



Milk production in Estonia

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Estonia

- Estonia is one of the Baltic countries
- Independence 1991, EU member since 2004
- Technologically very advanced
 - First ever internet elections
 - Home of skype
 - Internet seen as human right



Milk – a sector under siege

- Internationally low milk prices pushed many farmers out of business

- At its lowest point, raw milk sold at 0.12-0.17EUR/l

- As a result

- Country is self-sufficient in drinking milk only
- Milk for processing is imported e.g. from Latvia

- Milk products are exported to Latvia, Finland and Russia

Aasta Year	Aastalehmi <i>Avg. no. of cows</i>						Kokku Total
	Eesti punane (EPK) <i>Estonian Red (ER)</i>		Eesti holstein (EHF) <i>Estonian Holstein (EHF)</i>		Eesti maotõug (EK) <i>Estonian Native (EN)</i>		
	arv no.	%	arv no.	%	arv no.	%	
1965	116184	69,2	50750	30,2	877	0,5	167811
1970	151100	68,7	67628	30,8	1131	0,5	219867
1975	168053	66,0	85452	33,5	1198	0,5	254703
1980	162153	61,8	99308	37,8	984	0,4	262445
1985	146781	56,4	112643	43,3	945	0,4	260369
1990	121125	49,1	125235	50,7	566	0,2	246926
1995	49285	38,0	79767	61,5	555	0,4	129607
2000	29875	29,3	71799	70,3	443	0,4	102117
2001	27981	27,5	73173	72,0	481	0,5	101636
2002	26874	26,6	73462	72,8	505	0,5	100841
2003	26314	25,9	74981	73,7	490	0,5	101785
2004	26571	26,3	73781	73,1	538	0,5	100890
2005	26607	26,5	73261	73,0	537	0,5	100405
2006	25348	25,6	72894	73,7	544	0,5	98947
2007	23842	25,0	70816	74,2	514	0,5	95398
2008	22357	24,1	69599	75,1	517	0,6	92698
2009	20578	23,3	68058	76,1	475	0,5	89389

Business strategies

- Diversification in products derived from milk
 - Farms adding own processing and distribution of
 - Yoghurt
 - Cheese
 - Kefir and other products
- Diversification by adding other crops or production systems
 - Horses
 - Pigs
 - Seeds
- Direct sales of milk products through farm shops, farmers markets etc
- Agro-tourism

Structure of the sector

- Dairy sector in Estonia is run professionally, with herd sizes peaking at 11-50 heads
- Other than in neighbouring countries, dairy farms are not managed by “hobby” farmers

Karja suurus, lehma Herd size	1990		1995		2000		2005		2009	
	arv no.	Karjade Herds %	arv no.	Karjade Herds %	arv no.	Karjade Herds %	arv no.	Karjade Herds %	arv no.	Karjade Herds %
1...2			871	29,8	676	21,1	407	20,0	103	10,1
3...4			615	21,1	567	17,7	235	11,5	52	5,1
5...6			301	10,3	408	12,7	170	8,3	73	7,1
7...8			205	7,0	307	9,6	182	8,9	61	6,0
9...10			136	4,7	215	6,7	128	6,3	57	5,6
11...50			291	10,0	693	21,6	585	28,7	375	36,6
51...100			127	4,3	99	3,1	91	4,5	95	9,3
≤100	7	2,1	2546	87,2	2965	92,3	1798	88,3	816	79,7
101...300	24	7,1	278	9,5	169	5,3	155	7,6	122	11,9
301...600	107	31,5	74	2,5	57	1,8	62	3,0	61	6,0
601...900	114	33,4	14	0,5	13	0,4	13	0,6	17	1,7
901...1200	54	15,9	5	0,2	3	0,1	3	0,1	4	0,4
>1200	34	10,0	3	0,1	4	0,1	5	0,2	4	0,4
Kokku Total	340	100,0	2920	100,0	3211	100,0	2036	100,0	1024	100,0

Breeds and yield

- In Estonia, mainly three dairy breeds:
 - Estonian Holstein (75.1%)
 - Estonian Red (24.1%)
 - Estonian Native (0.6%)
- Excellent milk yields
- on average 7,447 l/lactation
- Champion cow: 19,000l/lactation!



