

Stories of change

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Empowering women to tackle cattle lung disease

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Key messages

- While Somali women play a key role in cattle rearing, only men tend to be engaged in disease control programs. In introducing a new vaccine against cattle lung disease, women livestock keepers are actively being involved in the vaccine development process to ensure maximum adoption and improve cattle health and farmer livelihoods.
- Researchers from Kenya and Canada are using novel, modern, molecular technologies to develop a stable, safe, and efficacious vaccine that can be used by small-scale livestock keepers and women. These researchers include Kenyan women scientists, who are being trained on the new, cutting edge technologies in Canada.

US\$6.4 million is attributed to Kenya. Loss of production and expenditures on control in Africa are estimated at US\$61.4 million per annum (Tambi, 2006).

Currently, CBPP is controlled mainly by use of vaccines, although uptake by smallholder livestock farmers is low, at 20%. Existing vaccines also have several disadvantages, tending to give short-lived protection and therefore needing to be re-administered annually; unwanted side effects (fever, reduction in milk, tail loss, and sometimes disease) are common. Current vaccines also require refrigeration, which makes them impractical in many parts of Africa (Thiaucourt *et al.*, 2004).

A new vaccine being developed will address these shortcomings. The vaccine is produced using novel, molecular technologies and bioinformatic tools in Canada and clinical trials in local Boran and Zebu cattle breeds in Kenya. The Vaccine and Infectious Disease Organization (VIDO) of Canada has so far generated 69 potentially valuable proteins, which are being tested to identify those that can offer the highest levels of protection. The resultant vaccine, which will be safe, effective and affordable, could potentially be used to protect cattle against CBPP across sub-Saharan Africa. Prior to vaccine clinical trials and field testing in Kenya, researchers are conducting socio-

Context

Contagious Bovine Pleuropneumonia (CBPP) is a cattle lung disease which has a devastating effect on the livelihoods of 24 million people across 19 African countries who rely solely on livestock (Thompson, 2005). The costs due to sickness and mortality from CBPP in Africa have been estimated at US\$41 million, of which



Dr Isabel Nkando, examining CBPP trial cattle

economic and gender analysis studies to determine the current knowledge, attitudes and practices of vaccination and animal care by men and women, their willingness to use and to pay for the vaccine, and gender considerations that may affect uptake and eventual use of the new vaccine by smallholder livestock keepers.

Emerging outcomes

Improved women's knowledge on disease recognition and control

Research undertaken by the project in Kenya has revealed that although women are more actively involved in rearing cattle, men are aware of a greater number of diseases than women, and for each disease, men know more about its symptoms and control. This is primarily because, culturally, women are not permitted to interact with men from outside the family and all extension workers in the study area (Ijara District, Garissa County in north-eastern Kenya) are men.

Improving women's knowledge will be vital if they are to adopt the new vaccine, particularly as around 75% of women in focus group

discussions could not clearly distinguish CBPP from other chronic diseases. Some described vaccines administered either on the neck or through the tip of the tail, but were not aware what disease they prevented.

“Most women in Ijara are not educated. That is why they do not understand many diseases.

Mariam Hassan, Gababa sublocation

”

The Kenyan project team recommends that appropriate extension messages for women and men on cattle health management be developed by the extension division of the Department of Veterinary Services, based on knowledge gaps identified by the project through a baseline study. In addition, the project has recommended that the government recruits female extension agents to train women about the disease and its control.

Increased income through adoption of the vaccine by women

Adoption of the vaccine by women will reduce losses of livestock through death from the disease. It will also reduce production losses,

