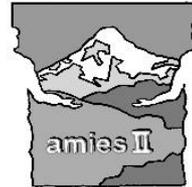


AMIES II - Final Meeting

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Scenario Development for Sustainable Land Use
in the Greater Caucasus, Georgia

Definition of Scenario Logics

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Cattle Scenarios

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Scenarios differ in two dimensions:

- Limits of the suitability for different land uses („Ecological limits“) (altitude, slope, soil quality etc.)
- Assumptions on the amount of cattle (regionally oriented versus the maximum that is limited by feed)

The combination of the possibilities gives three final scenarios.

		Ecological limits	
		strong protection	moderate limits
Cattle	maximum cattle	PROT-MAX	LIM-MAX
	regionally oriented cattle	PROT-REG	

The considered village cover about 69 % of the population and about 59 % of the cattle of the total Kazbegi region.

Why Cattle?

Research in the area revealed that cattle production could be a rewarding sector, because

- Most area is grassland which is feed for cattle
- Grazing intensity is low today compared to earlier times and compared to allowable limits
- Milk and meat are high-value products
- Ideas and initiatives to improve cattle farming are arising among stakeholders in the region
- Know how is still available

Which Type of Cattle?

Dairy Cows

- Medium size herds (10-20 cows) including remounting calves
- Improvement of milk yield from 2020 kg/yr to 3800 kg/yr
- Slaughtering of male calves, surplus female calves and old cows in the region

Advantages

- Allows permanent production of a valuable product
- Is present (mainly) on a subsistence level in the area

Challenges:

- Increase of milk yield by better feed (silage)
- Winter feed storage
- Winter housing and milking machines
- Milk collection and processing

Fattening Cattle („Summer Calves“)

- Purchase of young cattle from the lowlands
- Grazing and fattening during one summer
- Export to the lowlands (or even Azerbaijan)

Advantages

- No need for winter housing and feed
- Easy to manage, easiest way to use pastures

Challenges:

- Procurement and marketing of calves has to be developed



The potential production of milk products and meat was set into relation to the potential need of locals and tourists in the region

Assumptions:

Population	3700 persons
Tourists	91000 nights
Meat need	86 g/day/person
Milk need	1200 g/day/person

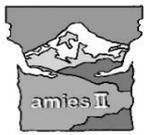
Part of the demand is already covered by existing dairy cows and cattle.

Maximum Cattle Scenarios (LIM-MAX and PROT-MAX)

- Winter feed production determines number of dairy cows (including rearing calves)
- Winter feed is based on silage from alfalfa fields
- Dairy cows use pastures in the summertime
- Remaining pasture yield in the summer determines number of „summer calves“

Regional Cattle Scenario (PROT-REG)

- Cows (+ locally fattened calves) are extended to meet the demand of local meat (~50 % of additional cows of PROD-MAX)
- A uniform level of extensification is applied both to arable and pasture areas (~50 % of PROD-MAX)

