

Forages for Cross-Bred Dairy Cows in Zimbabwe

In semi-arid areas of Zimbabwe, smallholder farmers are keen to increase dairy production but milk yields are constrained by the irregular supply of forages and by the genetic potential of local cattle breeds. When fed 'improved' forages, cross-bred dairy cows yielded more than twice as much milk each day as local cattle.

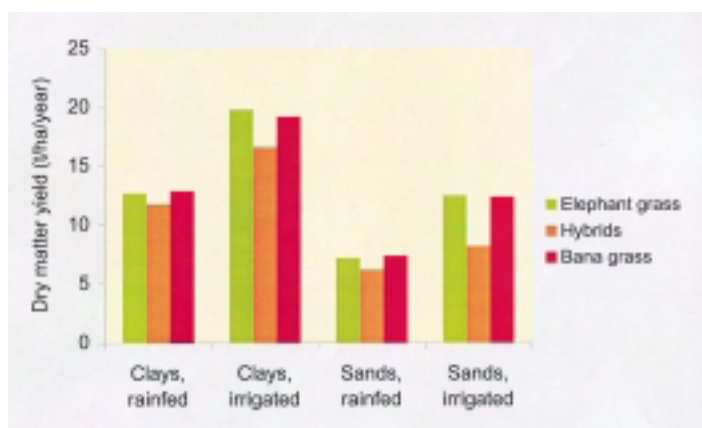
Background

Milk and dairy products are in short supply in the rural areas of Zimbabwe and intake of any animal protein is low. Smallholder milk production, which is strongly developed in these areas, is generally regarded as one of the best means of providing resource-poor farmers with regular cash incomes. Milk contributes to improved livelihoods and is a more attractive enterprise for investment of scarce financial resources than beef, which is a long-term investment and brings infrequent returns. Smallholder dairy production in the semi-arid regions of Zimbabwe is thought to have great potential but is hampered by the inability of selection programmes to succeed in improving milk production, or ease of milk let-down, in local breeds. It is further constrained by the irregular supply of good quality fresh forage in low rainfall areas.

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Hybrids may be slightly lower yielding but they establish faster than the Elephant and Bana grasses on clays and sandy soils. Establishment is a critical factor in areas of sporadic rainfall.

Research highlights

To address these problems, promising new forage varieties (hybrids between pearl millet and elephant grass) were tested to find out their agronomic characteristics and nutritive value for dairy cattle under semi-arid conditions. Field-scale plantings of four forage hybrids all established well, with one variety showing impressive early growth. Persistence and growth were good in all hybrids. Agronomic data and nutritive value of the forages are now available.

A small-scale milking parlour was constructed as a demonstration unit for local farmers. The dairy requires management practices with which smallholder producers can identify – minimum inputs, once-per-day hand milking and cows suckling calves after milking. Cross-bred cows (Nkone or Tuli cross Jersey), fed on the improved forages, were milked in the new dairy. Evaluation of Jersey cross-bred cattle is expanding as Jersey and indigenous bulls are being used to establish how much 'exotic' blood is necessary to provide acceptable levels of milk production without compromising heat and disease tolerance.

