

## ROLE OF MANAGEMENT FUNCTIONS IN ENHANCING THE EFFECTIVENESS OF MODERN FARMING TECHNIQUES

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### ABSTRACT

*The agriculture sector can and must face an important mission of supporting food security within the country and worldwide. It is sophisticated attributable to the sharp misbalance between agricultural segments caused by imperfect management. With success managing, farming activity is the goal of farm homeowners. Innovation and entrepreneurial activities play a vital role in promoting rural economic progress. The standard of the selections created by management is a very important part of determining the business's longevity. Prudent managers square measure regularly, trying to find management resources that improve the standard of their choices. Each day, new data and technology become accessible that needs a minimum of challenges, management to re-evaluate previous choices to work out if the advantages outweigh the prices. Managing a farm could be a 24/7/365 responsibility. If managing a farm is necessary, it will describe by the decision-making method to meet the vision, mission, and goals of the business. All choices created by management square measure centered on the economical allocation of production land, labor, capital, and management. The analysis methodology was centered on rising management functions involving coordination, control, planning, organization, and motivation in Modern farming techniques to fulfill this challenge.*

**Keywords:** Management Functions, Modern Farming, Organic Farming, Greenhouse Technology.

### A. Introduction

Agriculture has perpetually been the backbone of the Indian economy, and despite involved in the industry within the last six decades, agriculture still occupies an area of pride. It employs around sixty percent of the entire hands within the country. Agricultural development is central to the economic development of the country. The Asian nation is understood as the Land of Villages regarding sixty-seven of India's population lives in villages. The most occupation of them is agriculture and different activities associated with agriculture. Agriculture is the largest and dominant sector of our economy, providing a living to regarding seventieth of the population of Asian nation. Agriculture is that the backbone of the Indian economy. Agricultural turn out has been the principal supply of the stuff. This shows the relative importance and dominance of agriculture within the Indian economy. Agricultural development is important for the economic process, rural development, and poorness alleviation in low-income developing countries. It is a good driver of the economic process and to develop the other entire agriculture related sectors. It is vital to understand that modern business management principles will assist the farmer or

farm manager, regardless of however little his farm could also be and meager his capital. This can be attributable to the two major tasks facing today's farm managers that square measure.

- a. However, best to include new technologies into the farming enterprises;
- b. The way to be sufficiently versatile, mentally and financially, to adjust.

If farmers apply correct management principles and techniques' square measure, it helps them fulfill these and alternative challenges with some sensible level of success. There square measure real benefits in utilizing farm management concepts and new technical Advances and capital, all things being equal. There are forever wide variations in net farm incomes per area unit between those farms wherever Modern management concepts square measure used and people wherever they're not. Some dramatic enhancements are created on farms that have engaged management specialists to help their technical and economic coming up. Most farmers who have used management recommendations have recorded an increase in profit, relative to farmers who haven't done, therefore. Once the rationale for the poor money performance of a farm is

analyzed, it's found that: activities (e.g., crops and animal productions) aren't being meted out within the best way; different activities aren't well-coordinated, and; wrong activities square measure being conducted. A farm manager will confirm the value, in terms of loss or unsuccessful financial gain, of the current method of organizing and managing his farm. This may oft stimulate the farmer to require a keener interest within the technical aspects of however he carries out his farming activities; it's going to conjointly arouse his interest in new activities, which might increase his net income.

### **What is Organic farming?**

It is a crop production system that excludes artificial compounds like fertilizers, pesticides, growth regulators, and placental mammal food additives. It will sustain the health of soils, ecosystems, and folks by combining tradition, innovation, and science as result of it combines crop management and farming within the agro-ecosystems that square measure socially acceptable and ecologically property. Therefore, this method minimizes the utilization of external inputs and data and aims to optimize crop productivity instead of its maximization through the renewal and strengthening of farm ecosystems' ecological processes and functions. Organic farming's key domains are improved packages of practices, market network, organic standards, and certification/regulatory mechanism.

### **What is Greenhouse farming?**

The distinctive farms follow growing crops inside protected structures coated by a clear, or partly clear, material. The most purpose of greenhouses is to produce favorable growing conditions and shield crops from unfavorable weather and varied pests. Greenhouse Farming is that the method of cultivating crops and vegetables during a greenhouse ecosystem setting. Cultivation in greenhouses could be a follow that has allowed farmers to extend their performance, whereas, up the standard of product, analytic than in micro-ecosystems have the best conditions for plants to grow healthy, robust, and delightful.