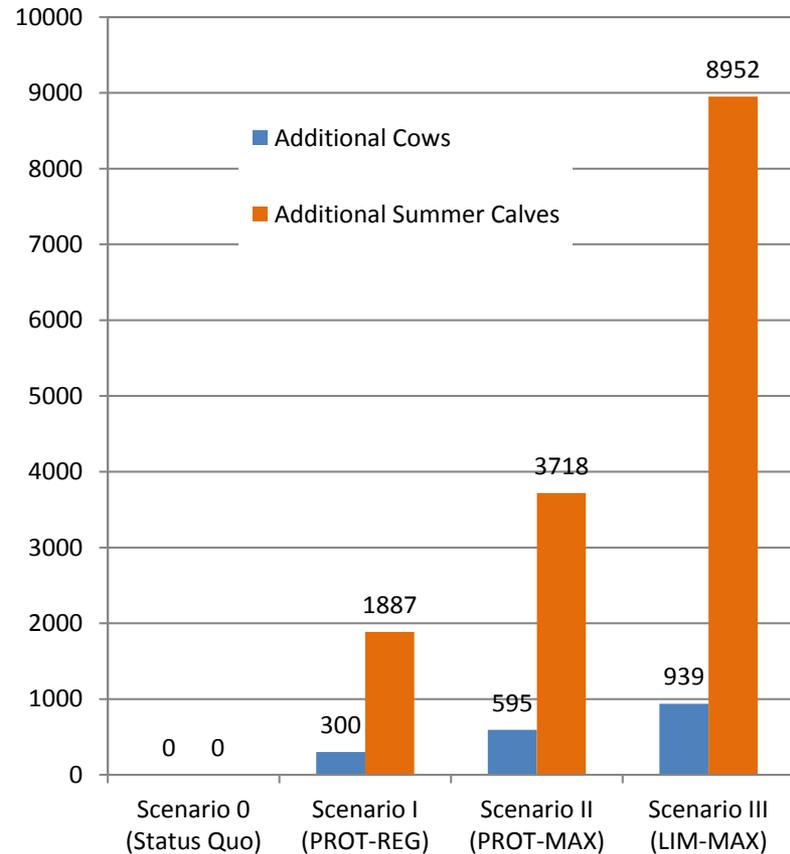


Results - Cattle

300 to 940 additional cows can be reared

1900 to 9000 „summer calves“ could be fattened

These numbers are in addition to the current cattle numbers (ca. 1300)

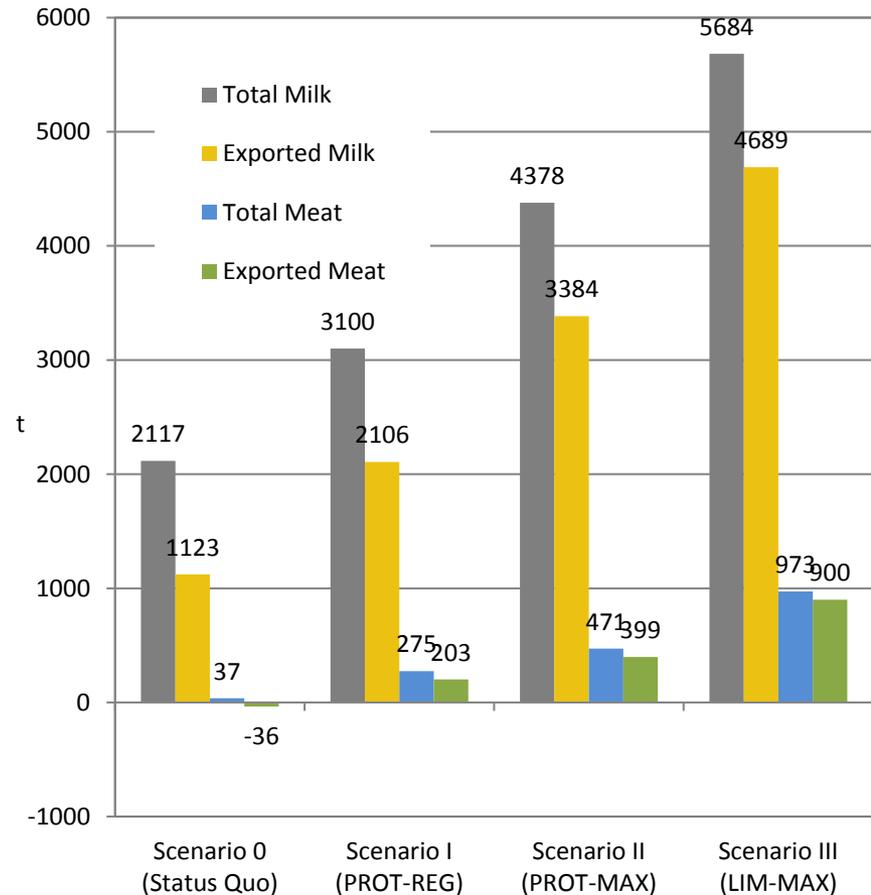




Results - Products

The additional products require export to the lowlands in any case

Only a small share (dairy products: 1/4) could be consumed by the local population and tourists.





Results - Revenue

The potential revenues are large.

