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MEDIA BACKGROUND

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Smallholder Dairy Technologies: Adoption on the Kenya Coast

The economic development of Kenya's Coast Province has lagged behind other areas of Kenya. The Coast Province covers over 80,000 square kilometres in the southeastern part of Kenya, constituting about 15% of the country's land area. Living conditions in large parts of the province are harsh. As many as 40% of the rural households live in absolute poverty. Infant mortality is 20% higher here than in other parts of the country. Childhood malnutrition is common (39% of the children are estimated to be stunted.) The percentage of girls enrolled in primary schools is only two-thirds that in the rest of the country. The risks of farming are high in the coastal lowlands: the climate is hot and humid, the rainfall highly variable, there are 5–8 months of dry season and the soils are generally poor.

Cattle production at the Kenya Coast has been constrained largely by inadequate year-round feed supplies and high risk of disease, particularly from East Coast fever and trypanosomosis. Although a few successful dairy farms have been established in this province, most of the cows milked are Small East African Zebu cattle on smallholder farms. Although small in numbers, dairy cattle (purebred European, grade and crossbred) are estimated to provide between 20 and 40% of smallholder milk production in the area.

A study sponsored by the Impact Assessment and Evaluation Group of the Consultative Group on International Agricultural Research was conducted in 1997/1998 at the Kenya Coast to determine the factors that influence adoption of dairy technology, which in this case was defined as ownership of a crossbred or grade dairy animal, the planting of forages such as Napier grass (*Pennisetum purpureum*), and use of an infection-and-treatment method of immunisation to protect dairy cattle against East Coast fever. Because dairy cattle have higher feed requirements and lower disease resistance than the local Zebu, it is believed that these three technologies are highly complementary.

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Information in this media release was obtained from the following report.

Smallholder Dairy Technology in Coastal Kenya: An Adoption and Impact Study,

by Nicholson, C.F., Thornton, P.K., Mohamed, L., Muinga, R.W., Elbasha, E.H., Staal, S.J., and Thorpe, W.

Nairobi: Kenya Agricultural Research Institute, Kenya Ministry of Agriculture and the International Livestock Research Institute.

First draft, June 1998.

This study was partially funded by the Impact Assessment and Evaluation Group of the Consultative Group on International Agricultural Research, a consortium of donors that sponsors ILRI's work.

The survey covered three districts in the Coast Province and was conducted by staff from the Kenya Agricultural Research Institute, the Kenya Ministry of Agriculture and the International Livestock Research Institute. (For details of a 1988–1994 collaborative KARI-MOA-ILRI smallholder dairy research project at the Coast, see the brief *KARI-ILRI Smallholder Dairy Research Collaboration: More Than the Sum of Its Parts*, Nairobi: ILRI, 1997.)

The study confirmed that adoption of dairy cattle increases household cash income. Dairy income in adopter-households is many times larger than that in non-adopting households. The percentage of adopters was observed to be fairly evenly spread across all income categories, indicating that adoption of dairy cattle is accessible to many households, not just the wealthier ones.

Improved dairying also generates more employment: on average, 1 to 2 permanent labourers are employed by every household with dairy cattle, whereas just 1 permanent labourer is employed by every 5 households without dairy cattle. Importantly, ownership of improved cattle also appears to alleviate chronic malnutrition: moderate and severe stunting in children was more common in households without dairy cattle than in households with them. On the other hand, *acute* malnutrition is little affected by adoption status.

Few rural households at the Coast rely solely on agriculture for their economic security; this is due in part to the proximity of Mombasa, Kenya's second largest city, and the importance of tourism in the region. As elsewhere in the world, and especially in this risk-prone environment, owning a dairy cow does not *per se* increase household income: smallholders must provide the extra labour input and good management for the benefits of keeping a dairy cow to be realised.

Despite the demonstrable benefits of owning dairy cows, adoption of dairy animals and Napier grass to feed them appears to be increasing only slowly in the province. The data suggest that this is due primarily to financial constraints—dairy cattle are much more expensive to purchase than local cattle—as well as perceptions of high disease risk to, and additional work required by, the improved animals.

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In summary, this study shows that adoption of dairy production by smallholders, given good management, can lead to substantial increases in household income, generate more employment and alleviate chronic malnutrition in pre-school-age children. The results also suggest that mechanisms for easing access to dairy cattle (through credit and heifer-in-trust schemes and the like) and reducing the high risk of disease of disease, especially from East Coast fever, will increase the likelihood of smallholders taking up dairying.

Nevertheless, adoption of the dairy cow and associated feeding and disease-control technologies is not currently increasing rapidly at the Coast, despite strong demand for dairy products in the region. These preliminary findings of the adoption study tell the researchers much about decision-making in smallholder households. They tell us that giving farmers increased access to dairy cattle and vaccines are two development (as against research) objectives that, if pursued, would almost certainly increase the adoption rate of dairy cattle at the Coast. They remind us that good management influences the profitability of a dairy enterprise as much as good cows do. And they strongly suggest that reduction of an alarmingly high incidence of acute (wasting) and chronic (stunting) malnutrition in young children will demand education in addition to a well-fed dairy cow in the backyard.