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Co-design of agroecological innovations in the dairy value chain based on consumer expectations and the business models of processors and dairy farmers: Case studies in Burkina Faso and Senegal

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Abstract

In West Africa, meeting growing consumer expectations for dairy product quality and quantity requires prioritising agroecological intensification in dairy value chains to strengthen food sovereignty and promote sustainable production. This transition relies on implementing innovations aligned with agroecological principles at the levels of production, collection, processing, and distribution. For effective and sustainable scaling, we argue that co-designing these innovations should start from consumer expectations and integrate them into operators' business models, rather than focusing solely on production without considering markets. Since 2022, we have been testing this demand-driven approach with stakeholders of the Bobo Dioulasso Dairy Innovation Platform in Burkina Faso and, more recently, with actors in Senegal's Fatick dairy sector. The work combined analysis of consumer expectations, workshops to characterise business models of value chain operators (mainly processors and dairy farmers), and sessions to design agroecological innovations within these models. These activities were complemented by cost-benefit analyses, field trials, and assessments of resulting changes. In Burkina Faso, the consumer study showed strong demand for fresh dairy products made from local milk and flavored with local ingredients. Processors targeting this market incorporated such products into their models, producing yogurts flavored with monkey bread, néré, moringa, and other local ingredients. To ensure year-round supply of quality fresh milk at acceptable cost, dairy farmers adopted agroecological practices such as cultivating high-quality forage, improving feeding systems, and producing organic manure. These practices reduced dependence on costly industrial feed, sustained milk production during the dry season, and maintained soil fertility. Milk production increased by more than 80 % for crossbred cows and over 12 % for zebu. Consumer expectations were better met, and value chain actors benefited overall. For dairy farmers and collectors, benefits exceeded costs, while for processors costs remained higher than benefits. This approach is now being introduced in Fatick, Senegal. The consumer and business model-based co-design of agroecological innovations appears transferable to other value chains and agricultural products. Its impact could be strengthened through

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greater involvement of policy actors responsible for agricultural strategies and sector support measures.

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