## **B. Objectives of the Study**

1. To understand the role and importance of management functions in contract farming and organic farming.
2. To study the existing performance of Greenhouse farming and organic farming.
3. To study various factors affecting the performance of Greenhouse farming and organic farming.

## **C. Methodology**

Research is the systematic study of the problem. Through this research, the working researcher wants to study the impact of government schemes on farmer well-being. In the Ahmednagar and Nashik district, there are maximum farmers has taken benefits of this scheme. Therefore researcher wants to study the impact of farm pond on the farmers of both districts.

### **The hypothesis of the study**

Ho1: Management functions do not play a vital role in increasing yield and productivity under modern farming techniques

Ha1: Management functions are playing a vital role in increasing yield and productivity under modern farming techniques.

Ho2: Organic farming and greenhouse farming are not giving significant contributions to the economic development of farmers.

Ha2 Organic farming and greenhouse farming are giving significant contributions to the economic development of farmers.

### **Type of Research Design**

For this research, the study researcher would like to use exploratory and descriptive research design.

Exploratory Research Design is the design conducted for a problem that has not been studied more clearly, establishes priorities, develops operational definitions, and improves the final research design. Through this topic, the researcher would like to explore the problem existing in the Ahmednagar district.

Descriptive Research Design: *Descriptive* studies aim to find out "what is," so observational and survey methods are frequently used to collect *descriptive* data. For this study, the researcher would like to use the

structured questionnaire, observation, and Personal interview techniques.

### Sources of data collection

Primary sources: researcher would like to collect the primary data by using the following sources:

1. Questionnaire
2. Interview
3. Observation

Secondary sources:

The secondary data will be collected by using the following sources:

1. Books
2. Journals
3. Websites
4. Annual records

### Sample Design

i. Population/Universe of the study:

The population of the study includes all farmers using modern farming for agricultural activities.

ii. Sample Area: The researcher has Select the district of such as Ahmednagar District. From this district, the researcher would like to collect the data from the following tehsils.

1. Sangamner
2. Akole

From these two talukas researcher wants to study the role of management functions and their efficiency.

**Sample Size:** The researcher would like to collect data from 100 farmers cultivating their land using modern farming technologies such as organic farming or Greenhouse farming.

**Sampling Technique:** The researcher would like to use stratified sampling, convenience sampling, and simple random sampling for the study.

### Statistical Tools for data analysis and Testing of Hypothesis

The researcher would like to use tables, charts, and graphs for the systematic representation of the data.

For testing of hypothesis, the researcher would use various hypothesis testing methods like:

- a. Chi-square,
- b. Factor Analysis and
- c. ANOVA test.
- d. Correlation analysis.

### Scope of the study

The study is confined only to the management functions which the farmer uses to develop modern farming techniques in organic farming and greenhouse farming. The study will give information about the role of management function under organic farming and greenhouse farming, which will help the economic development of farmers in Sangamner and Akole taluka of Ahmednagar districts.

### Limitations of the study

The researcher collects data from the farmers using only organic farming and modern farming techniques under modern farming to cultivate farmland. The study is limited to understanding the role of management function in enhancing economic development.

## D. Conceptual Background

**Management functions in Modern farming techniques:** Management functions area unit enjoying a significant role in Modern farming Techniques. But it's pertinent to notice that Farm management is especially involved with the choices that affect the farm business's target performance. A cardinal objective performs of farm management is that of profit maximization. If the farmer desires to run his farm as an Associate in the nursing economic entity, his aim should be to provide an output that the whole worth exceeds the whole worth of input used. This ends up in profit for the farm. On the opposite hand, there will be a loss if the whole worth of the inputs is above the output's whole worth.

Farm management is thought of as a call-creating method; it's a continuous method thanks to the continual changes going down within the economy and in a private agri-business. The choices area unit involves allocating the restricted resources of land, labor, and capital among different and typically competitive uses. This allocation method forces the farm manager to spot goals and objectives to guide and direct deciding within the farm.

## **Need and Importance of Management functions in Agriculture**

**Development:** Agriculture has achieved satisfactory growth since previous few decades, however presently, thanks to the varied national and international factors, the expansion of agriculture is comparatively stagnated. Up-gradation is required right from harvest home the agricultural manufacture until it reaches shopper level. The majority of the farmers and little entrepreneurs are not well versed concerning customary practices needed throughout preharvest, likewise as post-harvest operations, that beyond any doubt plays an important role in overall productivity. On the alternative aspect, too several intermediaries within the selling channel are a serious reason behind concern.

