"MANAGEMENT PRINCIPLES IN AGRICULTURAL ACTIVITIES"- A STUDY WITH SPECIFIC REFERENCE TO PADDY CROP IN SOUTHERN PART OF KARNATAKA

Prakash HS[1], Kavitha GC[2*], Anuja Ashok Taradale[3], Poornima D[4], Girish Babu M[5], Pallavi M[6], Nethravathi AM[7], Chandrashekar Srinivasa[8], Bhargav Shreevatsa[9], Ashwini P[10], Shiva Prasad Kollur[11], Chandan Shivamallu[12*]

Article History: Received: 07.04.2023 **Revised:** 22.05.2023 **Accepted:** 07.07.2023

Abstract

The entire world has come to the conclusion that, in this chaotic and perplexing environment, the only way to conduct any activity with the knowledge of reaching tremendous heights is by adhering to a methodical approach, which is exactly management principles represent. Management ideas have recently become quite important for obvious reasons. Regardless of the industry, the work of decision-makers is more trivial than ever before in the VUCA era. In light of this context, the current paper begins with the three major goals of comprehending the process of paddy cultivation, determining the extent to which management principles are used, and finally to find out the impact of following management principles in the process of Paddy cultivation. The study also made an effort to find out the significance of the planning principles in controlling the diseases of the Paddy crop. The article concluded by saying that even an illiterate farmer also uses all the principles of management appropriately. Therefore, through some training or up-skilling programs, if the farmers are sensitized, perhaps good yield in almost all the crops can be expected. Many a time without knowing the market, price, quality of the seeds, and knowledge of various diseases many farmers lose the entire crop of the year, to avoid such untoward situations, effective usage of principles of management may help the farmer's community.

Keywords: Farmers, Paddy crop, management principles, modern method of cultivation

[1]Director MBA, Shri Dharmasthala Manjunatheshwara College of Engineering and Technology, Dharwad-02, Karnataka, India
[2,8]Department of Studies in Biotechnology, Davangere University, Davangere-577007, Karnataka, India
[3]Assistant Professor, City College, Jayanagar, Bangalore, Karnataka, India
[4]Department of Studies and Research in Biotechnology, Tumkur University, Tumkuru-572103, Karnataka, India
[5]Department of Physiology, Shimoga Institute of Medical Sciences, Shimoga-577201, Karnataka, India
[6,7]Department of PG Studies and Research in Biotechnology, Sahyadri Science College, Kuvempu University, Shimoga – 577203, Karnataka, India
[10]Department of Microbiology, JSS Academy of Higher Education & Research, Mysuru, Karnataka-570015

[11]School of Physical Sciences, Amrita Vishwa Vidyapeetham, Mysuru, Karnataka, India
[9, 12*]Department of Biotechnology & Bioinformatics, JSS Academy of Higher Education & Research, Mysuru, Karnataka-570015

Corresponding Email: Chandans@jssuni.edu.in, Kavitha.gc.biotech@gmail.com

DOI: 10.31838/ecb/2023.12.s3.621

1. Introduction

The whole world has concluded in this chaotic and confusing situation that doing any activity with the wisdom of achieving great heights is only possible through following a systematic approach that is management principles. In the recent past, the management principles are gaining a lot of importance for the obvious reason, everything is getting complicated day by day relentlessly. The job of decision-makers is more trivial than before. Specifically referring to agriculture, although might assume of any business, organization, or division where the status quo is in jeopardy.

As observed agricultural activities are not as normal as before. In the last century or so, all the agricultural activities were used to happen seamlessly without any major natural calamities, except financial constraints. Rain used to fall at the right time with the required amount, diseases were pretty less and methods of agriculture were also more manual than mechanical. Hence it was like routine work used to happen without any complication. Every villager used to yield good crops without much worrying about chemicals and fertilizers, pesticides, land ploughing, crop cutting, watering, and all. But those days are over because agriculture's DNA has been altered by modern methods of production. Thanks to modern technology have brought a paradigm shift in all agricultural activities.

The most well-known and extensively grown food crop in the world is paddy. For nearly 60% of the world's population, it is part of their everyday diet. Asia is the continent where rice is predominantly produced and eaten. The world's largest area planted with paddy is in India, which also produces the second-largest quantity of paddy behind China and has raised its intake of rice. Since before recorded history, paddy has been grown in India. De Candolle (1886) and Watt (1892) assert that the beginnings of cultivated paddy are in south India, whereas Vavilov (1926) contends that the true roots of cultivated paddy are Burma and India. Rice (Oryza sativa L.) belongs to the Gramineae family There are around 18 wild species of paddy spread over the continents of Asia, Africa, and America. While Oryza sativa is cultivated all over Asia (Ruqsar and Arjuman, 2022).

