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Between mainstream production model and diversity of farm evolution: towards a tool to develop individual solutions

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This paper presents an analysis of smallholder dairy systems in an industrial milk supply chain and proposes a methodology of technical support based on the use of a simulation tool to explore scenarios for the sustainable evolution of the farm. The study was conducted in the Brazilian Unaí-MG region, where dairy production is a good opportunity for economic development of small-scale farms. However, some producers starting dairy production meet difficulty in developing their system and achieving an economically viable activity threshold. The first step was an analysis of six smallholder farms. Individual interviews and monthly visits were conducted over a one-year period to understand farmer-decision-making processes and collect quantitative data about herd management and fodder production. In a second step, a simulation model representing the dairy farming system was developed. Individual interviews showed that farmers usually accept the mainstream production model developed and diffused by the various stakeholders of the milk supply chain. However many producers do not apply it entirely, and hence follow diverse evolution pathways. The main factors explaining the observed discrepancies are (1) desynchronization between public, collective and individual investments (2) lack of fodder resources and (3) unsuitable adoption of model practices. The simulation model integrates crop, herd, feeding system and economic components. It underlines the break point of fodder resources availability for the growing herd. The simulation sessions realized with the six farmers allowed them to explore different scenarios of evolution. We want now to confirm this positive experience with larger sample to propose a technical support tool to relevant services.

Keywords :

dairy system; smallholder farm; technical support; simulation; Brazil