Additionally to those, the growing international population has resulted in inequality between market demands and provides an aspect of agricultural manufacture. Thus, special thought is needed to follow correct management practices, reduce staple wastages at farm and process level, effective selling ways like advertising, whole positioning at the national and international level, etc. Finally, correct management of all the agriculture activities right from planting the seed to obtaining the particular reward at market place is needed. These problems are expected to be self-addressed by management education in the agricultural sector, which has the hidden potential of making the second wave of modern farming.

### **Modern farming**

Modern farming technology is utilized to enhance the wide forms of production practices employed by farmers. It uses hybrid seeds of chosen style of one crop, technologically advanced instrumentality, and plenty of energy subsidies within the type of irrigation water, fertilizers, and pesticides. Modern farming means that farming with the assistance of recent and advanced techniques and technology. Which means farming with the facilities of recent science and technologies? Victimization of science and technologies in farming increases total production. Farming is the cultivation of livestock, fish, birds, plants, crops, etc., for the aim of food, artifact, and

different products essential for sustain life. Farming is taking part in an important role within the development of human civilization.

The development of agriculture and farming technology has greatly accrued farming productivity. Varied styles of trendy farming strategies that square measure used these days' square measure commercial enterprise, intensive farming, organic farming, and property agriculture, etc. Farmers square measure currently able to purchase and sell their product within the world markets. With the accrued use of pesticides with artificial N, mechanization, and well-mined rock phosphate, crop production has greatly accrued. It has channelized revolution in cereal production like rice, wheat, corn, etc. Previously, farmers will not get to plow to dig the soil. On the opposite hand, farmers of late use trendy instrumentality like multi facilities tractor to dig the soil. Within the past, farmers were addicted to natural climatic conditions and fertilizers and wont to have low productivity. Currently, the items have been modified; with artificial fertilizers, high productive breeds, and farming productivity has accrued plenty. As we tend to all understand, the world population is increasing speedily. We want much product like food, cloth, etc., that completely depends on farming production. As a result, we need more production in farming, which is quite difficult in traditional farming. Hence, modern farming is a must to get more production according to rapid population growth.

### **Organic Farming productivity and Profitability**

Organic farming works harmonically with nature instead of against it. This involves victimization techniques to realize sensible crop yields while not harming the natural atmosphere or the life and add it. Associate degree organic farmer produces vegetables, fruit, cereal crops, or ethereal mammal whiles, not utilizing chemical fertilizers, pesticides, or herbicides. In our way, organic farming is quite agricultural that offers the customers fresh, tasty, and reliable food, whereas concerning natural life cycle systems. Additionally to the health advantages of organic products for customers, there square measure important



environmental advantages for the world. Associate degree organic farming keeps multifariousness and scales back environmental pollutions such air, water, and soil. Organic agriculture has adult out of the acutely aware efforts by galvanized individuals to form the most effective doable relationship between the world and men. Organic agriculture promotes property compared to standard agriculture. However, the multifunctional property advantages of organic farms may be mediated by landscape context. Assessing landscape context, however, affects property might aid in targeting organic production to landscapes that promote high multifariousness, crop yields, and profit. We tend to self-addressed this employing a meta-analysis spanning sixty crop sorts on six continents that assessed whether or not landscape context affected multifariousness, yield, and profit of organic vs. standard agroecosystems. We tend to thought-about landscape metrics reflective landscape composition (percent cropland), integrative no uniformity (number and variety of canopy types), and plan no uniformity (spatial arrangement of canopy types) across our study systems. Organic sites had bigger multifariousness (34%) and profits (50%) than standard sites, despite lower yields (18%). Multifariousness gains magnified as average crop field size within the landscape magnified, suggesting organic farms offer a "refuge" in intensive landscapes. In distinction, as crop field size magnified, yield gaps between organic and standard farms magnified and profit advantages of organic farming shrunken. Profit of organic systems that we tend to live for studies conducted within us solely varied across landscapes compared to production prices and value premiums, suggesting socioeconomic factors mediate profit. Our results show that the advantages of organic farming in landscape context are compared to yield and profit advantages, suggesting this property metrics square measure decoupled. Generally, our results show that the ecological, however not the economic, property advantages of organic agriculture square measure most pronounced in additional intensive agricultural landscapes.

## Benefits of Organic Farming

### a. Promotion of Bio-Diversity

Crop rotation to create soil fertility and raising animals naturally helps promote diverseness that promotes larger health across all living species. As organic farms give safe havens to life, native ecosystems conjointly improve.