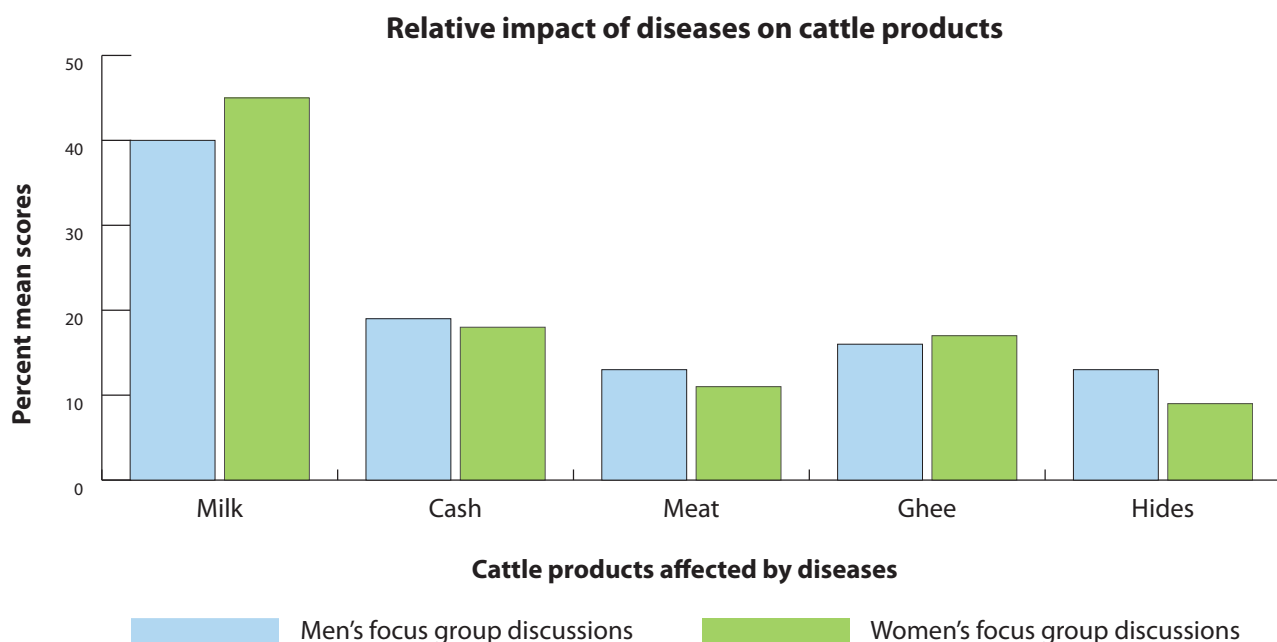


Figure 1: Mean scores according to men and women's focus group discussions on the relative produce losses due to disease

as healthy animals produce more milk than sick ones. As a result, women will be able to sell more milk and earn more income.

Milk is a major component of all meals for most Somali households. During focus group discussions, both women and men livestock keepers judged milk to be the product most significantly affected by cattle disease (Figure 1). A decrease in CBPP incidence through vaccination will therefore lead to increased production for home consumption and for sale. Since milk and milk products, as well as income from their sales, are controlled by women, this will earn women more income and improve their family's nutrition.

“ We would like our cattle to be vaccinated so that we do not lose milk and the income we get from sales of milk. ”

Halima Omar, Hidaya

Enhanced participation of women smallholder farmers in vaccine research

While male livestock keepers have significant roles in vaccine research (e.g. surveillance exercises), women are normally only involved in non-technical activities, such as restraint of animals and feeding vaccinators. Enhancing

women's active participation in research will be done by surveying their preferences for vaccines and vaccination delivery. Such women-preferred attributes will then be integrated into the new vaccine and the roll out strategy.

Enhanced gender equity in knowledge among Kenyan scientists

The project team has four female and two male graduate students. Their capacity is being built at various levels - three of the female students



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A woman milking in Bulagolol sub-location

are doing PhDs and one an MA. The PhD students have been involved in exchange visits to VIDO, Canada, to be trained on the novel molecular and bioinformatics tools that they can use in developing other vaccines.

Conclusion

The preferences of men and women livestock keepers regarding the new CBPP vaccine will be integrated into the vaccine development process and its delivery. These will be determined through a household survey to be carried out in February 2014, which will establish the gendered preferences and the willingness to pay for the new vaccine. The survey will also establish farmers' preferences on timing and frequency of vaccination, whether elective or compulsory and whom to deliver the vaccine, so that women gain maximum benefit from the product. The success of the vaccine's roll out in the study area will act as a pilot for its introduction to other areas where the disease is endemic, both in Kenya and other African countries.



Women focus group discussions in Bodhai division

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References

- IDRC. *Developing a Vaccine for Eradicating Contagious Bovine Pleuropneumonia in Africa*. <http://bit.ly/1ctGaEU>.
- Tambi, N.E., Maina, W.O. and Ndi, C. (2006). An Estimation of Economic Impact of Contagious Bovine Pleuropneumonia (CBPP) in Africa. *Revue scientifique et technique (International Office of Epizootics)*, 25(3): 999-1011.
- Thiaucourt, F., van der Lugt, J.J. and

Provost, A. (2004). Contagious Bovine Pleuropneumonia. In: Coetzer, J.A.W. and Tustin, R.C. (eds). *Infectious Diseases of Livestock* (2nd edition). Oxford University Press, Cape Town, South Africa.

- Thompson, G.R. (2005). *Contagious Bovine Pleuropneumonia and Poverty: A Strategy for Addressing the Effects of Disease in Sub-Saharan Africa*. DFID Animal Health Programme Centre for Tropical Veterinary Medicine. University of Edinburgh, UK.

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