

## Farm Management Information System

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### ABSTRACT

*Farm management is dealing with the analysis of the farm resources, alternatives, choices and opportunities within the framework of resource restrictions and social & personal constraints of farming business. This complex information is integrated and synthesized to increase profitability of the farming business; the ultimate aim is to raise the living standard of the farming people. Farm management is a decision-making science. It helps to decide about the basic course of action of the farming business, in which there are often contradicting demand which leads to complication and comes in the way of smooth functioning of research workers. Farm management information system provides information on various aspects of farm management on agriculture. This Web-based farm management system has emerged to replace outdated complex and monolithic farm systems and software tools. We present the functional architecture of this farm management information system. The research work has been carried out with the objective to manage farm resources like plots, equipment etc. and the development of web-based farm management information system.*

**Keywords:** Farm management Information system

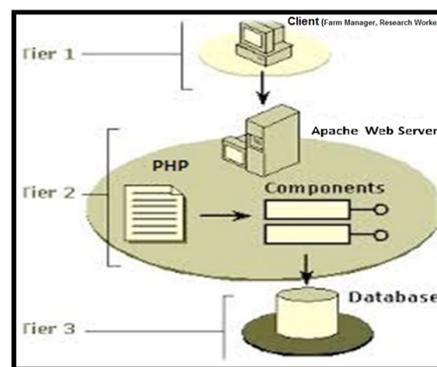
### INTRODUCTION

Food and nutritional security is the foremost priorities of any nation. Agriculture is one of the most important areas of human activity worldwide. As the population rises there is a need to increase the agricultural production. Between 1870 and the 1920s, agricultural innovation due to commercialization, land-saving and labor intensive production doubled agricultural production per land area (Olmstead and Rhode, 2009). Between 1920 and 1970, the total inputs used in agriculture increased 20%, while total output increased 179%. Duncan and Harshbarger (1979) found that the output increase was clearly not just an increase in the amount of inputs used but rather the technology knowhow for efficient agricultural inputs utilization. Farmers started using computers and software systems to organize their financial data and keep track of their transactions with third parties (Batte, 2005) and also monitor their crops more effectively. Martin-Retortillo and Pinilla (2012) concluded in their research that the use of chemical fertilizers, biological innovations, harvesting and threshing machines, and mechanical technology mainly caused the increase in agricultural productivity per worker three folds between 1970 and the 2000s. Nowadays, a number of proprietary solutions have been developed to help farmers to manage their farms in an effective way (Allen and Wolfert, 2011). Farm Management Information Systems (Lewis, 1998), focus on

specific tasks and use their own specifications to implement the functionality provided. Farm management deals with the organization and operation of a farm with the objective of maximizing profits from the farm business on a continuing basis.

### METHODOLOGY

Web-based user-friendly Farm Management Information System has been implemented as a layered structure having three layers viz., User Interface layer (UIL), Application layer (APL) and Database layer (DBL). The layer structure of Web-based Farm Management Information System is presented in Fig. 1



**Fig. 1 : Layer structure of Farm Management Information System**

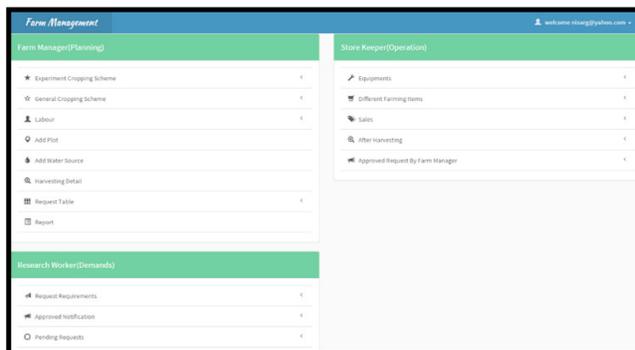
The various aspects included in this study have been organized under the following sub heads:

- a. Identification and study of responsibility of
  - i. Farm Manager (Planning)
  - ii. Research Worker (Demands)
  - iii. Store Keeper (Operation)
- b. Implementation of a Web-based Farm Management Information System

**RESULTS**

The Home page (Fig.2) of the Farm Management Information System has menu items like “Farm Manager (Planning)”, “Research Worker (Demands)” and “Store

Keeper (Operation)”. By clicking on these menu options one can get the desired page.



**Fig. 2 : Home Page**

Fig.3 and Fig.4 shows the reports of Experiment Cropping Scheme and General Cropping Scheme respectively.