### b. Reduction of Farm Pollution

While "farm smog" is not real, ancient farming will produce its sorts of pollution about runoff from artificial fertilizer and chemical pesticides that damage the encompassing areas. That runoff seeps into the native groundwater provide as harmful chemicals are eliminated from use through organic farming, the atmosphere edges. Organic farming improves the soil, removes the chance of groundwater pollution, and rehabilitates soil in areas wherever water harm provides has already occurred.

### c. Better-tasting Food

It is not your imagination: organic food tastes higher than a product that returns from standard farms and ways. Organic turn out tends to possess lower nitrate content than non-organic varieties, resulting in fruits that not solely style sweeter however even have higher inhibitor levels. Science shows that organic farming is not simply tastier however higher for you, too.

### d. Fewer Environmental Toxins

At present, but one 1/2 common fraction of farmland area within the US is dedicated to organic farming. This suggests that over 900 million acres of farmland are being treated with chemical fertilizers, pesticides, and different ototoxic substances needed by stock farming. Because the proportion of organic farms will increase, the atmosphere conjointly edges.

### e. Job Creation

Studies compiled by the Organic Farming Research Foundation have shown that there are more than 10,000 certified organic producers in America than almost two million traditional farms. However, organic farms tend to bring in more profits, despite requiring more employees. It is easy to see the economic benefits derived from job creation resulting from an increase in organic farming.

**f. Better Soil Quality**

According to Cornell University's research, forty billion dollars are lost annually due to topsoil destruction caused by conventional farming's dependency on chemical fertilizers. If organic farming methods replaced those fertilizers and ammonia, topsoil health would improve. The healthier soil would, in turn, produce vegetables and fruits with higher amounts of minerals and micronutrients.

**g. Helping in the Fight against Climate Change**

Organic farming reduces the use of nonrenewable energy because it avoids using chemical pesticides and fertilizers, which require large amounts of fossil fuel to produce. Organic farming also returns more carbon to the soil, lessening the greenhouse effect and global warming.

**h. Preservation of the Culture of Agriculture**

Around the world, every culture has at least one thing in common: food. Organic farming celebrates biodiversity and good health, and it removes harmful toxins from our environment and our food. That is something to encourage and celebrate.

**Greenhouse Farming**

Crop production could be a risky business. The foremost powerful advantage of greenhouse farming is that it permits effective management and reduces risks caused by the unfavorable atmospheric condition. A lot of concretely, greenhouse farming optimizes growing conditions and protects the crops from extreme weather events. Also, some greenhouse farming varieties (greenhouses with managed heating) extend the season or perhaps enable farmers to grow crops outside of the standard season. Greenhouses that are also equipped provide the possibility to require complete crop production management that results in quicker growth and better yields.

**Benefits of Greenhouse Farming****1. Increased production**

Greenhouse farming is taken into account associate degree implementation of intensive agriculture and may increase crop production. This is because you have much management for making the optimum climate conditions

required for plant growth associate degree square measure able to grow many plants per sq. feet compared to growing crops in an open field.

**2. Minimizing production risks**

Being in an internal area will facilitate forestall crops from suffering harm from global climate change connected events like abrupt will increase or temperature drops, likewise keeping crops far from birds and alternative animals.

**3. Maximizing profits**

Multiple studies have expressed that the profits per crop per sq. feet are often even doubly or thrice as huge once implementing greenhouse farming as another to open-field agriculture and combining the observation with alternative methods like tank farming. By utilizing resources in an exceedingly a lot of economical manner, you can produce less waste that will translate into larger profits.

**4. Increased pests, weeds, and malady management**

A handy and optimally engineered greenhouse will stop issues like pests and weeds, also offer additional management against alternative diseases. An inside area will be restricted to solely the mandatory personnel, and fewer individuals stepping into and out suggest that a lesser risk of transportation unwanted components on the crops' point.

**5. Ability to grow year-round manufacture, even off-season**

A greenhouse is comparatively freelance to the globe outside, eliminating the limitation of growing crops solely on a selected season. Even within the harsh winter or intense summer temperatures, prime quality crops will be adult, provided you've got the mandatory suggestions that to make the proper climate within the greenhouse.

**6. More stability and security**

Since you do not depend upon climate conditions, a rising instability and security, not just for the crops however conjointly for the staff, will be obtained by greenhouse farming.

**E. Results and Discussions**

Modern farming techniques for cultivating land.

