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A Review on IntegratedFarming System Past, Present and Future in Rewa District

Sulekha Tripathi and Anoop Singh Baghel
VITS Satna (M.P.) and Government Girls College Satna (M.P.)

Abstract: - Sustainable agriculture, an integrated approach to increasing the farm yield and managing resources in order to address all three critical aspects of sustainability: economic, environmental and social. The IFS approach has multiple objectives of sustainability, food security and poverty reduction. It involves the use of outputs of one enterprises component as inputs for other related enterprises wherever feasible, for example, cattle dung mixed with crop residues and farm waste can be converted into nutrient rich vermicompost.

INTRODUCTION

Agriculture is the principal occupation of the rural people of Rewa District, Madhya Pradesh. Almost 80% of the people directly depend on agriculture. Piggery, poultry and dairying are the major livestock farming practices in the district in addition to agriculture. People take up animal rearing mainly to supplement their major income from agriculture. Since agriculture is mostly seasonal, there is a possibility of finding employment throughout the year through integrated farming. Integrated farming system with horticulture and livestock not only enhanced the income of the farmers but also help in occupation in terms of family labour employment. The manures from animals provide a good source of organic matter for improving soil fertility and crop yields in the farm.Sustainability should not be viewed as a destination,but rather as a goal, similar to liberty or equality, that cannot beachieved yet leads to positive change. In a developmentframework, such a concept is especially useful in dealing withconcerns of uncertainty and risk (Gibon et al., 1999).

Long-term agricultural research has been carried out in manyregions of the world in addition to developing an integratedsystem, and in certain cases, economic and environmentalobservations with the conventional method have been made.Integrated farming has proven to be equally profitable in thelong run (Holland, 2020). Integrated Farming System (IFS) also defined as biologically integrated farming system whichintegrates natural resources and regulation mechanisms into farming activities to achievemaximum replacement of off-farm inputs, secures sustainable production of high quality foodand other products through ecologically preferred technologies, sustain farm income,eliminates or reduces sources of present environment pollutions

generated by agriculture andsustains the multiple function of agriculture.Most spawnings in rice fields produceglue-like eggs that are generally arranged on green plants toprovide extra oxygen and nutrition designed for maturingembryos (AL-Kattan et al., 2019; Al-Rejaboo & Jalaluldeen,2019; Falya et al., 2021). However, shallow water netconstructors and spawners breed in paddy fields under idealconditions) (Paramesh et al., 2022).

Farming System research is an approach to agricultural research and developmentthat view the whole farm as a system and focus on 1) the interdependencies between thecomponents under the control of members of the household and 2) how these componentsinteract with each other in respect of physical, biological and socioeconomic factors notunder the household's control (Shaner et al., 1982). Indian economy is predominantlyrural and agriculture oriented where the marginal and small farmers constitute 76.2% offarming community. Due to failure of monsoon, the farmers are forced to judicious mixup of agricultural enterprises like dairy, poultry, pigeon, fishery, sericulture, apicultureetc., suited to their agro-climatic and socio-economic condition.

COMPONENT ENTERPRISES OF IFS MODEL

Crops + Dairy

(Dominate Farming System of the Region)

+

Horticulture + Fishery

(Most Promising Enterprises for Integration/ Diversification)

+

Apiary + Vermicompost + Boundary Plantations

(Supplementary Enterprises)

DAIRY FARMING

Livestock considered to be a valuable and critical asset of the rural poor in supporting their livelihoods particularly during unfavorable times. Mixed (croplivestock) farming systems provide flexible asset regime and reduce risk and vulnerability of the poor farmers. Characterization survey conducted in western plain zone of Uttar Pradesh revealed that 96% of farmer families rear milch

animal's cows and buffaloes. The later however contribute significantly, both in number aswell as in production of milk. Further, the average production per day or annualproduction is low to very low. This was because of low yielding local breeds, poorand imbalanced nutrition, and lack of green fodders mainly during the period ofOctober to February. Not only this, but the fodders too are not adequately mixedwith leguminous fodders. A few farmers use salt and mineral mixtures and that toofor limited periods. Under better management of animals the high yielding breedsof the buffalo (Murrah) and cow (Holstein Friesian) were kept in the dairyunits which are most common and best suited for the area. Daily feeding of animalswith green fodder 30 kg daily, dry fodder 6 kg daily concentrate 2 kg for maintenanceof body and 1kg for every 2.5 lit of milk.Clean and fresh water for drinking wasprovided to animals. Round the year availability of green fodders were ensured byinclusion of season specific fodder crops.