<i>Country</i>	<i>Reported yields [l/lactation or year]</i>	<i>Source</i>
Malaysia	2631.3	DVS, 2008 data
Central Thailand	ca. 3500 (average over 520 first lactation cows)	Kasetsart J. (Nat. Sci.) 43 : 74 - 82 (2009)
	ca. 4100 (for breeds including Friesian)	
Australia	5750	dairyaustralia.com , 2008/9 data
United Kingdom	8202	DEFRA, 2008/2009
United Kingdom	8202 (national average)	Centre for Dairy Information, Breed Performance Statistics 2007
	8705 (Holstein only)	
	6827 (Friesian only)	
Germany	6628	Statistisches Bundesamt, 2008 data
Estonia	7447	2009 data; average over all breeds

Robotic milking

- Estonia has a considerable number of milking robots
- Robots measure
 - Total milking time
 - Milk flow rate
 - Total milk quantity
 - Feed dispensed in robot
 - Milk temperature
- Lely Astronaut sells for about 110,000EUR
- On Aravete Agro OÜ Mägise farm
 - 8 robots
 - 70 cows/robot

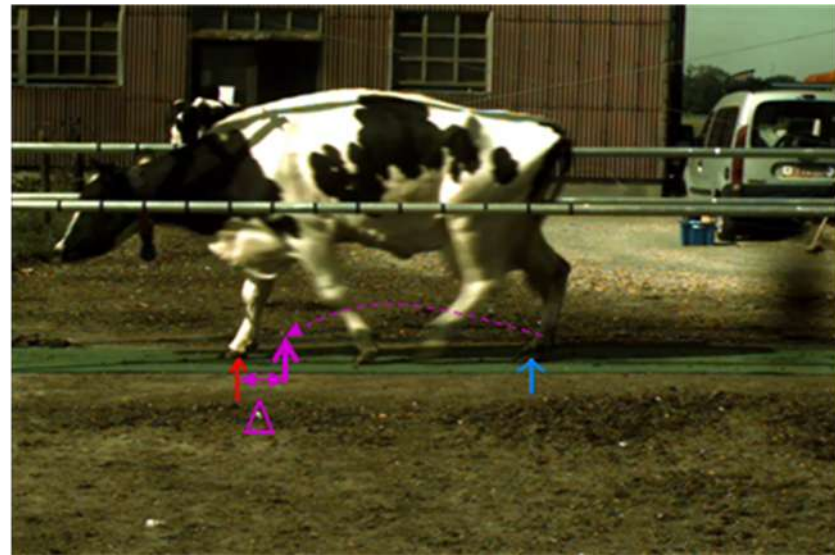


Robotic milking

- Purely economic argument difficult to sustain, but
 - Access to skilled milkers is not easy in Estonia
 - Most salary workers in agriculture have very little education and low motivation
 - The error rate of salary workers is high
 - The milk yield is about 10% higher than with standard milking parlours (Aravete reports a practical 6% increase in yearly yield)
 - Higher milking frequency could indicate that cows generally appreciate free access to milking services
- But there are also non-financial challenges with robotic milking
 - 10% techno-unfriendly cows (can be reduced by guiding traffic)
 - Higher somatic cell count