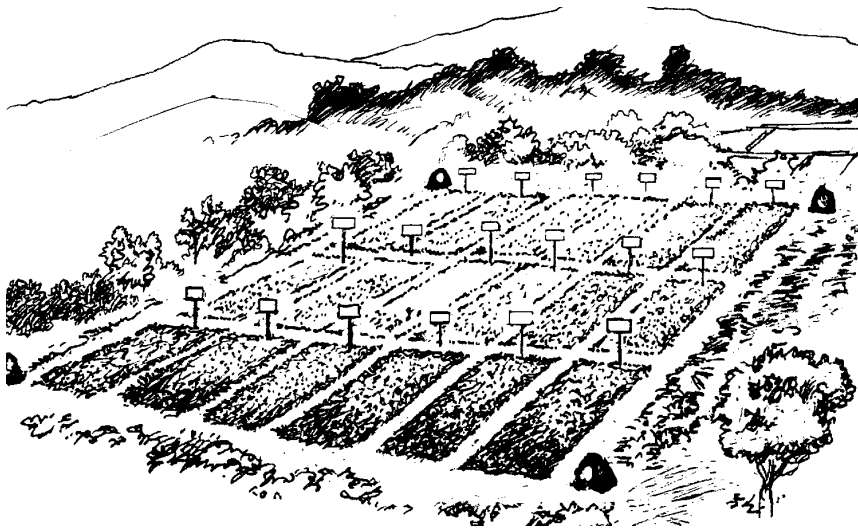
The potential milk production of Jersey

cross-bred cows fed improved forages in smallholder systems was also evaluated. Cross-bred cattle fed on the chopped forages yielded 5.5 litres of milk per day compared with around 1 to 2 litres from local cattle breeds. Calving intervals were impressive at between 361 and 385 days. In many African dairy systems this period can be twice as long.

Uptake

When the project started, farmer interest in milk production was underestimated. Due to popular demand, training and demonstration centres have been set up at nine other locations including agricultural training centres run by the universities, church organisations and NGOs. Practical training courses, lasting between one and three weeks, are now being run at these centres. A field-day at one of the demonstration sites attracted 230 farmers. Although the idea of growing forages seemed acceptable, the farmers expressed concern that not enough cross-bred animals were available.

In the past, evaluations of forages and cattle breeds were conducted within the confines of a research station. This project took the evaluation into



Learning by Doing. The project went beyond the conventional on-station forage-testing depicted above and evaluated forages within poor farming communities. (Illustration from Cheng and Horne, 1998)

local communities and used ongoing research as the basis of dairy training courses for local farmers. This 'Action Research' has paid off by stimulating considerable interest in the research outputs.

Linkages

The Livestock Production Programme (LPP) continues to support research on smallholder dairying. This work is being conducted in high potential and peri-urban areas in East and West Africa and Latin America, where markets for dairy products are expanding rapidly. Opportunities for communities in semi-arid areas can also be created where urban demand for processed (longer shelf life) dairy products exists.

Farmers in semi-arid areas of Zimbabwe are keen to improve dairy production and this initiative has been supported in a small but proactive way.

However, to satisfy the predicted increase in demand for dairy products by urban consumers in resource-poor countries, greater support must be given to the establishment and maintenance of milk production in lower potential regions.

The project has successfully built upon local strengths by recognising that local cattle display adaptive traits which can be imparted to a more productive cross-bred animal. However, despite these technical successes with cross-breeding, it must be stressed that multiplication of animals will remain problematic. Ineffective artificial insemination services – and livestock services in general – are perhaps the biggest barriers to smallholder dairy industry development in Africa. This has been recognised by the international donor community and livestock services development is now receiving

considerable attention globally. Aspects of this research were conducted in collaboration with LPP Project R5926: Appropriate tillage implements for donkeys – beasts of burden for the poor.

Relevance to sustainable livelihoods

The dairy enterprise on small farms is an important source of regular income for women in sub-Saharan Africa. The smallholder dairy industry is labour-intensive and, as such, employs a considerable number of landless people. The viability of the dairy enterprise depends on maintaining low costs of inputs. Home-grown forage has obvious cost advantages over purchased fodder and where fodder growing complements food crops (for example, where fodder legumes improve soil fertility to the benefit of cereals) this creates a win-win livelihood outcome for poor dairy farmers, their dependents and employees.

Selected project publication

- Smith, T., Ndlovu, K. and Mhere, O. (1996) Smallholder milk production in a semi-arid area of Zimbabwe from cross-bred Jersey cattle and forage based on *Pennisetum* hybrids: A progress report. All Africa Animal Conference, Pretoria, April 1996.

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