

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

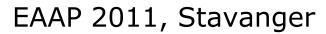
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Norwegian School of Veterinary Science





NILF Norwegian Agricultural Economics Research Institute



- 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

TINE Rådgiving





Paratuberculosis (Johne's disease)



Caseous lymphadenitis (CLA)

Caprine Arthritis Encephalitis (CAE)



"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



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:

Level of interest	Costs	Benefits
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



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



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/I (EUR 1.07/I)
- 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
- C₀ = 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	s 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



- 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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Thank you for your attention!