Profitability seems to be positive:

Milk:

Price 0,80 GEL/kg

Variable Cost 0,41 GEL/kg

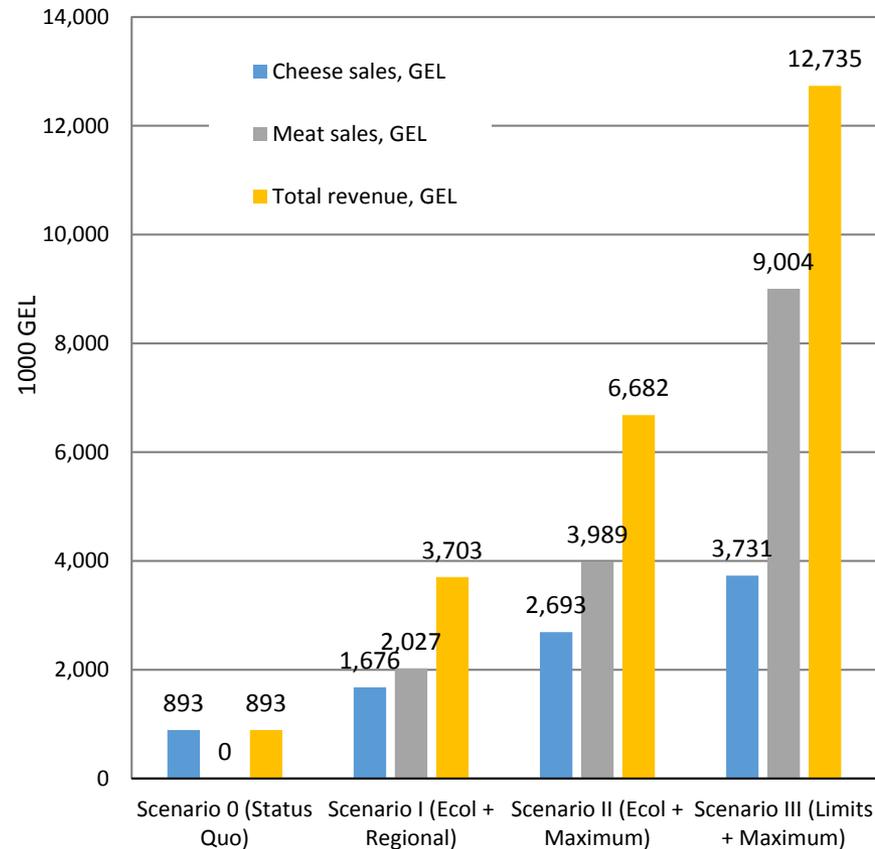
Profit Margin 0,39 GEL/kg

Meat:

Price 10 GEL/kg

Variable Cost 5 GEL/kg

Profit Margin 5 GEL/kg



Further products from the region could be considered

Honey

- No change in land-use needed
- Marketing potential to tourists is high (appropriate glasses needed)
- However potential only for a limited number of families

Herbs

- Almost no land-use change necessary
- Herbs are collected for tea production
- Good marketing perspectives with respect to tourism
- However potential overexploitation, if heavily intensified

Strawberries

- Very specific production limited to few families

Trout

- Freshwater requirements in principle feasible, however only for few families
- Very specific know-how and marketing

Intensification of potato production

- Standard product with competition from the lowlands
- Areas too small to adopt up-to-date technology (tractors etc.)

- Extending dairy and cattle production has a large potential
- This is possible, without touching ecological limits of the region
- The production potential is much higher than the consumption needs, even with increased tourism!
- Marketing channels to the lowlands for meat and milk/cheese are essential
- Plans for a local dairy are promising
- Small and specialized products might offer chances for certain families
- If land use will be intensified, management and zoning measures will become necessary.



Thank you for your
attention



- It is assumed that the cows are used for 5 years
- So 0.2 calves are needed every year per average cow for replacement
- Birth rate is set to 0.9 calves per cow and year
- So 0.7 calves can be used for fattening

Per cow, there are there at the same time:

- 1 cow
- 0.9 calves aged 0-12 months (either for raising or for fattening)
- 0.2 calves aged 12-24 months (for replacement)



Modified milk needs

- Milk and meat needs have been pushed to the upper plausible limits

Current assumptions (for the selected villages)

	Region (villages)	Per Person
Need Milk	1677469 kg /yr	424 kg/yr
Need Meat	122161 kg/yr	31 kg/yr