In the year 2019-20, China produced 30% of the world's paddy, followed by India (24%), Bangladesh (7%), Indonesia (7%), Vietnam (5%) and Thailand (4%) (Food and Agriculture Organisation, 2019). India has a 117.47 million tonne production potential for the year 2019–20. In the eastern and southern parts of India, paddy is one of the most important crops. The output of rice in India peaked in the year 2018–19 reaching 116.42 million tonnes. Karnataka is India's largest rice-growing state, with a total area of 1.32 million hectares and an output of 3.5 million tonnes per year in 2017–18 (Food and Agriculture Organisation, 2019), One of the key districts in Karnataka for rainfed paddy agriculture is Shivamogga, which has an area of around 33,659 ha, production of 576.25 tonnes, and productivity of 17.12 q/ha (Annual report, 2020; Directorate of Economics and Statistics, 2020).

The article primarily focuses on the paddy crop, the significance of management principles in paddy growth, and exclusively emphasizes modern paddy-growing techniques; but not about origin and evolution of Paddy crop in India or Karnataka State. The food habit of most of the ‘Kannadigas’ depends upon Paddy especially in the Southern part of Karnataka, Paddy is ruling the plates. Paddy/Rice is the main ingredient in most of the items they prepare at home. Rice is being used in many forms like Rice with Sambar, Rice Idlies, Rice Balls, (Kadabu),

Rice Upma, Rice Rotti, Rice Ganji (Soup), Rice Kajjaya (Kodbale) etc.

Paddy is the major crop in the Southern part of Karnataka State; every house will have a minimum of 1 to 2 acres of reserved wetland for the Paddy crop as it is the source of their daily food. The varieties of Paddy which the agriculturist used to grow a decade ago, is not the same now. It has changed completely it has an existence in the form of brand name, immunity level, water consumption level, and pesticide resistible capacity. It is more of hybrid, and crossed, prone to many diseases than before, must have to spray more pesticides and pour excess plant protection chemicals and fertilizers. Therefore, the crop has lost its natural resistance and depend more on chemical and fertilizers.

Almost all the agricultural activities in today's world are driven by technology. Every activity related to growing Paddy is dependent upon technology, starting from forecasting the weather, searching for suitable seeds and their availabilities, land ploughing, water sourcing, and leveling shifting of loads/items, weed control, pesticides spraying, crop cutting and screening, etc. are technology-driven. Technological changes are not new, but managing technology is a part of management principles.

Understanding input utilisation patterns and their effectiveness in the production process is essential for improving paddy output. This would aid the extension service in guiding farmers in the proper path and resource allocation for planners. In a similar vein, a realistic evaluation of the production potentials would show the magnitude and direction of the imbalance that is most likely to develop in certain crops. In processing paddy, the article addressed a few management principles. The principles that are taken into account are:

- Planning
- Organizing
- Staffing
- Controlling
- Budgeting

2. Review of Literature

Based on study objectives following research articles were carefully studied and reviewed to understand on further research.

The technical efficiency of rice farming was assessed by Jayaram et al., (1992), who found that large farmers had better technical efficiency than small farmers. It was assumed that the farmer had grown rice with comparatively greater levels of physical efficiency. Contrarily, both large and small farmers employed inefficient input. The ineffective use of resources, especially in the case of small farmers, suggested the careless use of resources like irrigation and fertilizer.The economics of farming techniques in the Tungabhadra project region were examined by Nagaraj (1993). According to his report, the head reach and net returns were, respectively, and the cost of cultivation was, when compared to those figures. In contrast, farmers were able to produce paddy.

An attempt has been made by Shanmugam and Palinisami (1993) to research the most effective manner to cultivate the paddy crop. According to the study, the "average farmer" could raise their output of rice by 26% by using contemporary agriculture techniques and technology. This is because best practices are used in all aspects of modern agriculture. The economic inefficiency showed that if the technological gaps between "average farmers" and "best practise" farmers were closed, productivity could be increased by 29.7%.

Henegedara GM (2000) noted that various factors became a significant obstacle to agriculture in Sri Lanka. They are high costs of production, low yields, and small surpluses that can be sold. However, depending on the farming systems, these factors' effects may differ. By encouraging farmers to pursue agribusiness, the idea of farming paddy just for domestic use should be modified.

