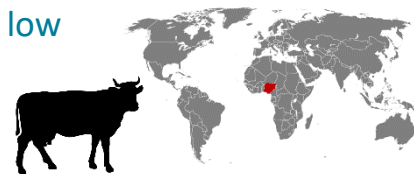


Improving dairy production in central Nigeria

Most milk in central Nigeria is produced by cattle in low input, low yielding systems. Dairy productivity can be increased by using higher yielding breeds & feeding better quality diets.



This factsheet uses production systems from Kaduna Province as an example of how milk yields and income from dairy production can be improved in central Nigeria.

Current production systems

Most milk is produced for home consumption by indigenous cattle kept by pastoralists. Cattle are kept in large herds and graze on natural guinea savanna pasture managed in a traditional pastoral system by Fulani people. Crossbred dairy cattle are not common. Excess milk is sold at local markets.



Issues limiting milk production

Animal genetics

Local cattle breeds have low milk yields

Low quality feed

Cattle graze native perennial pastures without supplementation

High animal mortality & low reproduction rates

Largely caused by disease & poor nutrition

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

- 62 Bunaji cattle (local breed)
- Cows graze guinea savanna pasture
- Calves weaned at 4 months and cows milked for up to 9 months

Modelled interventions to increase production

Improved pasture

Productivity and quality of pastures is improved through application of fertiliser and species composition. Herd size is increased to 107 head (local cattle).

Improved pasture + genetics

Local cattle replaced with Friesian-Bunaji crossbred dairy cattle (larger and higher yielding than local cattle). Higher pasture yields and quality can support 83 head.

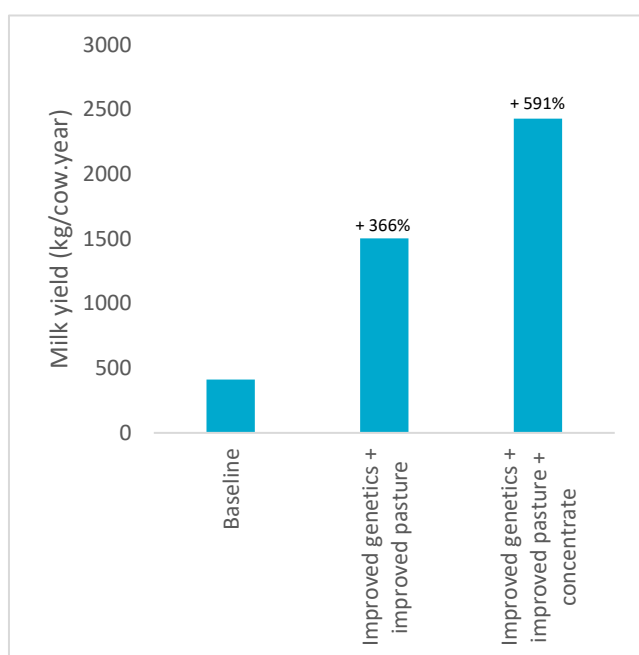
Improved pasture + genetics + supplementation with concentrate

Local cattle replaced with Friesian-Bunaji crossbred dairy cattle. Cows supplemented 3 kg concentrate/cow.day. With additional supplementation, the improved pastures can support 94 head.

Interventions can increase production

Modelled impacts of interventions to dairy production systems in Kaduna Province, central-north Nigeria.

	Herd size (head)	Number of births per year	Number animals sold per year	Adult mortality (%)	Inter-calving interval (m)	Milk yield (kg/cow.year)
Baseline	62	18	11	13	15	411
Improved pasture	107	42	32	6	12	1216
Improved genetics + improved pasture	83	31	22	10	17	1504
Improved genetics + improved pasture + supplementation with concentrate	94	56	45	7	12	2430



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

Key messages

Improved breeds such as Friesian cattle have higher genetic potential but are bigger and have higher nutrition and health care requirements compared to local cattle.

Combined interventions are more successful than single interventions.

The highest milk yields are achieved when higher yielding cattle breeds are fed high quality diets, particularly concentrate feeds.

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