Policy Perspective for Grassland Based Integrated Farming System: Innovation & Challenges in Indian Context

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Introduction

Indian agriculture is increasingly getting influenced more and more by economic factors. This needs not be surprising because irrigation expansion, infrastructure development, penetration of rural markets, development and spread of short duration and drought resistant crop technologies have all contributed to minimizing the role of non-economic factors in crop choice for even small farmers. Both at micro and macro level, the picture of livestock sector is very much disintegrated where growth is mainly from fishery and meat production and not from milk production. The common perception that animal rearing is not as remunerative as poultry or fishery seems to be a metaphor if not in true sense, as animals or livestock are not as sensitive to concentrate feed like poultry or fishery. One can directly measure the output in poultry and fishery in terms of growth due to concentrate feeding in a short time frame while in livestock , the effect is not only subtle but also depends on a myriad of other factors like breed, management and the like. In light of these drawbacks the effort for the growth of livestock sector is imperative for long term sustainable growth of agriculture sector as a whole. It is more a misnomer than reality that the increase in concentrate in feed for livestock will increase its milk and associated yields. On the flip side to get optimum yield from our animals they should be provided with a balanced feed consisting of dry fodder, green fodder and concentrate containing right proportions of vitamins and minerals. With the increase in the proportion of animal products in the consumption basket in relation to plant product driven by changing food habit, income, consciousness towards animal protein there is more prevalence of intensive animal rearing in farming system mode. In Indian scenario pasture feeding is not new but the glitch is in the practices adopted to maintain this pasture. Use of new technologies to improve old pasture lands should be given priority. One of the beneficial effects of allocating the degraded land to forage and pasture domain, is its development. The fertility status of marginal lands will be upgraded with the production of legumes by the nitrogen fixation process. Moreover silvipastoral system can also be incorporated. Fodder and forage should be the basis for cattle food security and further concentrate should be used to provide balanced ration to livestock for their optimum performance. A fixed rangeland comprising of marginal land, degraded land, problem soils has the capacity to sustain a specific number of animals which is optimum for that area. Common property resources can be best identified as pastures but at the same time community should also has to take care of its quality. With enhanced consumerism in rural areas, farmers' requirements for cash have also increased to improve their standard of living. The previously inferior cereals like jowar, bajra, ragi which are meant for animal consumption are now upgraded for human consumption due to increased awareness of their nutritional potential and other health benefits. So with time, a new trade off is emerging between animal and human consumption of these cereals especially maize, jowar, bajra, *etc.* This is especially true in case of small and marginal farmers. Therefore, farmers' income and food requirements would have to be augmented and supplemented by adoption of efficient secondary/ tertiary enterprises like animal husbandry, horticulture (vegetables/ fruits/ flowers/ medicinal and aromatic plants), apiary, mushroom cultivation, fisheries etc. However, these integrated farming systems will be required to be tailor-made and designed in such a manner that they lead to substantial improvement in energy efficiencies at the farm and help in maximum exploitation of synergies. Since, technological challenges are becoming more complex than before as demand for food is increasing, land holding size is decreasing and natural resource base is shrinking and/or deteriorating. For this, a change in mindset towards farming systems research is needed. The prevailing farming situation in India calls for an integrated effort to address the emerging issues/problems.

Materials and Methods

The study is based on secondary data collected from different reports of National Sample Survey Organization (NSSO, 2014). To answer the different policy issues related to farming system and crop-livestock interaction were collected from different studies, survey and reports. both secondary and primary data in simple tabular form were used. Using conventional production function approach, entropy analysis was carried out. The results are mainly derived from Meta Analysis.

Results and Discussion

It is interesting to note that as density of in milk animals per square kilometre increases, percentage of person in poverty line is decreasing and which is about 0.0004 % over the country for every per cent increase in density of in milk animals except in the case of Jharkhand. It may be due to the fact that in the state of Jharkhand, mining & mineral resources are more important than agricultural operations. Though the rate is quite low but at all India level it may create an impact, moreover its distribution through the states should also be looked into. Another interesting observation from our study is that the relationship between percentages of people below poverty line is inversely related not only with density of in milk dairy animals but also with productivity per animal/per year. It may infer that if per square kilometre density of in milk or in milch increases, poverty level will decline. In the same way if the productivity per in milk or milch animal increases poverty level will decline. So our goal should be to link production with poverty level rather than to enhance the productivity slogan. Our Agricultural Scientists are more tuned towards tonnage or productivity centric than farmer-centric. This attitude needs to be changed in order to go ahead for sustainable growth process where inclusive growth of the rural masses will be focal point.

Conclusion

The integrated farming systems approach is considered to be the most powerful tool for enhancing profitability of farming systems, especially for small and marginal farm-holders to make them bountiful. In fact, our past experience has clearly evinced that the income from cropping alone is hardly sufficient to sustain the farmers' needs. In 2009-10, India produced 112.5 million tonnes of milk constituting 15.8% of milk production of the world with largest production. The dairy sector employs about 10 million people in principal status and almost a million people as secondary occupation. There are more than 70 million households engaged in milk production in India. India is among the most cost – effective producers of milk in the world. But productivity of dairy animals is low as compared to other countries. The policymakers need to address the central question: Is it acceptable to have overall growth of 7-9% in the economy, with less than 2% growth in agriculture? The present paper studied how we can explore changes within the farm sector taking into account the linkages between farm sector and livestock in order to go ahead towards the road to sustainable growth where inclusive growth of the rural masses will be focal point.

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