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Improving goat meat production in Tanzania

Most goat meat is produced in pastoral and agro-pastoral systems. Production and household income can be increased through interventions to increase reproduction, growth rates and animal survival.



Current production systems

Local goats such as the Small East African graze communal land during the day and are penned at night to reduce losses from predation and theft. There is very limited, or no, supplementary feeding. Manure may be allowed to accumulate in pens for collection as fertiliser. Pens are often muddy and dirty, especially during the rainy season.

Female offspring are kept as replacement breeders. Males are sold or consumed by the household. There are high animal losses due to disease, theft and predation.

Issues limiting goat meat production

Low reproduction rates

Largely caused by inadequate nutrition and disease.

Low growth rates

Largely caused by inadequate nutrition and disease.

High animal mortality

Largely caused by poor animal hygiene and high parasite burden.

Using models to understand potential impacts

Bio-economic models can be used to simulate and understand the potential effects of changes to production systems. A baseline simulation is created to match current production systems, and different interventions are tested.

Models show what *could* happen, not what *will* happen, so results need to be interpreted with caution.

For more information: McDonald et al. (2019) *Agricultural Systems*. 176, 102659.

Modelled baseline household

- 12 breeding females, 2 males + offspring
- Kids weaned at 5 months
- Males sold at 25 kg
- Mating from 15 months, 10% twinning
- 20% mortality of kids and adults

Modelled interventions to increase production

Reduced herd size

Reduction in number of breeding animals (10 females, 1 male) to increase feed available for rest of flock.

Improved animal management & hygiene

30% reduction in herd mortality through improved animal hygiene and management.

Improved animal hygiene & healthcare

50% reduction in herd mortality through improved animal hygiene, management and treatment of internal parasites. Cost of treatment US\$2/head/yr.

Supplementation of growing males

Weaned males supplemented with maize stover (0.5 kg dry matter/head/day) during dry season. Stover can be produced on-farm.

Early turnoff

Weaned males sold at 20 kg instead of 25 kg, and may be finished by a more specialised farmer prior to slaughter.

Combined interventions

Reduced animal losses through improved animal hygiene and healthcare, combined with supplementation of growing males during the dry season.

Interventions can increase production and profitability

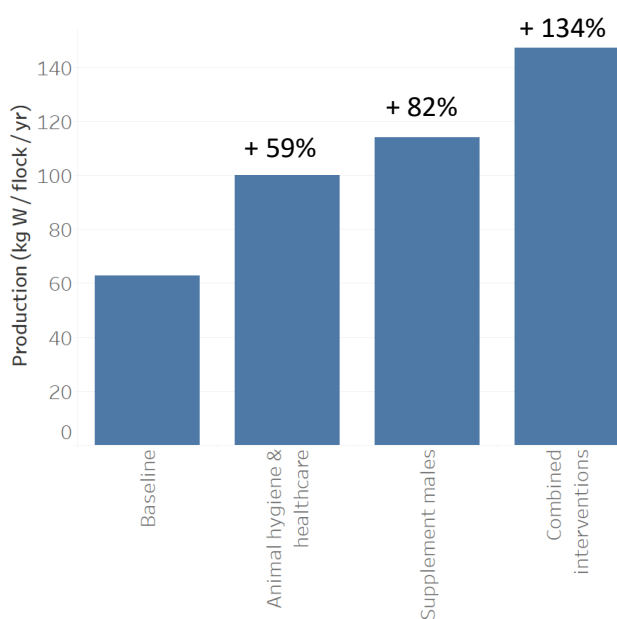
Modelled impacts of interventions to goat meat production systems

	Flock size (head)	Number of births/year	Number of animals sold or consumed by household	Production ¹ (kg W/flock/yr)	Losses ² (%)	Livestock Gross margins (TZS ³)
Baseline	30.6	9.0	2.77	62.8	18.2	94,971
Reduced herd size	24.0	7.7	3.52	86.1	16.4	148,448
Animal management & hygiene	32.4	9.8	4.60	91.7	13.5	151,122
Animal hygiene & healthcare	33.4	10.0	5.28	99.9	11.6	31,374
Supplement males	26.7	9.1	4.63	114.1	15.3	202,033
Early turnoff	24.6	9.1	4.63	98.4	16.5	173,082
Combined interventions	32.6	10.0	6.81	147.1	7.9	130,981

¹ Production – total liveweight of animals sold and consumed in a flock per year.

² Losses - percentage loss from mortality, theft, predation, etc. in a flock per year

³ 1 USD = 2316 TZS



Modelling of interventions shows the greatest increases in production come from combining multiple interventions.

Key messages

Income from goat production is highly dependent on prices and access to market. Increased production females do not always result in increased income.

Combined interventions are more successful than single interventions.

Reducing herd size increases feed available for other animals, increasing growth rates and reducing losses. For communal pastures, this would require a community-based approach.

Reducing mortality through improved management and health care reduces animal losses. Impact on gross margin will depend on cost of interventions.

Strategic supplementation of males in the dry season means they reach slaughter weight earlier. Farmers need to balance nutrition requirements of goats with other livestock (it may be more economic to feed other animals such as cattle).

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