

Long term farm study of organic milk production at Tingvoll farm

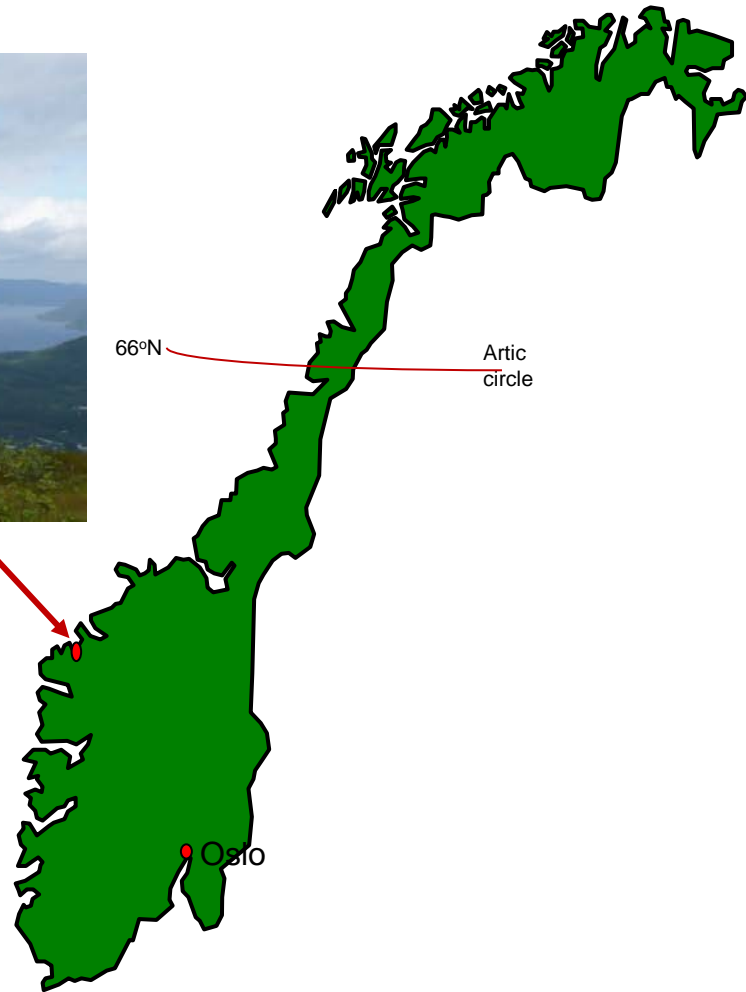


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Location of Tingvoll farm

With Bioforsk Organic Food and Farming



Tingvoll farm in 2013

- Organic milk production since 1995
- 34 ha land (27 ha arable and 7 ha pastureland)
- 22 organic dairy cows (Norwegian Red Cattle); milk quota 160 tons y^{-1}
- Objectives for the farmers are:
 - high milk yield
 - good animal welfare and health
 - high quality conserved grass-clover
 - high roughage intake
 - produce the milk quota
 - low concentrate ratio
 - good economic results without breaking up with the ecological principles