According to Thomas (2002) study, Kuttanad's cultivation expenses are greater than those in Kerala's other major rice-producing regions, mostly because labour is more expensive there. The problem of labour scarcity may be greatly alleviated and the rising cost of farming activities can be lowered by taking a proactive stance towards mechanisation of farming operations.

A study by SoliengMak (2010), paddy agriculture is the largest off-stream water consumer and a major source of livelihood in many Asian river basins. When it comes to the production and supply of inputs, as well as the processing and distribution of products, paddy farming may produce significant value both "upstream" and "downstream" of the farm level. This is especially true for irrigated systems, which allow for the annual production of two harvests.

As reported by Umadevi S (2012), 2.4 billion people eat paddy as their primary source of sustenance. China, India, Japan, Bangladesh, Thailand, Myanmar, Vietnam, Brazil, South Korea, Philippines, and the United States are the main countries that produce paddy. About 65% of Indians prefer rice over all other types of staple food. It still plays a crucial part in the nation's agricultural exports.

3. Methodology

3.1. Significance of the study

Paddy/Rice is the second highest produced grain in the world after Corn. Paddy is not only one of the most important food crops but also an intricate part of the socio-cultural aspects of the lives of many people in the major rice producing regions of India and the world. Paddy/rice is the most important grain with regard to human nutrition and calorific intake, providing more than one-fifth of the calories consumed worldwide by the human species.

An increase in Paddy area, production, and productivity mainly depends on the rainfall, method of cultivation, diseases, and availability of irrigation. As a result, the Paddy cultivators are facing several problems. Hence the present study makes a modest attempt to know the usage of management principles in the Paddy growing process and its significance. The article does aim to provide farmers with a clear picture of the benefit of implementing the principles of management.

3.2. Objectives of the study

- To know the entire process of Paddy growing
- Understanding the application of management principles
- Evaluate the impact of management principles
- To suggest a possible solution

3.3. Data Sources and Sampling

Data sources: Both primary and secondary sources are used to compile the study's data. Field surveys are used to gather primary data. Secondary data is gathered from pertinent publications including books, journals, newspapers, as well as government documents and reports. Through a scheduled interview process, the data is gathered.

3.4 Sample size: 272 respondents were picked from the Malnad area of the Karnataka State.

3.5. Limitations of the study

The study is limited to the Malnad region of Karnataka State. And due to the time limit, the study has considered selected major principles of management. Due to lack of understanding, there may be a chance of biasness in the opinion of the respondents.

4. Data analysis and interpretation

4.1. Planning: Planning is simply a blueprint prepared based on certain facts or assumptions. It navigates the future course of action in an effective way to attain the predetermined results cost-effectively. Therefore, an effective planner will certainly reap the benefit of a timely planning process.

4.1a. Implication of planning in Paddy growing

H1– proper planning helps to mitigate crop losses due to uncertainties related to Paddy crop.

Planning plays a pivotal role in avoiding future uncertainties related to crop damages and subsequently it assists in enhancing the yield of the crop. Literates or illiterates everyone in the village is well versed with planning and using it effectively. Though many are not understood the theoretical meaning of planning, using it naturally. The last generation people opine that during the days of their dominance, they were never used to bother much of planning aspects because there used to be a well-oiled system in place, and uncertainties were pretty less. Hence their job was easygoing. But these days, due to external macro factors many uncertainties are bound to happen. Hence only proper planning would rescue them from future losses.

A total of 272 agriculturists were asked about the role of planning in deciding the future course of action regarding Paddy crop, they opined (90%) that yes, they do plan their Paddy-related activities in advance as there are many uncertainties unknowingly attached on crops.

4.1b. The process of Paddy cultivation (allied activities)

The study has considered the cultivation of Paddy during the rainy season. The duration of the Paddy growing season approximately lasts for 4 months or so. The time and activities of the Paddy cultivation process is as below.