HORTICULTURE -

Horticultural crops are nutritionally rich mainly of essential proteins and vitamins which make human diet complete and help human being physically fit and mentally more sound. Characterization survey of the districts Meerut and nearby areas representing western Uttar Pradesh revealed that fruit orchards generally are being owned by medium to large categories of farmers and most of them are absentee farmers. The orchards are auctioned to professional fruit owners for a certain period and the soil and crop management of these fields are very poor and hence the productivity. As far as vegetables and flowers are concerned, the farmers living in close vicinity of the towns and cities use to grow these crops entirely or as a part of cropping systems but are on the mercy of middle mans and local market as the storage facilities are not adequate and in command of the farmers and the growers are forced to sale their produce on low prices to middle men.

FRESH WATER FISH PRODUCTION

Linear growth in human population and decreasing trend in animal populationput extra burden on food production and necessitated search of new sources offood . Increased supply of meat and meat products is the next possibility to satisfythe food demand in coming future. Fish production is an emerging field of supplyhigh quality protein and other nutrient rich meat particularly in northern India, southernpart of the country being the leading fish production states by habitat. Duringcharacterization survey of the area a number of farmers doing fish farming andfetching high income from the enterprise show the future scope of this enterprise inthe area. The government of Uttar Pradesh has taken it as a campaign and a numberof measures have been taken to popularize the fish production programme in thestate including rejuvenation of old village ponds and digging new ones and alsoestablishing seed nurseries and hatcheries.

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BEE KEEPING

Bee keeping is an enterprise which is being practiced mainly by the orchardowners and landless families residing near vicinity of the orchards. Besidesproducing honey and wax, they play an important role in the pollination of variouscrops. It has been stated that for every rupees worth of honey and wax produced,honey bee works worth rupees ten as pollinator. To fetch higher profits from thisenterprise round the year availability of flowers is essential which is not possible ata single place and hence shifting of bee colonies from one place to another isessential. This however, is not feasible by the small farm holders.

NUTRIENT RECYCLING

Recycling of farm wastes and crop residues has been found to economizefarm production as well as safe environment. The organicmanure FYM, poultry manure, mushroom residue smeared fully intact for reuse butthe crop residue available under different system is about 62% and rest is used fordry or other purpose. In IFS model at PDFSR, Modipuram, all the farm wastes andcrop residues were recycled either in situ incorporation in to the soil (green manurecrops, cowpea intercropped in sugarcane , cane trash, leaves of potato and redgram, roots of berseem and other leguminous crops and green biomass added afterpicking of pods etc.) or by composting (Vermicompost, FYM) of cow dung & urinemixed with farm wastes .

CONCLUSION

IFS approach not only fulfils the household needs but enrich diet of humanbeing and animals both and simultaneously keep the people away from thehazards of residual toxicity of the chemicals being used in agriculture on alarge scale. Further, diversified nature of the model provides hugeemployment opportunity for unemployed rural youths. Farmers having sufficient irrigation water or living in low lying riverbed areas can choose fishery as an additional enterprise. Similarly, farmers living in near vicinity of the towns and cities can grow vegetables and green fodders as per market demand and availability. The farmers having sufficient land and other farm resources can prefer for integration of horticultural crops viz; fruits, vegetables and floriculture as an additional enterprise along with prevailing ones. Whereas, marginal farmers or land less farmers living near by fruit can integrate apiary and mushroom in to their existing farming systems.

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