

A financial cost-benefit analysis of the “Healthier goats” program to Norwegian dairy goat farmers

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EAAP 2011, Stavanger



Norwegian School of Veterinary Science



NILF

Norwegian Agricultural
Economics Research Institute

Norwegian goat production

- 430 goat milk herds, 38 000 dairy goats
- 770 other herds, 30 000 goats (mainly fibre and some meat production)
- In addition an unknown number of small husbandries with "hobby goats" not receiving subsidies from the Government

The "Healthier goats" program

- Program for disease sanitation in Norwegian goat herds
- Initiated by Norwegian Goat Health Service in 2001 (still running)
- Financed by the government – farmers get a lump-sum compensation per sanitized goat
- Voluntary participation; introduced policy instrument from 2012 i.e. reduced milk price to non-sanitized herds
- Status pr. August 2011: 432 herds participate, 346 milk goat herds 86 other herds (mainly Cashmere, Boer, Mohair)

Diseases in the "Healthier goats" program



Paratuberculosis
(Johne's disease)



Caprine Arthritis Encephalitis
(CAE)



Caseous lymphadenitis (CLA)



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“Healthier goats” program, organisation and regulations

- The project rely on strict organisation and detailed regulations (<http://geithelse.tine.no/English>)
- Farmers sign a committing contract with the project giving them free access to advising, serum sampling and analyses
- Local veterinarians and husbandry advisors from TINE are contracted by the project

Sanitation method

- Serological screening of goat herds
- **“Snatching” method** (Heavily infected herds):
 - Remove fetus directly from the birth canal (without contact with the mother or the environment).
 - Raise snatched kids in a clean and disease-free stable (using cow colostrum and milk replacer)
 - Slaughter out and rebuild the herd from snatched kids
 - Cleaning/desinfection of buildings
- **Slaughter-out method** (<10% CAE, no CLA or Johne’s):
 - Only infected animals are removed from the herd
 - Continue production as before
- All herds are under disease surveillance for five years after sanitation

The financial cost-benefit analysis (1)

Financial cost-benefit analysis (CBA) is about the profitability and financial feasibility of the project to the key participants.

Levels of interest affected by the “Healthier goats” project:

<i>Level of interest</i>	<i>Costs</i>	<i>Benefits</i>
Government	Yes	Yes
Consumers/markets	Yes	Yes
Processors/industry	None or limited	Some potential
Goat farmers	Yes	Yes

The financial cost-benefit analysis (2)

Farmers costs

- Work load to snatch and raise the kids
- Separate feeding of snatched kids
- Investments in farm buildings
- Increased feeding costs due to higher yields

Farmers benefits

- Sanitation results in higher milk yields
- Improved milk quality
- Lower replacement costs



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Material (1)

- Questionnaire to 24 goat farmers (answers from 19)
- Herd data from TINE Goat Herd Control Database and TINE Efficiency Control Database
- Studies on milk yield and quality by Hardeng et al 2009a and 2009b (Husdyrforsøksmøte, Norway, 2009)
- Handbook of Farm Planning 2009/2010, NILF
- Expert opinions

Material (2)

Assumptions and inputs:

- Adjustment of production to the milk quota
- Snatching and raising kids etc. requires 28.4 h/goat
- Herd age composition adjustments over five years
- Feed and work are valued at market prices
- Replacement rate lowered to 25.4 % from 32.2 %
- Annual milk yield +21 % (from 627 to 756 kg) (adjusted for control)
- Milk price: NOK 8.29/l (EUR 1.07/l)
- Calculations performed with and without governmental support

Method

Calculation of Net Present Value (NPV)

$$NPV = \sum_{t=1}^T \frac{C_t}{(1+r)^t} - C_0$$

- C_t = net cash flow, t = time of cash flow, r = rate of interest (4.5 and 6.5%)
- T = Time period 5, 10 and 20 years
- C_0 = net investment costs to farmers after deduction of program support
- NPV is calculated using MS Excel



Results

Financial cost benefit analysis of the Healthier goats program. NPV in NOK 2009

	With governmental support		Without governmental support	
Years	r = 4.5 %	r = 6.5 %	r = 4.5 %	r = 6.5 %
5	kr -31 926	kr -48 306	-257 723	-274 103
10	kr 293 320	kr 231 744	67 522	5 947
20	kr 763 297	kr 585 009	537 499	359 212

Discussion

- The health status of Norwegian dairy goats has improved due to the “Healthier goats” project
- Snatching is resource demanding and expensive
- Surveillance in sanitized herds is crucial
- Aim to handle new cases (including re-infections) with slaughtering in a goat disease control program

Conclusions

- "Healthier goats" enables farmers to sanitize and rebuild new herds
- Sanitation by snatching without project support would be less financially feasible
- Welfare of goats is improved
- "Healthier goats" has prepared the ground for a future disease control program in the Norwegian goat population
- The project has likely improved the competitiveness of Norwegian dairy goat farming
- Economic cost-benefit and risks to be addressed in further works



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Acknowledgements

- TINE
- Norwegian School of Veterinary Science
- Norwegian Research Council
- "Healthier goats" program
- Participating goat farmers in our study
- Frøydis Hardeng for work on lactation curves and milk quality analysis



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Thank you for your attention!