





Cost-benefit tool Animal Health: Failure and Preventive Costs

Seminar



"Animal health in organic dairy farming in Poland"

15th of March 2016, Radom





This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration.



Animal Health Economics

- Animal health is becoming more and more important
 - Volatile milk prices
 - Increase feed costs
 - Profit margins declined

Economics is about making the right decision







Economic Effects of a Disease

- Expenditures (additional resources)
 - Drugs
 - Veterinarian
 - Labour
 - Expenditures to control disease

- Losses (decrease in production)
 - Decreased production level
 - Discarded milk
 - Changes in milk price (milk quality)
 - Culling

- Farmers tend to look at expenditures
- 90% of studies only look at losses





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Failure costs

- Costs directly caused by the disease
 - Reduced milk production
 - Discarded milk
 - Labour
 - Culling
 - Treatment (antibiotics)
 - Veterinary visits







Preventive costs

- Preventive costs: Costs to reduce the level of disease
 - Example prevention measures mastitis
 - Cleaning cubicles
 - Cleaning dirty udder
 - Milker gloves
 - Drying off
 - Post milking teat disinfection
 - Fixing cow after milking







Study on failure costs

- Data collection: April August 2014
- Aim: To estimate the costs of four production disorders (*mastitis, lameness, ketosis and metritis*) for each farm

- Similar costs components for each disease
 - Milk production losses (clinical/ subclinical)
 - Discarded milk (due to antibiotic use)
 - Treatment (vet. visit, medication, labour)
 - Culling and destruction







Assumptions based on research studies

- Different **assumptions** for each disease e.g.:
- Expected milk production losses
 - Mastitis 5% of 305d yield
 - Severe lameness 8% of 305d yield
- Treatment time
 - Mastitis approx. 45 min per case
 - Ketosis approx. 70 min per case







Farm specific input data

- Technical input
 - Herd records (# cows, milk production)
 - # clinical cases
 - # subclinical cases (SCC)
- Financial input
 - Milk price (€ / kg milk)
 - Feed price (€ / kg milk)
 - Labour costs (€ / hr)







Average failure costs of the diseases per farm

	DE	ES	FR	SE
Mastitis	8,050€	10,613€	6,363 €	11,100 €
Lameness	4,579 €	2,565 €	3,391 €	3,357 €
Ketosis	2,152 €	345 €	643 €	2,405 €
(Endo)metritis	2,060 €	477 €	280 €	461 €

- Mastitis highest absolute impact
- Metritis and ketosis lowest absolute impact
- Costs are different between farms (varying herd size and cases)







Difficult to estimate failure costs

to give an example:

71 % of German dairy farmers underestimated costs of mastitis (approx. -€ 3,478/yr)

87 % of Spanish dairy farmers underestimated costs of mastitis (approx. -€ 7,756/yr)

71 % of Swedish health advisors and 80% Swedish veterinarians underestimated the costs of ketosis (approx. - €1,811 and € 1861/yr)







Failure Costs versus Prevention Costs







the European Union's Seventh Framework Programme for research, technological development and demonstration.



Higher benefits than costs







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Higher costs than benefits







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Cost-Benefit Module

Cost-benefit module animal health press continue to start

This cost-benefit module has been developed as part of the EU 7th Framework project IMPRO





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What can you do with it?

- Determine the current failure costs
- Determine the **preventive costs**
- 4 different diseases
 - Mastitis
 - Lameness
 - Ketosis
 - (Endo) metritis







Data requirements – herd health status







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Data requirements - treatments







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Data requirements - economics

