

# Integrated Farming with Special Reference to Summarland Farm Veliyam, Kollam

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## Abstract

*In the present scenario, it is hardly difficult to meet out the ever increasing requirements for the ever rising population in Kerala. Unfortunately in Kerala the food processing enterprises like agriculture and its allied activities namely livestock farming, horticulture, apiculture, poultry farming etc have been dominated by the small and marginal farmers. Hence they are unable to invest more capital for doing intensive farming activities to produce more and meet the requirement. In this situation integrated farming system play an important role for maximizing their profit and production to meet the nutritional requirement with food security with less investment.*

## Introduction

Integrated Farming System (IFS) is an interrelated complex matrix of soil, water, plant, animal and environment and their interaction with each other enable the system more viable and profitable over the arable farming system. Watershed, farm ponds, bio-pesticides, bio-fertilizers, plant products as pesticides, bio-gas solar energy, compost making (vermin, Japanese, improved etc) green manuring, rain water harvesting are the important elements included in integrated farming system depending upon the individual farmers resources interests and opportunities.

## Integrated Farming Provides

- Regular income and year round employment
- Provides food and nutritional security.
- Eco-cycling of agriculture residues/by-products/wastes.
- Minimization in population hazards.
- Improve micro climate.
- Conservation of natural resources.
- Minimizes the risk failure in productivity.

## Statement of the Problem

As an eco-friendly and sustainable agriculture system, an idea about the economics of integrated farming has immense practical use to the government as well as individual farmers. Thus the problem under study comprises with a view to identify the factor which promote/prevent the attempts to increase productivity and income from farm resources

utilized for various farming activities. Summerland farm started integrated farming in 2010. Here we conduct A Study On Integrated Farming With Special Reference To Summerland Farm, Veliyam, Kollam.

### **Methodology**

Both primary and secondary data are used in the study. Primary data is collected with the help of structured questionnaire. Variables like area, type of agricultural and farm products, waste management system, cost of production, revenue generated etc are analyzed to understand the economics of integrated farming with special reference to Summerland farm, Veliyam, Kollam. The major sources of secondary data are text books, articles, journals, websites, ICMR report 2000, Kerala report 2016-17, Reports of Monitoring and Evaluation Division, Directorate of Agriculture, Trivandrum

### **Limitations**

- Time limit is the major obstacle for the study.
- The sample for the study is limited to Summerland farm in Veliyam.

### **Development of Integrated Farming Model in Summerland Farm**

For an in-depth analysis we have selected Summerland farm, Veliyam, a small village in Kottarakkara Block in Kollam district. The farm was started in 2010. The integrated farming model developed on five hectare area comprises of crops, dairy, horticulture, fishery, goat rearing, duck rearing, poultry. The model initially was consisting of plantain cultivation with varieties of 4000 plantains. This was further strengthened by establishment of dairy unit in 2012. Now there are variety of 50 cows, 5 calves (H, F, Jersey, Sindhi, Siskbrown), a major percentage of farm is used for its fodder cultivation. A chaff cutter installed near the cattle shed simplifies the work load in terms of cutting bio waste for and fodder for cattle and machine system is used for draw and packing the milk and horticulture (a multistoried fruits and vegetables unit) and pisciculture (a mix culture of fishers including Rohu, Katla, genetically improved farm tilapia, viral, aattuvala) In 2013 duck rearing and poultry farming are also included. This is further strengthened by establishment of small vermin compost unit in 2014 and goat unit in 2015. In 2016 the farm also started rice cultivation.

The organic manure requirement was fully met and bio gas plant was established for meeting fuel needs. Adequate irrigation facilities are provided through farm ponds and bore well.

The farm also provides regular employment to 20 peoples and the farm earned an additional net annual income of around Rs 226196/ha. Recently in 2018 the farm started Summerland Farm House to sell their products directly to the consumers.

The success of the farm has been recognized by the state government which selected it as the Best Mixed Farming Sector of Kollam in 2016, Vocational Excellence Award for Best Farming in 2015 and Best Fish Farming Award in 2017.

### **Goals of Integrated Farming in Summerland Farm**

The primary goals of integrated farming system in Summerland farm are

- Maximization of yield of all component enterprises (crops, animals, and related Subsidiary professions) to provide steady and stable income.
- Avoid build-up of insects-pest, diseases and weed population through natural cropping system management and keep them at low level of intensity.
- Reducing the use of chemicals (fertilizers and pesticides) to provide chemical free healthy produce and environment to the society.
- To maintain environmental quality and ecological stability.

**Table Classification on the basis of percentage of land used for different farming system**

Farming System	Percentage of land used
Agriculture (Fruits,Vegitables, Rice)	30
Dairying	15
Horticulture	6
Fodder	20
Fish farming	11
Duck rearing	8
Goat rearing	10
<b>Total</b>	<b>100</b>

**Source:**Primary data

Out of 5 acres, 30% of land is used for agricultural purposes.It include the cultivation of rice, Veg and fruits. 15% of land is used for dairying and a major portion of land 20% of land is used for producing their fodder, 6% of land is used for horticulture,10% forv goat rearing, 11% for fish farming and 8% for duck rearing.

