The Renascence of African Livelihoods Through Livestock Extension Education Programs

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Introduction/Need for the Study

Revitalization of rural livelihoods is an important strategy for achieving the vision of the African renaissance as premised in the African Union agenda 2063 (African Union, 2015). Investing in livestock programs is one of the most plausible ways of building the human capital of farmers in making informed production decisions. In Africa, rearing small livestock such as poultry, small ruminants like goats, and non-ruminants like pigs are strategic pathways to reducing poverty (FAO, 2017; Pica-Ciamarra et al., 2015). Start-up capital is generally low for limited-resource communities and many philanthropic organizations have complemented African governments in capacity building for poverty alleviation through agricultural extension education. Uganda, our case study has been a beneficiary of philanthropists. Our study focused on the livestock program of the Iowa State University's Center for Sustainable Rural Livelihoods (CSRL) in Kamuli, Uganda. The goal of the livestock program is to increase access to animal-source proteins and enhance household incomes through the provision of education in sustainable livestock production practices (Masinde et al., 2015). This study sought to determine the rate of household participation in livestock education programs and assess their impact on the adoption of sustainable production practices comparatively between the trained and those who never trained.

Conceptual Framework: The Change Continuum

Innovation adoptions to cause community changes are influenced by extensionists–change agents (Rogers, 2003). Adoption rates are also influenced by the community's perception of what is constituted in the innovation, communications, design, social system, suitability of the target audience, and time. Initiating change requires creating the need for change in communities by understanding community needs. This process helps in the development of information exchange relationships by bonding with communities in a participatory manner to have effective social acceptance of change modalities. Bonding helps in diagnosing the problem by understanding what communities want but not what agents and/or their organizations want, which influences the adoption and implementation process. Involving communities to determine their needs helps to create a situation of change to be part of them. To accomplish the change, agents are required to stabilize the adoption of innovations in communities. Agents must be aware of what and how much of the intended actions have been translated into reality by communities, assessed through monitoring and evaluations of the process, output, and impacts. To achieve stabilization, agents must present discontinuance reinforcement to make the communities move by themselves. Also, spreading change modalities to other community members without the direct backing of agents for sustainability at the termination of the agent-community relationship (Rogers, 2003).

Methods

This study was part of a larger cross-sectional survey that assessed the state of food and nutrition security in Kamuli (Ikendi et al., 2023a; 2023b; 2023c). The total population was 1,503 clients of the Nutrition Education Centers (NECs), from 2014-2018. A representative sample of 306 clients was established. Community-based NEC trainers led the research team to the target households. We accessed and interviewed 174 trained households (56.9%). We interviewed an additional 208 non-trained households in a quarter-mile radius of a trained household for comparison. For trained households, we collected data on seven modules trained and traced in this study. We also assessed knowledge comprehension and retention with a set of six questions that required simple responses. Also collected data on the livestock breeds reared and inputs received from the program, animals, assets, and services. In data analysis and presentation, the frequency of

participation in livestock training was determined as i) a dichotomous question of "yes" or "no" on each module trained. Data on knowledge comprehension and retention were analyzed by grading the six questions where each correct response was assigned one point.

Results and Discussions

Overall, 366 (80.6%) households were involved in livestock production. Up to 174 (47.5%) of 366 households participated in livestock training. Most households trained for production of local chickens (78.2%), piggery (74.7%), and exotic chickens (72.4%); moderate in goats (59.2%) and feed formulation (58.6%); and least in forage (42.5%) and marketing and gross margin analysis (42.5%). In knowledge comprehension and retention, the average score was 63.6%. The most answered questions correctly were: Why do we vaccinate our birds? (87.4%), and what are some of the management practices for pigs? (70.1%). The moderate answers were: At how many months does gilt come on heat the first time? (62.6%) and what are some of the litter management practices? (59.8%). The least correctly answered questions were: When does a layer chicken start laying? (51.1%) and how long is the gestation period of a goat? (50.6%). We found that trained households were 94.3% associated with livestock production. Households kept mostly local: chickens, goats, and cattle. Most trained (44.4%) kept small livestock. Up to 23.0% of households (re)joined at least a livestock enterprise influenced by participation in training and received inputs like chicks, feeds, water tanks, forage seeds, vaccines, and treatment services.

Conclusions

Livestock education programs were designed to empower farmers in managing their herds and influence the adoption of improved breeds, and sustainable production practices. In training, for instance, high attendance in exotic chickens was attributed to their introduction in 2014 among mothers and youth (Masinde et al., 2015). Farmers were required to train in all production stages because they were required to do brooding by themselves with guidance from the program. In piggery, the community was in traditional production until the program introduced crossbreeds in 2005, production continued and was further intensified in 2016 under project expansion. Farmers also needed to understand how feeds are formulated based on the purpose of the livestock, age, and the ingredients of a nutritive ration. Relatedly, forage training attendance was low resonating with Maass et al. (2014) who also found out that the adoption of growing fodder and feeding them to pigs has been so slow in Uganda. We also established a low average score in knowledge retention, a reflection of the low attendance in training. These results mean that more tactics are needed in the training programs to influence knowledge acquisition and practices.

Implications

The proportion of 80.6% involved in livestock production in this study was higher than the 65.7% established for the Kamuli district in the national census (UBOS, 2017). These results show a culture of rearing animals, becoming easier for development organizations to diffuse innovations to improve the productivity of the local herds starting with their indigenous knowledge. Instead of introducing hybrid goats, for instance, the CSRL program opted to improve the local goats through breeding programs using Mubende bucks because of their productivity (Kugonza et al., 2014). Similarly, the program introduced kuroilers to improve egg and meat production, and ducks to improve the hatchability of kuroilers' eggs (Semahoro et al., 2018). The program capitalizes on scientific research which reinforces the U.S. land grant ethos abroad (Acker et al., 2015; Ikendi & Retallick, 2023a; 2023b); and on indigenous knowledge in adopting innovations (Ikendi & Retallick, 2023b; Masinde & McMillan, 2015). Change agents build on the local experiences of farmers to influence them to adopt proper livestock practices.

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