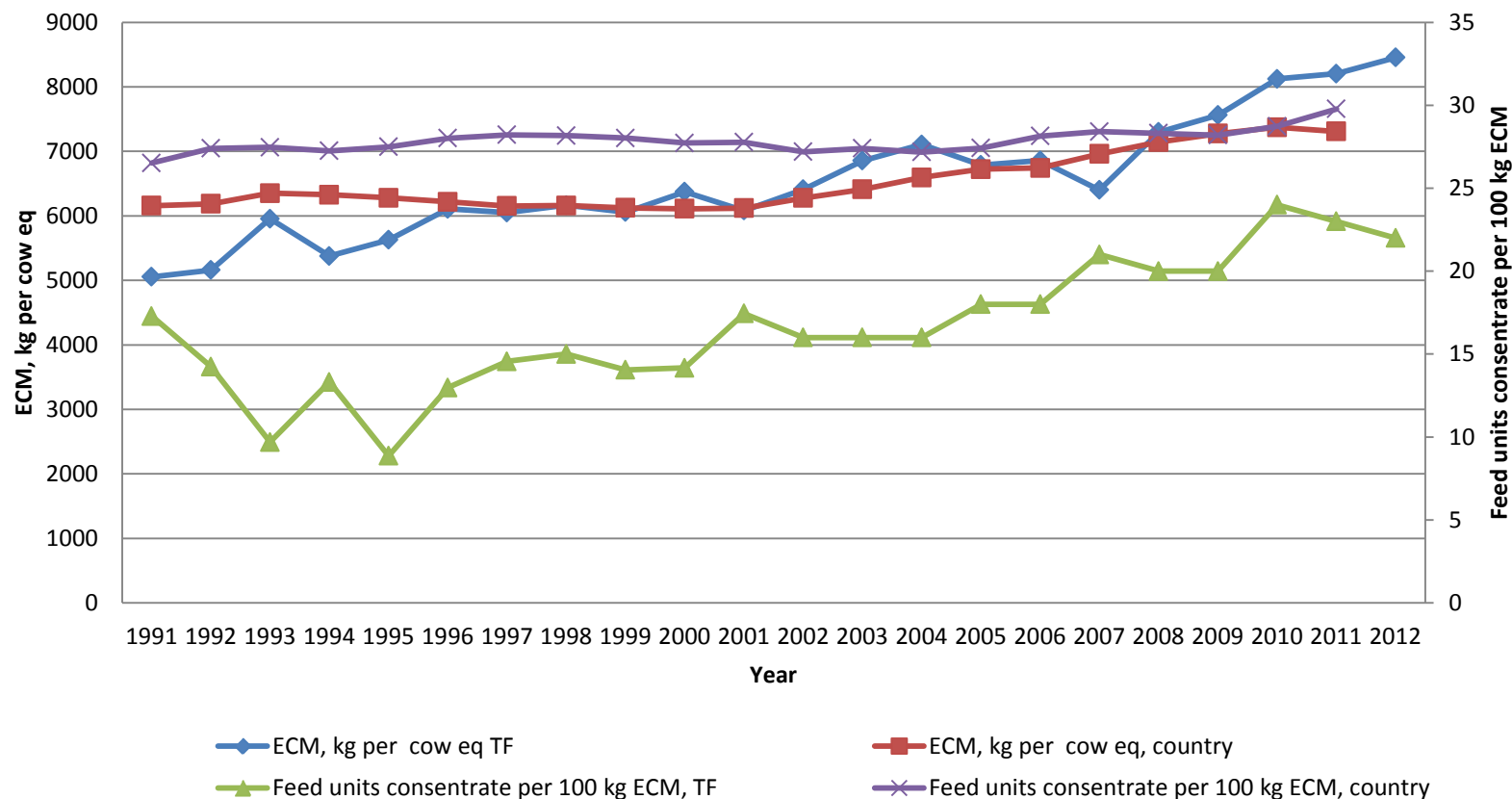


Milk yield and feed units concentrate per cow eq at Tingvoll farm, at organic dairy farms in Norway and at all dairy farms in Norway

	2002			2008			2012		
	TF	Org	Country	TF	Org	Country	TF	Org	Country
No. of herds	1	249	17 137	1	281	11 794	1	344	10 229
Cow eq. per herd	13.6	15.8	15.3	19.9	23.1	19.8	21	28.8	23.5
Kg ECM / cow eq	6410	5024*	6278	7 300	6 448	7 144	8 544	6 947	7 507
Feed units concentrate/100 kg ECM	16	17*	27	20	22.8	28.3	22	25.9	30.6

* Not energy corrected milk

Kg energycorrected milk per cow eq and feed units concentrate per 100kg ECM



Composition of the feed ration for dairy cows at Tingvoll farm in 1996 and 2012, on a feed unit basis.

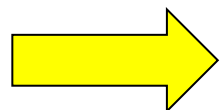


	Year 1996	Year 2012
Total number of feed units	5 118	5 739
% concentrate	15.5	32.9
% pasture	36.8	13.7
% silage	37	53.4
% hay	9.2	
% potatoes	1.5	
% other feedstuffs	0.1	

