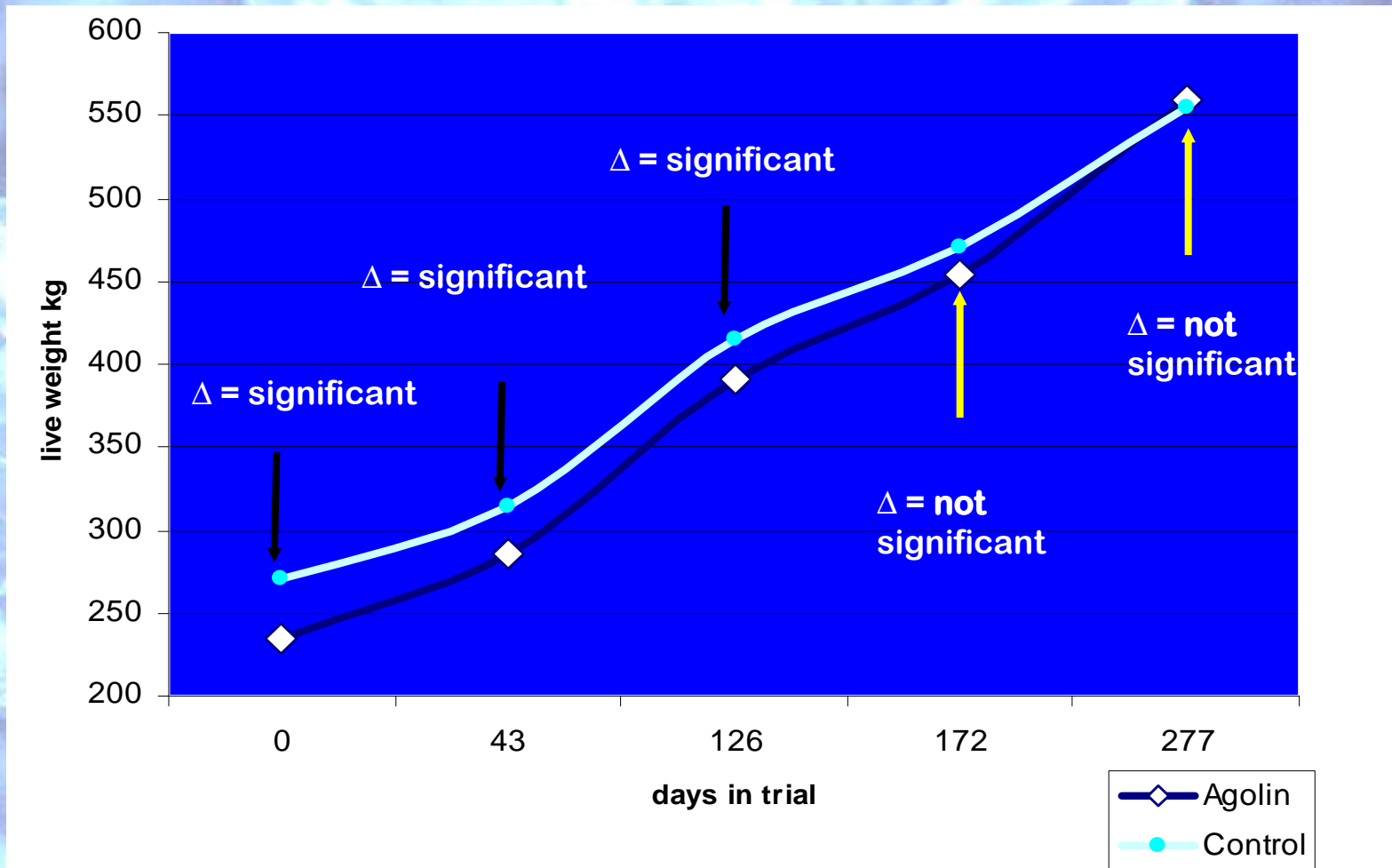
# Effect of AGOLIN RUMINANT on beef cattle performance – April 08 to January 09



	number of animals	days in trial	weight of animals (kg)		daily feed intake (kg DM)	weight gain (kg/day)	FCR
			start	end			
Group Agolin	85	280	235	559	10.25	1.16	8.85
Control group	40	272	272	554	10.32	1.05	9.90






# Live weight development



## NUTRITIONAL FEATURES and BENEFITS with AGOLIN RUMINANT

- Research trials show the following rumen responses following inclusion of AGOLIN in the feed ration:

FEATURES	BENEFITS
•  Methane <input type="text"/>	Better feed efficiency
•  Ammonia <input type="text"/>	Feed protein used for production, not lost in urine
•  Propionate : acetate	Improve feed efficiency and yield





**Some other good reasons to be interested  
in our products**



Here we work





# Region of Lake Geneva and Mont Blanc







**Thank you for your interest!**

