

# Indigenous Integrated Farming Systems In The Sahel



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## RESEARCH ARTICLE

### DEVELOPMENT AND EVALUATION OF AN IMPROVED INTEGRATED FARMING SYSTEM (IFS) FOR HIGHER PROFITABILITY AND LIVELIHOOD SECURITY IN NORTHERN PLAINS OF INDIA

<sup>1</sup>Ram Bahal Rai, <sup>1</sup>Kuldeep Dhama, <sup>2</sup>Sandip Chakraborty, <sup>3</sup>Thukkaram Damodaran, <sup>1</sup>Balvir Singh, <sup>1</sup>Hamid Ali, <sup>1</sup>Sweta Rai, <sup>1</sup>Saminathan Mani and <sup>4</sup>Mohd.Yaqoob Wani

<sup>1</sup>Division of Pathology, <sup>2</sup>Immunology Section, Indian Veterinary Research Institute, Izatnagar, Bareilly (U.P.), 243122

<sup>3</sup>Animal Resources Development Department, Pt. Nehru Complex, Agartala, Pin – 799006

<sup>4</sup>Central Soil Salinity Research Institute, Regional Research Station, Near Knshiram Smarak, Old Jail Road, Lucknow (U.P.)- 226005, India

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#### ABSTRACT

The geographical area of India spreads over 329 million hectares is endowed with a complex diversity of climate and soil, flora and fauna. Integrated Farming System (IFS) is the main source of livelihood of nearly 65% rural masses dependent on agriculture. To overcome the problem of lower profitability in IFS, the concept and models of Specialized Integrated Farming System (SIFS) has been developed with 4 components viz. basal crops, medium duration cash crops, super short/short duration cash crops and value addition. The basal crop provides support to system like IFS. The present study was conducted during 2009-2012 in villages of Barabanki and Raebareilly districts of Uttar Pradesh, India. Out of 42 families for whom data was recorded and evaluated, 24 families followed rice-wheat-oilseeds cropping system, reared cow/buffaloes (1-3 Nos.) and vegetables on part of land. In the SIFS models rural poultry, off-season vegetables and gladiolus were used for resource generation and expansion of the livelihood base. The novel technologies developed in the project viz. zwitterous induction and infertility control technology, low cost mastitis control technology, new rural poultry production technology, banana cultivation technology using bio-enhancer (CSR-BHO), vegetable cultivation using CSR-BHO were the main technological interventions in both the systems. Intercropping with mustard and wheat, pigeon pea and mung, potato and vegetables varied farmer to farmer. In jersey crosses or in descript cows and murrah buffaloes different parameters were recorded. The lactation yield of cows was 560-600 lit., while in buffaloes it was 400-500 lit. The pooled inter-calving period was 27.8±0.5 months. Marginal farmers readily adopted (82%) the technologies and harvested the benefits. In contrast farmers with large land holdings were less interested (46% adoption rate). The base line data reported engagements of family labour as 82 man day/year. In mono-crop practicing farmers, it was 62 man day/year and in SIFS model; 187 man day/year (increased). The comparative net returns in all the 3 systems showed significant difference. The average net return in 3 years period in the area of 0.40 ha from traditional farming (control) was Rs. 96,000 whereas in integrated farming system practicing additional sources of rural poultry and vegetables was Rs. 2,71,000. The profitability in specialized integrated farming system was Rs. 61,300/ha and farmers adopted banana, rural poultry, gladiolus and vegetables. The input cost in subsequent years in traditional farming was more or less constant while it decreased by 25-35% in subsequent years in IFS models and thus especially the SIFS model proves to be profitable in the present scenario of decreased landholding.

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#### INTRODUCTION

The geographical area of India spreads over 329 million hectares which is endowed with a complex diversity of climate and soil, flora and fauna. This offers both blessing as well as challenge for the development of the agricultural sector. The agriculture production in India and developing countries is stagnating and due to lower return and high risk, the investment is declining. Some of the problems identified are: depletion and degradation of natural resources, increasing drain of soil nutrients without replacement, increasing biotic and abiotic stresses, increasing indiscriminate use of systemic pesticides destroying the natural microbes of soil, unavailability of quality germplasm timely and overall unavailability of technical inputs like knowledge for holistic approach. Integrated farming system (IFS) is considered as a solution to the problems which is

practiced by numerous farmers throughout the globe. The common characteristic of these systems is that they invariably have a combination of crops and livestock enterprises and may include aquaculture and tree also. However, though it provides sustainability, the profitability is low. The attraction of mono-cropping due to higher return is more, if risks are taken care. The decreasing land holding pattern owing to urbanization and population growth made the agriculture activities less profitable and even un-economical (Jackson, 1980; Roalale, 1983; Dover and Talbot, 1987; Jacobson, 1988; Rai *et al.*, 2011a,b; Rimal, 2013). Livelihood security is a complex problem and include food and nutritional security, educational security, health security, economical security and overall for its sustenance, environmental security (Waal, 1993; Ashby, 2001; Galal *et al.*, 2010; Rai *et al.*, 2011). Globally, the livestock sector is emerging as one of the most important sub-sector of agriculture in terms of value added component. This fact is reflected in FAO's growing perception. However, the fact should be clearly kept in mind that livestock cannot be a success without the success of crops and integration is the only

\*Corresponding author: Kuldeep Dhama  
Division of Pathology, Indian Veterinary Research Institute, Izatnagar, Bareilly (U.P.)- 243122.

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