Feed quality, 1st cut, Tingvoll farm in 1996 and 2012



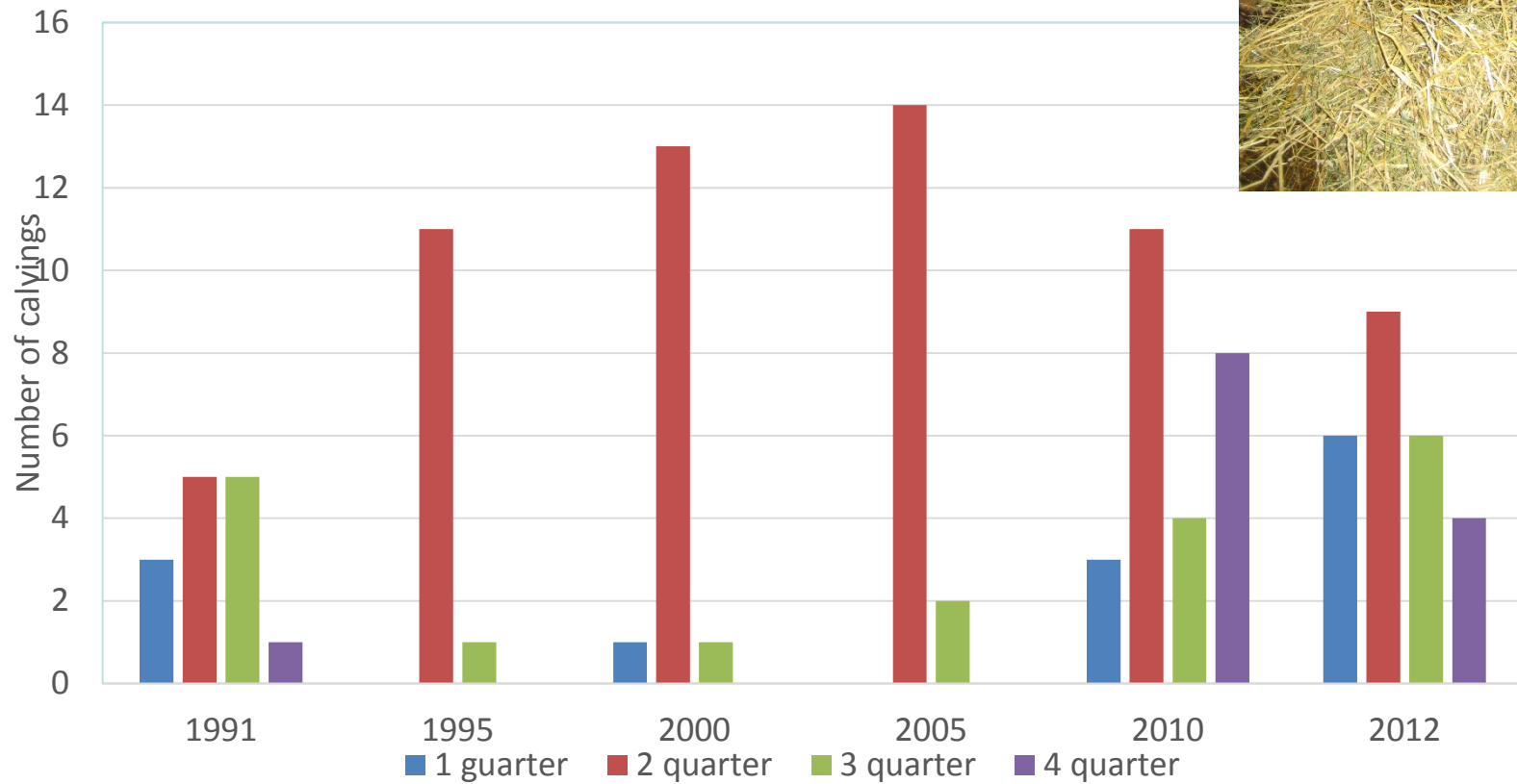
	1996	2012
DM (dry matter), %	18,0	18,7
CP (crude protein), g/kg DM	110	140
Feed unit/kg DM	0,78	0,83
NDF (neutral detergent fibre) g/kg DM		485
iNDF (indigestible NDF) g/kg DM		97
AAT (amino acids absorb in intestine) g/kg DM	73	75
PBV (protein balance in belly) g/kg DM	-27	+2



The feed quality in 2012 give a better basis for high roughage intake per cow than in 1996