Experiment cropping scheme:A																					
Id	Plot No	Experiment Name	Objective	Treatments	Experiment Details					Block Size (m <sup>2</sup> )	Exp Area (ha)	Fertilizer					Plant Protection	No of Irrigation	Previ Crop		
					Exp-Design	Replication	Seed rate (kg/ha)	Spacing (m)	Name of plot (Gross plot (m <sup>2</sup> ))			Net plot (m <sup>2</sup> )	FYM (Tonne)	Nitrogen (kg/ha)	Phosphorus (kg/ha)	Potash (kg/ha)				Micro Nutrient (kg/ha)	
83	J1	IVTO(SC)	Checking Oat Treatment	16	RBD	3	0	25	3.0*3.0	3.0*3.0	24*7.5	0.054	10	80	40	0	-	As per requirement	0	-	
84	J2	AVTO(SC)-1	Checking Oat Treatment	12	RBD	3	0	25	4.0*3.0	4.0*3.0	18.0*9.5	0.0513	0	80	40	0	-	As per req	10	Oat	
85	1	AVTO(SC)-2	Checking Oat Treatment	8	RBD	3	0	25	4.0*3.0	4.0*3.0	12.0*9.5	0.0342	0	80	40	0	-	As per req	0	-	
		AVTO Oat(SC)-2	Checking																		

**Fig. 3 : Experiment Cropping Scheme**

General cropping scheme:A																					
Previous Year Cropping Scheme								Suggested Cropping Scheme													
Id	Plot No	Area (ha)	Crop Name			Yield / Hectare		Profit/Loss Per Hectare (Rs)	Plot No	Area (ha)	Crop Name and Variety	Ploughing	Inter Culturing	Weeding	Fertilizer / Hectare					Plant Protection Pesticides / Hectare	
			Kharif	Rabi	Summer	Main(Grain)	Sub(Straw)								FYM (Tonne)	Nitrogen (kg/ha)	Phosphorus (kg/ha)	Potash (kg/ha)	Micro Nutrient (kg/ha)	Name of Pesticides	Quantity of Pesticide (liter)
48	J1	1.29	Hemp	Oat	-	15	0	12000	J1	1.29	Lucerne	3	2	2	25	80	40	0	0	Andro	4
49	J2/1	0.27	Hemp	Lucerne	Oat	4	6	20000	J2/1	0.27	Lucerne	4	3	3	25	20	50	40	0	Andro	4.5
50	J2/1	0.27	Hemp	Lucerne	Oat	4	6	20000	J2/1	0.27	Lucerne	4	3	3	25	20	50	40	0	Andro	4.5
51	J2/2	0.19	Hemp	Oat	-	3	0	20000	J2/2	0.19	Lucerne	3	2	2	25	20	50	40	0	Andro	4

**Fig. 4 : General Cropping Scheme**

The data entry form for Plot Requirement and Machine Requirement are shown in Fig.5 and Fig. 6 respectively.

Fig. 5 : Plot Requirement

Machine	Quantity	Unit
Trikam	4	Nos
Tractor	1	Nos

Fig. 6 : Machine Requirement

Fig.7, Fig.8 and Fig.9 shows the Requested Machine Details, Approved Equipment Requests and Approved Plot Request respectively.

Machine Name	Quantity	Unit
Trikam	4	Nos
Tractor	1	Nos

Fig. 7 : Requested Machine Details

Date(yyyy-mm-dd)	User Name	Equipment Name	Quantity	Unit	Action
2015-05-04	nsarg@yahoo.com	Shovel	4	Nos	[Action]
2015-04-01	nsarg@yahoo.com	Shovel	5	Nos	[Action]
2015-02-2	nsarg@yahoo.com	Roller	1	Nos	[Action]
2015-02-11	nsarg@yahoo.com	Shovel	2	Nos	[Action]
2015-02-07	nsarg@yahoo.com	Tagara	5	Nos	[Action]
2015-02-04	nsarg@yahoo.com	Tagara	3	Nos	[Action]
2015-01-29	nsarg@yahoo.com	Trikam	1	Nos	[Action]
2015-01-23	nsarg@yahoo.com	Tagara	4	Nos	[Action]
2015-01-21	nsarg@yahoo.com	Roller	5	Nos	[Action]
		Shovel	10	Nos	[Action]
2015-01-16	nsarg@yahoo.com	Tractor	1	Nos	[Action]

Fig. 8 : Approved Equipment Requests

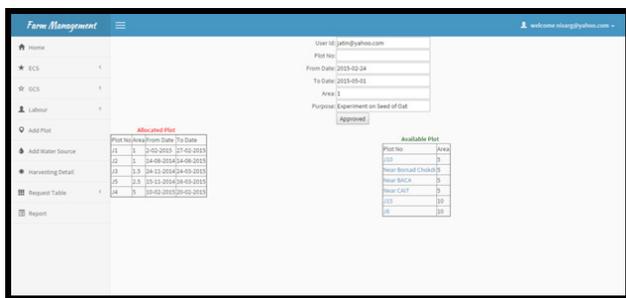


Fig.9 : Approved Plot Request

## CONCLUSION

Farm management Information System for that helps farmers to improve their productivity and profitability. It enables farmers to manage financials, inventory, people, and mechanization of farms and fields. Thus farm management is the science which deals with the analysis of the farming resources, alternatives, choices and opportunities within the framework of resource restrictions and social & personal constraints of farming business. This complex information is integrated and synthesized to increase profitability of the farming business. Farm management is a decision-making science. It helps to decide about the basic course of action of the farming business. The information system will help in giving accurate information in very short time and will help in taking decision by the manager, which otherwise could not have been taken by the manager because of non-centralization of information by various sections of farm office. Thus computerization will help supporting the decision by the farm management and in the information retrieval at any point of time.

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