**Table Types of farming in Summerland Farm**

Type of farming	Varieties
Vegitables	Ladies finger, brinjal, Bitter Guard, Drumstick, Beans, Spinach, Ash Gourd, Snake Gourd, Chilly
Crop	Rice
Fruits	Banana, Rambutan,Jack fruit,Mangostill,Mago
Diary	H F, Jersy,Sindhi, Sisbrown
Goat	Jamnapyari,Sirohi,Malabari
Fishes	Genetically improved farm Thilopia,Katla,Rohu,Aattuvala, Varal
Ducks	Kuttanadan ducks
Hen	Gramalaxmi, Grama priya, Athulya

**Source:**Primary data

**Table Classification on the basis of selling place of the farm in various Years**

Selling Place	2013-14	2015-16	2017-18
Local markets	25	30.34	44.99
Households	73	67.66	51.66
Other	2	2	3.33
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

**Source:** primary data

The above table shows that in the beginning of the farm 99% of the products are sold to hiousholds from 2013-14 the farm experiments of new products and the popularing of organic products through integrated farming increasing the denmnd of the products and and 25% of products are sold in local markerts 73% sold to households and 2% to others. The table shows that in every year the demand for the products increased among households, local markets and others. In 2015-16, 30.34% of the products are sold in local markets,

67.66% sold to households and 2% to others. This has again increased in 2017-18 and 44.99% of the products are sold in local markets, 51.66% to households and 3.33% to others.

**Table Classification on the Basis of Cost and Net Returns from Different Integrated Farming System in 2017**

Farming system	Cost/month	Percentage	Net return/month	Percentage
Rice	5122	37	8683	62
Vegitables	3015	36	5258	64
Fodder+Goat	2145	23	7060	77
Fish	515	7	6871	93
Poultry	3242	47	3673	53
<b>Total</b>	<b>15183</b>	<b>30</b>	<b>34610</b>	<b>70</b>

Source: Primary data

The above table shows the economic advantages of integrated farming in relation to its cost and net returns. The total cost per month of the farm is 15183 (30%) and net return is 34610 (70%). The net return is 40% more than total cost.

**Table Productivity and Economic Analysis of Different Integrated Farming System in 2016**

Farming system	Cost of production (Rs/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	Per day return (Rs/ha)
Cropping alone	24922	61112	36190	167
Crop+fish+ poultry	44627	159292	114665	436
Crop+ fish + goat	51483	178047	12564	493
Crop+diary	54960	95742	40782	112
Crop+ vegetables	44752	99599	54847	151
Crop+ fruits	94000	54472	39528	109

### **Economic viability of the Model**

The expenditure involved in IFS development and output in terms of gross and net return envisage the economic viability of the model which not only provide sufficient feed and fodder but create an additional saving of RS.226196/ha/year after meeting production cost.

### **Advantages of Integrated Farming in Summerland Farm**

- Improved profitability achieved mainly by way of reduced costs due to recycling of wastes one enterprise as energy inputs for other systems
- Increased productivity through increased economic yield per unit area per time by virtue of identification of crop and allied enterprises.
- Integration of different production system provides an opportunity to solve malnutrition problem due to production of variety food products.
- The recycling of wastes for production help to avoid pilling of wastes and consequent pollution
- Recycling of organic wastes reduces requirement of chemical fertilizer. Further bio gas production can meet farm energy requirement. Thus IFS goes a long way in solving energy crisis
- The farming system provides flow of money to the farm per day by way of disposal of eggs, milk, meat, fish, vegetables etc

- Every piece of land area is effectively utilized. Plantation of perennial fodder trees on field borders and also fixing the atmospheric nitrogen .These practices will greatly relieve the problem of non-availability of quality fodder to the animal component linked.
- Combining crop with livestock enterprise would increase the labor requirement significantly and would help in reducing the problem of underemployment to a great extent
- IFS provide enough scope to employ labor round the year

## **The Success**

### **Gross and Net Returns**

Gross and Net returns under IFS average over the year were Rs.587152 and Rs.226196. Because of the inclusion of more enterprises ,Vegetables ,strengthening of livestock, fishery units,poultry and vermin compost,optimum cycling of farm waste and crop residues and better management of all the enterprises of the model maintaining higher level of production than crops alone.

### **Expected Output**

Productivity gains	2-3 times
Gains in net returns	3-5 times
Resource saving	40-50 percentage
Lower emissions of GHG	50%
Nutritional security	100%
Average regular net daily income	Rs.1468/ha

### **Main constraints**

The main problems faced by the farm are insect attack, low yield and absence of good market . The farm uses 75% of organic manures and this lead to low yield and use of bio pesticides is not much effective compared to chemical pesticides and lead to insect attack Due to climatic variations the yield from dairy farming ,poultry farming , fish farming declines Low price and absence of good market are the major problems caused due to variations in market forces.

### **Conclusion**

The IFS objective has multiple objectives of sustainability, food security, farmer security, and environment protection. Here we studied salient features of IFS include innovation in farming for maximizing production through optimal use of local resources, effective recycling of farm waste for productive purposes, organic farming, judicious mix of income generating activities such as dairy, poultry, fishery goat rearing, vermin composting and it create additional employment opportunities. It is evident from the study that Summerland farm chooses integrated farming because of the integration of different farming system is possible to manage agricultural production system with fewer inputs and obtaining economically viable results. The farm incorporated the component of in such a way that it enhanced productivity and maximize overhead costs and to increase returns. Dairy farming plays a vital role in sustainability of the system not only as the major source of income but by culturing soil and enhancing the nutrient recycling and meeting energy requirement. This study intends to be an eye opener to the people of Kerala to provide a permanent solution for the problem of insufficiency of food items to cater to the needs of the future generation.

### **Suggestions**

- Introduction of more units such as bee-keeping ,piggery, mushroom cultivation etc .will increase the sustainability and profitability of the system and create more employment.

- Setting audacious goals will help to increase the profitability from integrated farming
- Organic farming could be taken up on a large scale with PANCHAGAVYA, AMROTHOJALAM and COW URINE
- Govt should provide high quality seeds and bio- pesticides for integrated farms.
- Authority should provide good credit system for integrated farmers at low rate of interest.
- Establish good market for integrated farming products in all districts

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