Calving season



Fat and protein in milk

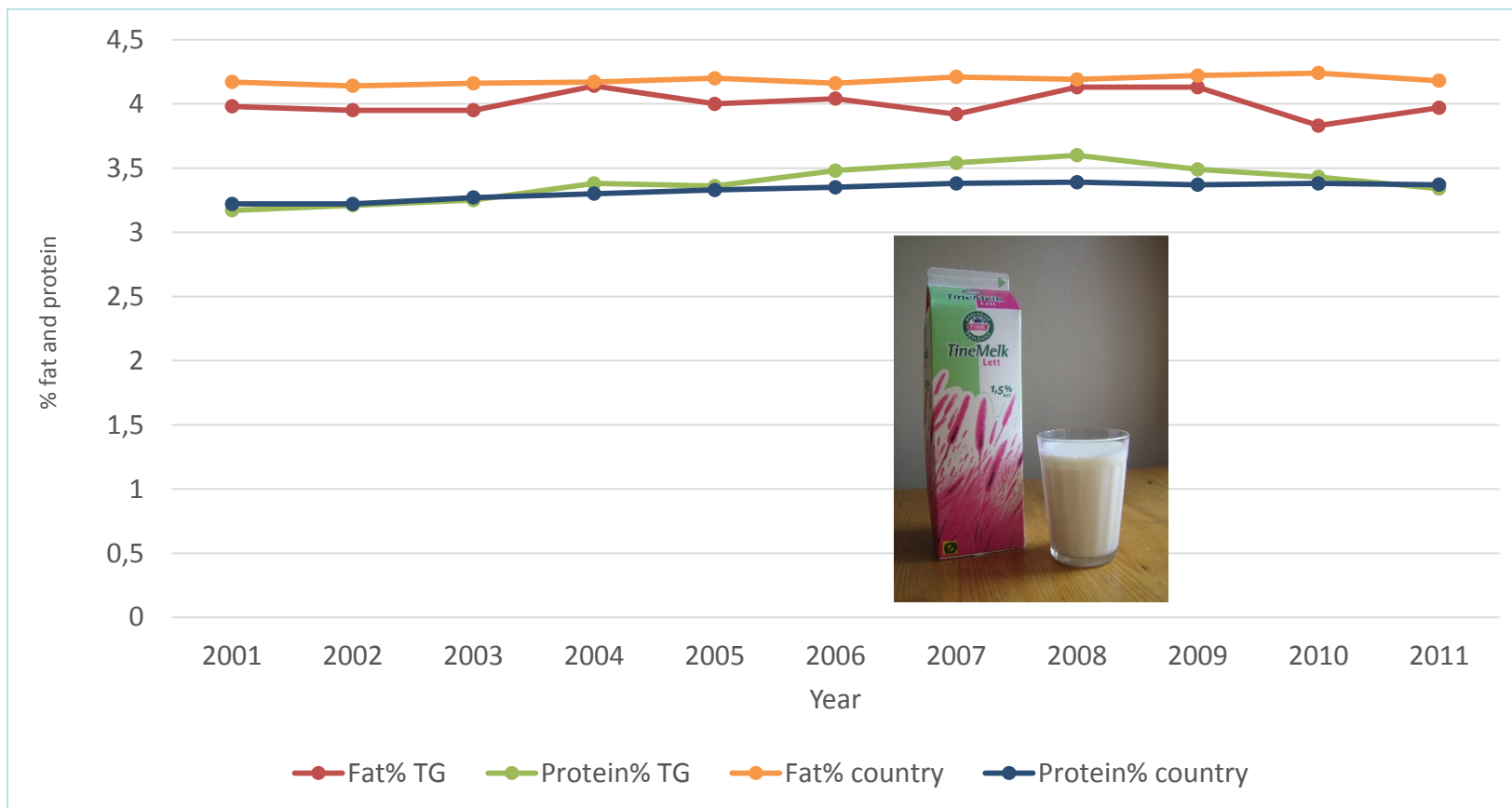


Foto: G.L. Serikstad, Bioforsk

Feeding strategy



- Alternate between roundbales from 1st and 2nd harvesting
- Grazing season from 15.mai – 15.sept
 - Grazing during the day
 - inside during night eating roundbales and concentrate





Health



- The average age of the herd is now 4,3 years, decreased from 6 years.
- The fertility has varied a lot from year to year
- Milkfever: some incidents when the average age was high
- Ketosis: Not after 2005
- Clinical mastitis: A lot from 2004 to 2010, why? Few incidents in 2011 and 2012 (consequences of new cattle barn?).

Conclusions

- Milk yield and concentrate consumption per cow increased during the study period both for organic and conventional dairy farms
- Milk yields at Tingvoll farm were higher and concentrate input lower than average for all Norwegian dairy farms
- **It is possible to have high milk yields with moderate concentrate inputs in organic milk production**



Looking forward

- The farmers wants to achieve a farming system that goes beyond the regulations for organic farming
- An important aim is to increase the roughage area and to decrease the concentrate input
- Good economic results