 Milk price Feed price (concentrate & roughage) Replacement costs Value of labour 	ry cows have been treated by a veterinaria ry cows have been showing signs of early ry cows have been showing signs of late m received milk price/ costs last year? feed price/costs (including concentrates r labour?	Input Unit an for Ketosis on you 1 # cows / year metritis? Diagnosis a 35 # cows / year metritis? Diagnosis af 7 # cows / year $\underbrace{\in 0,41}_{\notin 0,21} \notin kg milk$ $\underbrace{\in 0,21}_{\notin kg milk} \notin kg milk$ $\underbrace{\in 0,21}_{\# 0,21} \notin kg milk$ $\underbrace{\in 0,21}_{\# 0,21} \notin kg milk$ $\underbrace{\in 0,21}_{\# 0,21} \notin kg milk$ $\underbrace{\in 0,20,00}_{\# 0,21} \notin kg milk$
W	hat was the average replacement value of a dairy cow last yea hat were the average costs of destruction of a dairy cow (incl. hat was the average received slaughter price for a dairy cow la	euthanasia, on-farm € 71,00 € / dairy cow st vear? € 500.00 € / dairy cow
	hat percentage of your total number of dairy cows has been re	eplaced last year by a 28 %
	nat was the amount of penalties to be paid last year as a const that was the amount of bonus received last year as a conseque	equence of an elevat € - €/year nce of a low SCC?* € - €/year
Dead cows and cullings d	ue to	
dispasos	have been culled from your farm for one	of the Mastitis 23 # cows / year
01360365	ify per disease?	Lameness 30 # cows / year
		Ketosis 0 # cows / year
		(Endo) Metritis 11 # cows / year
11	w many dainy court have died on your farm for due to one of	
Ho	t year inlease specify per disease?	Lameness 0 # cows / year
	ryear, prease spearry per alsease.	Ketosis 0 # cows / year
		(Endo) Metritis 0 # cows / year





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Overview on failure costs

	Overview losses of udder health					
						Totals
	Milk production losses	Clinical cases	€	0,01		
		Subclinical cases	€	0,25		
					€	0,26
	Costs of discarded milk (due to antibiotic treatment)		€	0,01		
					€	0,01
	Costs of treatment (only clinical cases are treated)	Veterinarian	€	38,50		
		Medication	€	616,00		
		Homeopathic treatment	€	218,75		
		Labour	€	525,00		
I otal costs per d	isease complex				€ :	1.398,25
CHINAR BUTNIA BUTNIA BUTNIA AUTOMA BUTNIA BUTNIA BUTNIA BUTNIA BUTNIA BUTNIA BUTNIA			€ 2	9.900,00		
					€ 29	9.900,00
	Estimated total costs of udder health		€ 3	1.298,52	/yea	ar
	Mean costs per cow		€	3,50	/cov	v/year
	Mean costs per clinical case	the state of the s	€	894,24	/ cas	e / year
		- 1997 ON CONTRACTOR AND INFORMATION AND AND AND AND AND AND AND AND AND AN	RECORDERON	elan partikelandan mandal dara sastadar	activities and a second se	an an air an
Costs per clinical	case					





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Overview on failure costs







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Failure costs / year for 4 disease-complexes

Disease complex	Estimated total costs	Mean costs per clinical case
Udder health	31,298 €	894 €
Lameness	40,296 €	959 €
Ketosis	86 €	1€
(Endo)metritis	15,508 €	369 €





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Profitability assessment

Revenues – Costs = Profit



 Based on milk recording data (lactation curves, feeding days), costs and revenues are related to the performance of culled and non-culled cows.





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Profitability assessment

Total results per lactation				
Lactation	L1 + L2	> L3	sum	
Cows	134	143	277	
Farm profit (€)	-11.470	17.837	6.366	
Reference value IMPRO farms NL	36	422	262	

 Based on milk recording data (lactation curves, feeding days), costs and revenues are related to the performance of culled and non-culled cows.

Results for culled cows per lactation					
Lactation	L1 + L2	> L3	sum		
Cullings	7	16	23		
Share in cullings per total cullings	30,4%	69,6%	100,0%		
Farm profit (€)	-7.657	-10.950	-18.607		
Reference value IMPRO farms NL	-2.200	-1.712	-1.810		

Results for living cows per lactation				
Lactation	L1 + L2	> L3	sum	
Cows analysed (non-culled)	127	127	254	
Share in non cullings per total non cullings	50,0%	50,0%	100,0%	
Farm profit (€)	-3.813	28.786	24.973	
Reference value IMPRO farms NL	133	641	416	

take home message

- Failure costs are underestimated

 → The better the data (e.g. records on diagnosis, culling reasons, treatments) the more accurate the results
- Costs are different between farms
 → Farm specific data analysis farm specific solutions
- Prevention has effect on several disease complexes
 → Estimation of preventive costs of farm specific
 measures
- Tool becomes available (currently in a test-phase): www.impro-dairy.eu





