RESEARCH PAPER

Characterizing the diversity of smallholder farming systems and their constraints and opportunities for innovation: A case study from the Central Region, India

Y. D. Charjan* , V. V. Tapre[1], R. S. Wankhade **and** P. N. Magare
Agriculture Research Station (Dr. PDKV, AKola University), Achalpur (M.S.) India
(Email : yogeshcharjansa2017@gmail.com)

Abstract : Typologies may be used as tools for dealing with farming system heterogeneity. Small holder farming system into a few farm types particularly achieved by classifying farms into groups that have common characteristics, *i.e.* farm types, which can support the implementation of a more tailored approach to agricultural development. This article explored patterns of farming system diversity through the classification of 60 smallholder farm households in Nagpur districts of two blocks (Tahsils) Katol (High productive) and Narkhed (Low productive) of India's Central Region. Based on 2017 survey data, the typology was constructed using the multivariate statistical techniques of principal component analysis and cluster analysis. Results proposed three farm types, stratified on the basis of household, labor, land use, livestock and income variables, explaining the structural and functional differences between farming systems. Types 1 was characterized by relatively high levels of resource endowment and oriented towards other-farm enterprises and crop sales with bullock pair, Types 2 were characterized by relatively low levels of resource endowment and oriented towards other-farm enterprises, dairy (livestock) and crop sales and Types 3 was characterized by crop + Horticulture + Dairy and Bullock pair, respectively. The most salient differences among farm types concerned rearing of bullock pair (income from bullock pair), degree of legume integration, household size and hired labor, degree of diversification into off/non-farm activities and severity of resource constraints (Type 2 was most constrained with a small farm area and herd comprised mainly of livestock particularly cow and under Type 3 crop + Horticulture + Dairy and Bullock pair). It was found that livelihood strategies reflected the distinctive characteristics of farm households; with economic benefit from the farming. This study clearly demonstrates that using the established typology as a practical framework allows identification of type-specific farm household opportunities and constraints for the targeting of agricultural interventions and innovations, which will be further analyzed in the research-for-development project. Conclude that a more flexible approach to typology construction, for example through the incorporation of farmer perspectives, might provide further context and insight into the causes, consequences and negotiation of farm diversity. The three type of farming system studied with some scientific incorporation of intervention and found 34 percent increase over benchmark in field crop + dairy farming system.

Key Words : Central India, Farming systems, Diversity, Typology

*Author for correspondence:
[1]Regional Research Centre (Dr. PDKV, AKola University), Amravati (M.S.) India