Table 1 shows the how management functions are important and the farmers are used in

**Table 1: Importance of management functions**

Sr. No	Function	O	E	(O-E)	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
1	Planning	76	100	24	576	5.76
2	Controlling	72	100	28	784	7.84
3	Directing	66	100	34	1156	11.56
4	Organizing	68	100	32	1024	10.24
<b>Calculated Value</b>						35.4

During the analysis we found the value from table of Critical chi-square is= 7.81 & Calculated Chi-square value is=35.4, it is cleared that the association between management functions and Modern farming techniques. Therefore it is cleared that calculated value is greater than critical value

hence null hypothesis is rejected and alternative hypothesis is accepted. Following table shows the Correlation analysis between management functions and enhancing effectivity through modern farming techniques with various factors and it is proved that:

**Table 2: Correlation analysis**

Analysis of variance (Y):						
Source	DF	Sum squares	Mean squares	F	Pr > F	
Model	1	2166.000	2166.000	55.538	<b>0.002</b>	
Error	4	156.000	39.000			
Corrected Total	5	2322.000				
<i>Computed against model Y=Mean(Y)</i>						
Model parameters (Y):						
Source	Value	Standard error	t	Pr >  t	Lower bound (95%)	Upper bound (95%)
Intercept	69.000	3.606	19.137	< <b>0.0001</b>	58.989	79.011
Increase yield - 33	-38.000	5.099	-7.452	<b>0.002</b>	-52.157	-23.843
Increase yield - 67	0.000	0.000				

Table 2 shows p value is less than 0.001. It is less than 0.05 hence null hypotheses is rejected and alternative hypothesis is accepted. From the Annova table it is cleared that critical value is 5.30. Calculated value is 55.53 hence calculated values is greater than table value

therefore null hypothesis is rejected and alternative hypothesis is accepted. Economic development of farmers through the organic farming and greenhouse farming are getting cleared through the following table no.3.

**Table 3: Organic and Greenhouse farming**

Sr.No	Impact	O	E	(O-E)	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> / E
1	Strongly agree	54	25	29	841	33.64
2	Agree	22	25	-3	9	0.36
3	Disagree	14	25	-11	121	4.84
4	Totally Disagree	10	25	-15	225	9
						47.84

From the table researcher got the Critical chi-square value is = 7.81 and Calculated Chi-square value is 47.84. Therefore it is cleared that calculated value is greater than critical value hence null hypothesis is rejected and alternative hypothesis is accepted.

Importance of Management functions in functioning of different factors in organic farming and greenhouse farming for cultivating land using these techniques are more profitable and productive for the farmers.

**Table 4: Importance of management functions in Organic & Greenhouse farming**

Sr.No	Role of management functions in Different factors	Most Important	Important	Less Important	Not Important
1	Land selection and utilization	44	24	19	13
2	Crop selection	56	24	13	7
3	Capital Management	46	23	20	11
4	Proper Irrigation practices	52	23	13	12
5	Use of Pesticides	48	13	28	11
6	Use of Fertilizer	46	22	28	4
7	Technological Innovations	47	21	26	6

**Table 5: Factor Rotation Matrix**

Factor rotation Matrix			
	F1	F2	F3
Obs1	<b>0.799</b>	0.062	0.140
Obs2	0.001	0.073	<b>0.926</b>
Obs3	<b>0.775</b>	0.186	0.039
Obs4	0.440	<b>0.471</b>	0.089
Obs5	0.417	<b>0.583</b>	0.000
Obs6	<b>0.588</b>	0.412	0.000

#### *Factor Analysis*

From Table 5 researcher has collected opinion of the respondents about importance of management functions in functioning of different factors in organic farming and greenhouse farming. It is observed that in the first rotation matrix observation-1, observation-3 and observation-6 has shown maximum loadings. Hence management functions are playing an important role in land selection, capital management and use of fertilizer.

#### **F. Conclusion**

Present-day farm operations have become a lot of and a lot of business homeward-bound. Farming is quite simply manufacturing crops; it needs farmers and landowners to deal with gain, fertility, conservation, and tax problems to call simply several. Being a decent producer is not any longer adequate to stay in business.

The key to changing into a productive farmer is a decent producer, as a decent farm manager. The use of management functions is one of all the foremost vital resources in operative farms. Farm management determines the farm-life however is going to be organized, resources allotted, and activities performed. It deals with varied ways and ways to stay a farm productive, property, resistant and profitable. It is cleared that The very important importance of food to physical, economic, and cultural development, with that the importance of economic, property production makes trendy techniques crucial—in truth, there's robust proof that solely such approaches have any important likelihood of meeting the world's basic food desires within the next few decades and it's doable if the farmer's area unit used the management functions in modern farming techniques.



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