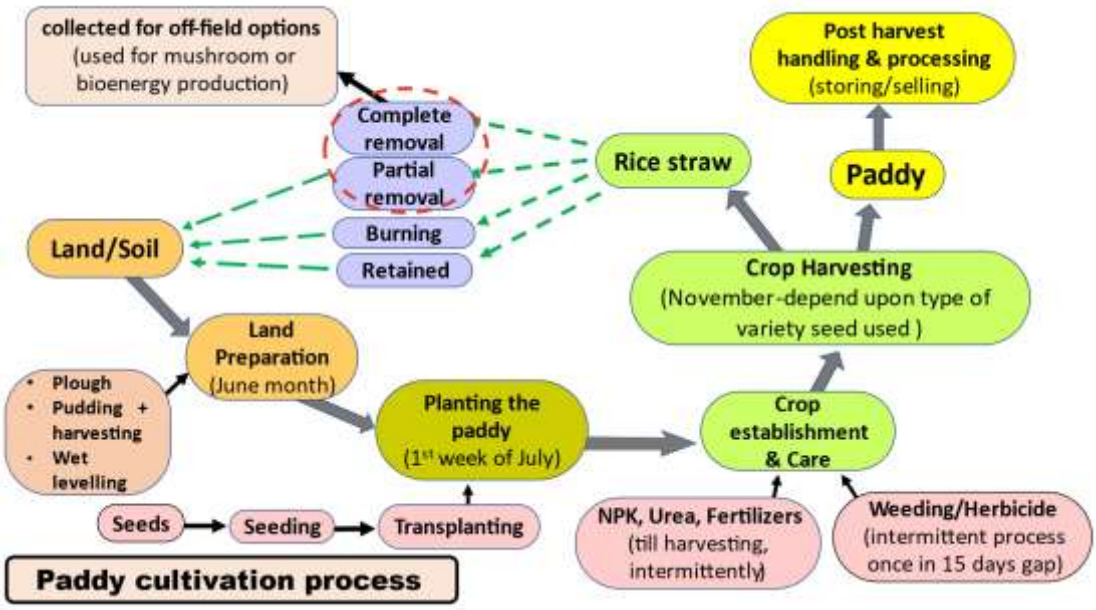

Figure 1: Paddy cultivation process

Figure 1 shows the various associated activities of the Paddy crop with the possible time gap. The process begins with ploughing the field, pre-monsoon or post-monsoon. It depends, normally nowadays most of the agriculture landholders soon after the cutting of the previous crop, with the help of tractors they plough the field

deeply and allow it to expose to the hot sun during scorching summer, and once pre-monsoon rain starts their agriculture related activities begins in April or end of May month. Further agriculturists will level the Paddy field, weed out process will occur twice; once before planting and once after planting. Side by side seed germination takes place at one commonplace, in the meantime, if rain does not fall at the expected level, then agriculturist will use their source of water, else rainwater will be used effectively. weeding will occur twice—once before planting and once after planting.

In the next step, the germinated Paddy/seedling will be planted in the open field by following certain principles, like a gap between the scoops of saplings. There are two methods to grow Paddy, one is by sowing the Paddy in the lines created manually and another is planting the germinated Paddy in the muddy field. Each has its merit and demerits and required different works to be done and period. Further Chemical and Fertilizers usage, happens in 2 ways, first natural fertilizers such as compost, farmyard manure, green manure and vermicompostwill be put-in before planting the Paddy and chemical fertilizers during planting and post-planting. Many varieties of chemicals and fertilizers will be used by the agriculturist like DAP as the basic, and later in the stage urea, potash, and 20-20-0-15, etc. The entire agriculturist does agree on the fact that nowadays they will not be able to yield good crops without using pesticides. Varieties of new diseases will attack to the crops hence the usage of pesticides up to three times, on different schedules is common.

After all, the crop will come to the harvesting stage. The mechanical way of harvesting is common across the different classes of the agriculturist. At the end of the process, cutting the crop, processing, grading, sorting, and storing or selling will take place.

According to common consensus, farmers in underdeveloped countries either fail to properly use a technology or commit allocative errors, which causes a wide variety of yields that typically represent variations in the farmers management skills. This demonstrates that there is a lot of potential for improving farmer efficiency in order to increase output and profitability. Additionally, farmers have a propensity to use resources like fertilizer and plant protection chemicals inefficiently, which not only increases the cost structure of the production process but also prompts researchers to examine efficiency and profitability issues in paddy production (Anon, 2009). As a result, the current study makes a small effort to understand the way management principles are used in the paddy growing process and their significance.

Taking all of the activities into consideration, the survey questioned the respondents regarding how long in advance they planned various activities linked to the paddy harvest.

According to 32% of respondents, they will schedule various paddy crop operations 15 days in advance, and a similar percentage stated they will schedule them one month in advance. But generally speaking, 98% of respondents indicated that they would schedule their activities in advance according to various timetables. But off the record while interacting with agriculturists the survey also found out that the schedule of the planning process depends upon the nature of the work they intended to do, let say identifying the field for Paddy crop will happen one year or six months in advance, variety of seed will be decided 6 or 3 months early.

