Smallholder dairy farmers in the Peruvian Andes fulfilling the role of extension agents


Introduction
The Andes in Peru support >85% of the livestock population, providing the livelihoods to 1.4 M smallholder families. Over the last 3 decades, dairy cattle farming has grown dramatically, whereas farming of creole cattle and sheep, and camelds have become marginal. Compared to other livestock systems, there is no locally developed knowledge on dairying, and extension support is ill. So, given this void, smallholders are receptive of knowledge suitable for the intensive feedlot dairy farming systems, which is inappropriate.

The dairying system
The prevailing dairy genetics (specialised, of large body size) contrasts with the Andean abiotic and biotic constraints to dairy farming and climate change (CC), resulting in poor system efficiency and high environmental footprint. Dairying is based on feedlot principles. Concentrates and forage crops feeding are favoured, whereas management of pastures and grazing are neglected. Calving is around the year, hence herd feed demand is constant across the year; having a large contrast with seasonal pasture growth. Summer excess pasture is not conserved, but oats are grown for hay, harvested at full maturity. Seasonal home-grown feed supply and unaffordability of imported feeds result in poor body condition of animals. Consequently, key performance indicators are undesirable. Cows are housed overnight (~18 h). Sheds are rarely cleaned, implying a huge environmental impact and loss of soil fertility. Cow sheds also compromise animal health and milk quality. Encroachment of pastures into native grasslands (subsidiased by government), without grazing management support results in poor persistence of pastures; hence, huge environmental impact (loss of soil organic carbon and erosion).

Agricultural extension weakness
Addressing issues that Andean dairying is facing requires harmonizing synergies between mitigation and adaptation to CC, productivity, food security, animal welfare and general health. For this, on farm validation of husbandry practices and mass extension of this knowledge is critical. Mass extension is needed given the large number of dispersed smallholders. R&E policy addressing smallholder agriculture is lacking. The national system of agricultural innovation (SINA; 2019) remains to be implemented, but the likelihood of success is bleak due to: (1) bureaucracy-dependent, subject to political instability; (2) not accessible to smallholders (user-pay); (3) based on industrial agriculture principles, with no respect to the cultural heritage and indigenous knowledge; (4) funding is of short-term, it targets components not the whole; (5) lack of extension on agricultural extension; predominance of lecturing rather than facilitation (e.g., AGORURAL); (6) technology transfer, the predominant form of extension service is deep rooted, hence unfit to tackle complex system issues; (7) Extrapolation of FAO ‘field schools’-crop-based extension to livestock is arguable.

Farmer to farmer (F2F) extension
The New Zealand Peru Dairy Support Project (NZPDSP, 2016-2020) aimed to increase net income of smallholder Andean dairy farmers through the adoption of improved husbandry practices, supported by effective R&E. For this, the project was set to rely on trained officials of extension. Given that commitments from these officials were poor, the project had to train farmers to fully the extension role (F2F) (Hellin, 2012). During the field days, farmers with key interpersonal skills were identified, trained, and mentored until they felt fully confident. Farmers preferred to attend capacity building events in the field rather than in a classroom. Farmers facilitated the process of learning in the field (doing things). Farmers observing other farmers showing/demonstrating what they have already done were fully engaged in the process of learning. Key characteristics of farmers fulfilling the role of extension included: having a young family with a clear will to change, fluency in the local language, dairying as the main activity, and an ongoing commitment to practice change.

Conclusions
The F2F extension approach proved to be a powerful and cost-effective means of promoting sustainable pastoral dairying in the Andes. It filled the void left by the lack of institutionalised extension service and it continues throughout the Covid pandemic. Nevertheless, the F2F extension approach to be sustainable requires institutional support and resourcing, and accreditation of the farmers fulfilling the role.

References

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