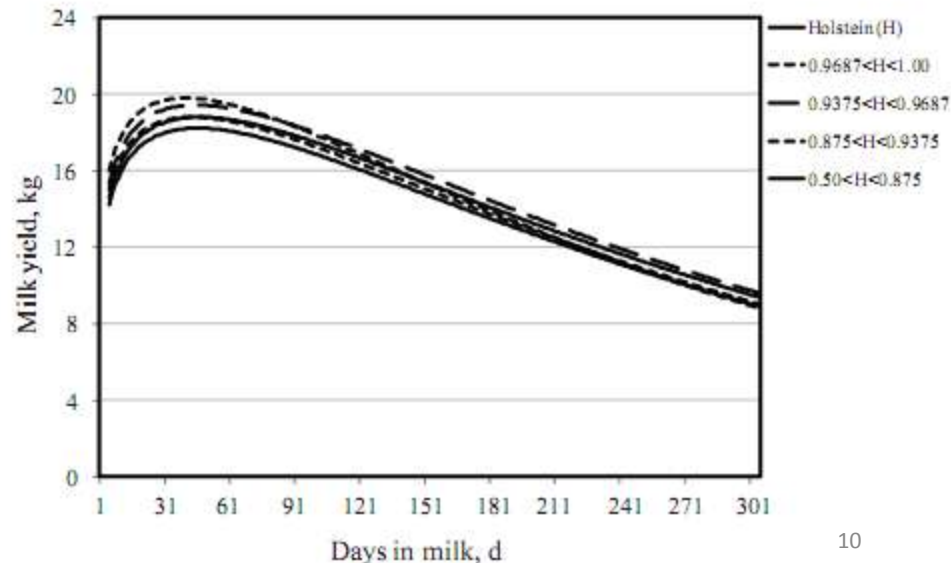
Image based lameness analysis

- Research carried out by Daniel Berckmans' group in conjunction with Eesti Maaülikool
- Lameness is caused by
 - Physical injuries when the foot collides with the infrastructure
 - Infections
 - Acidity of manure
- Mainly a welfare problem, but affects milk yield
- Very common problem in zero-grazing systems
- In Estonian farms, lameness is largely detected by experienced milkers
- Others treat it as a minor issue



Precision feeding

- Feed is single largest expense in most animal production systems
- Also linked to animal health and welfare and one of the five freedoms
- Milk production is linked intimately to feed
- Capability to cope with high or low temperatures also linked to feed
- There are three basic systems that try to optimise feeding for cows
 - Feed groups based on position in the lactation cycle
 - Feed groups based on milk performance
 - Fully individual feeding
- But: cows are social animals



Automated climate control

- In Estonia, temperature ranges from below -30°C to $+30^{\circ}\text{C}$
- The use of uninsulated sheds has become common
- Temperatures rarely drop below 10°C in such sheds
- No negative influence on milk yield
- Inflatable walls are used in the most modern sheds
- Ventilators are used in some places to improve the air quality



Identification of animals

- Estonian farms are registered centrally and receive a total milk quota per year which includes
 - Own consumption
 - Own processing
 - Fresh milk sales
- Farmers can handle the number of animals freely under the quota



Identification of animals

- Within approximately 10d of life, all cattle have to be tagged with a double plastic ear tag. Tags are issued by the Estonian Animal Recording Centre at about 4EUR.
- Recorded is
 - Owner
 - Farm
 - Movements between farms
 - Use
 - Beef cattle
 - Dairy cattle
 - Suckling cow
 - Birth date
 - End of life (slaughter, death etc)
- (At least on one farm this was not the usual practice. Animals were tagged only when their first lactation begins.)

EU identification systems

- Bovine identification in Europe is regulated in regulation EC/911/2004.
- This sets a framework, but leaves member states to provide more detailed regulations
 - The first two characters should identify the country
 - Following there should be a numeric code of *up to 12* digits
 - A barcode may be added
 - A replacement tag may be marked as such
 - Italy receives the right to issue 3 more letters, which do not form part of the numeric code.
- As a result, each member state is allowed some liberty in the coding system
 - Estonia uses a 10-digit code as Germany and France,
 - Denmark uses 11 digits and the UK 12 digits.
- A clear breach of good identification practices

The cattle passport

- Passport is issued upon export
 - Owner history
 - Veterinary history
 - Pedigree
 - Laboratory monitoring, if required
- Regulated in EC/911/2004, but again no detailed specifications
- Some countries re-issue a passport upon entry (“change of nationality”)
- There is no equivalent standard to ICAO’s Doc 903 for machine readable passports of humans



Consumer traceability

- On the consumer end, traceability is used for two consumer labels in Estonia
 - Made in Estonia
 - Taste of Estonia
- The labels are managed by the consumer organisation (epkk.ee)
- “Made in Estonia” requires that all main ingredients come from Estonia with exception of those that are not produced in the country (such as spices etc).
- “Taste of Estonia” allows for imported ingredients that are processed in the country
- Both labels are reportedly very successful.





THANK YOU FOR YOUR ATTENTION

FoodReg 

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