A local innovation for preserving bean yields and seed stock

Tema Mathebula (Mahlathini Development Foundation) and Cebisile Zuma, Pakama Mahala and Thabo Makhubedu - all representing the Institute of Natural Resources NPC

The KwaZulu-Natal Prolinnova team visited eMbalenhle, a rural community in Ozwathini to explore innovative ideas applied by local farmers. The team identified an innovation that involves preserving common bean (*Phaseolus vulgaris*) harvest and seed stock using ash from Aloe leaves led by Mrs. Thembekile Hlongwa. The innovation was identified through the Misereor-funded ELI-FaNS ("Expanding the Promotion of Local Innovation for Food Security and Healthy Nutrition to Strengthen Resilience with a Focus on Women") project coordinated by the Institute of Natural Resources (INR). The innovator is a 61-year-old hardworking farmer who relies primarily on mixed livestock and crop farming which serves as her primary source of income and sustenance. She owns a 1 Ha farm at her homestead where she cultivates a variety of vegetable crops including cabbage, maize, beans, sweet potato and taro (locally known as *Amadumbe*). She supplies 400 cabbages per month to a local school for approximately 8 months each year, she sells other farm produce to local vendors, including common beans, taro and sweet potatoes.

Figure 1: Mrs Hlongwa's Boschveld chickens (left) and part of her homestead garden where she planted cabbages (right).

The innovation

Her innovation emerged in response to a persistent problem of bean weevils. After repeatedly witnessing her bean harvests being compromised by weevil infestations, which left the beans riddled with holes and unsuitable for consumption or planting, she developed an innovative way to protect both her food supply and seed stock. The Prolinnova team in KwaZulu-Natal and Mahlathini Development Foundation (local implementation partner) visited the innovator to get to know her and to learn more about her innovation. The innovator mentioned that having actively engaged in

agriculture for several decades, she was often devasted by weevils which left numerous holes in the bean which negatively affected their flavour, germination potential and overall viability. To address this challenge, the innovator initially tried selling the beans immediately after harvest. However, strategy was economically unsustainable. The market demand for beans right after harvest is low, and prices are lower, making it difficult to earn a meaningful income. Mrs. Hlongwa did not give up but continued to test other methods of controlling weevils that would allow her to store beans for a longer period for household consumption, for sale at a better price and for cultivation during the next cropping season. After much thought, she came up with the innovative idea of preserving common bean produced from her home garden in ash made from locally collected Aloe leaves. The innovator believes the bitterness of the Aloe ash repels weevils and prevents them from infesting the stored beans.

Figure 2: Harvesting dry leaves from an Aloe plant (left) and burning them to produce ash (right).

The process she follows is simple to adapt. First, she collects dry Aloe leaves from around her homestead and burns them to produce ash. She then mixes this ash with the harvested beans in a 10 litre plastic dish, ensuring the beans are thoroughly coated. Once mixed, she then stores the bean produce in airtight plastic containers. The size of the container depends on the quantity of harvest. This simple local innovation ensures food security for her household and availability of seed stock. This simple locally sourced innovation allows Mrs. Hlongwa to store her beans safely for extended periods. As a result, she can reserve beans for future household consumption, retain viable seeds for the next planting season, and wait for better market prices before selling. An important aspect of this innovation is that it could be applied to many grain crops including cowpea and maize. Mrs Hlongwa

has been using this innovation for over 12 years without putting any financial investment. She is relying on locally available Aloe and airtight plastic containers. Additionally, she has not encountered any challenges with her innovation. Her children assist her with storing and dipping beans in ash. After seeing the results, Mrs Hlongwa shared the innovation with her sister. Mrs Hlongwa receives extension support from the Department of Agriculture and Mahlathini Development Foundation (MDF).

Figure 3: Mixing common beans with aloe ash (left), filling (centre), and storing them in airtight containers (right).