4.1c. Normal uncertainties to Paddy crop

The Paddy Crop's Normal Uncertainties are shown in Table 1. Respondents were questioned about the many uncertainties they had encountered over the past five years while raising the paddy crop. Out of

the total respondents, 272, 250 had experienced drought, and there is typically uncertainty once every three to four years. One hundred seventy-eight respondents reported experiencing excessive rain, which they stated affected the paddy crop. 51 respondents mentioned that a variety of diseases they had never encountered before were affecting their crop. The production of the paddy crop has also been affected by insects and flies, although 154 out of 272 respondents said they had not experienced any of the aforementioned problems.

Table 1: Uncertainties to Paddy crop

Sl. No.	Particulars	No. of respondents	No. of responses	% of the Respondents
1	Drought	272	250	91.9
2	Heavy rainfall	272	178	65.4
3	Variety of diseases	272	51	18.7
4	Insects/flies/worms	272	63	23.2
5	None	272	154	56.6

Source – Primary data

The aforementioned data highlights common uncertainties that affect the paddy crop. It is important to note that the majority of respondents (91.9%) experienced drought, followed by heavy rainfall (65.4%), insects/flies/worms (23.2%), a variety of illnesses (18.7%), and None (56.6%), in that order.

4.1d. Loss of crop due to uncertainties

According to the data presented in Table 2, a maximum proportion of 39% of respondents said that they had not lost any crop owing to any disasters or uncertainties. Only 3% of those surveyed have completely lost. It may be said that one or more natural disasters or external uncertainties happen constantly, but owing to smart and timely planning by the farmer, they are able to limit crop loss much more effectively.

Thus, it is possible to accept the null hypothesis and draw the conclusion that timely and careful planning definitely helps to reduce crop losses in the future.

Table 2: Percentage of crop loss due to uncertainties

Sl. No.	Loss of crop	No. of respondents	% of the Respondents
1	Full loss	9	3.3
2	Partial loss	71	26.1
3	Half loss	49	18.0
4	3/4 loss	38	13.9
5	No loss	105	38.6
Total		**272**	**100**

The statistics cited above indicates Crop loss as a percentage of uncertainty. It is significant to note that the majority of respondents (38.6%) said that they had no

losses as a result of uncertainty, while 26.1% reported partial losses, half losses and three-quarter losses were experienced by 18.0% and 13.9% of respondents respectively.

4.2. Organizing,

Organizing is another important principle of management. Proper and timely organizing of resources would assure a better result. Whether it is an agricultural activity, industrial, social service, or an NGO it has to be organized well in advance. So, the future uncertainties can be handled easily.

4.2a. The implication of organizing principle in Paddy growing

Organizing plays a big part in the various stages of paddy crop growth. The people of rural so beautifully use the principle of organizing in their day-to-day life. Especially when it comes to growing Paddy let us take a look upon which are the things or resources they organize and the time frame for the same (Table 3).

Table 3: Organizing principle in Paddy growing

Activity	The actual time of the activity	Organizing the resources
Seeds	End of June or 1st week of July	• Decides which variety of the Seeds (Paddy) in January or so • Starts searching the same seeds locally (relatives, friends, or through references) • Inquiry with nearest agricultural office
Preparing the cultivation land	15 days early to the actual cultivation	• First, 15 days early land will be ploughed and kept open for sunlight • After a gap of 10 days water will be flown to the field and dam it for 4 to 5 days • Second round ploughing along with little water • Leveling the field and 3rd round ploughing and final leveling • Plant the Paddy seeds (seedlings)
Natural fertilizers	Just before the 1 or 2 days early natural fertilizers will be spread across the field	• Natural fertilizers such as compost, farmyard manure, green manure and vermicompost will be prepared for a year or so • Alternatively, buy it from a third party also
Chemical and fertilizers	In June or otherwise whenever the Government made available	• Various chemicals and fertilizers will be used like urea, potash, DAP, 20-20-0-15 and all • Keep searching for these fertilizers at local dealers as well as co-operative societies for availability in advance

Pesticides	After a gap of 15 days of cultivation pesticides will be used based on the nature of the disease	• After the cultivation, with a gap of 15 days or so, farmers will use the pesticides • Therefore, soon after the cultivation well in advance, they will keep ready with pesticides. • Pesticides usage is very much dependent on the amount of and type of disease the crop faces

These are some of the major activities involved in the process of Paddy cultivation. If we observe in the lens of management, it is very much evident that in all the activities there is an element of organizing the resources.

4.2b. The possible consequences of not using the principle of organizing

It was also found out in the observation survey that the farmers are having bitter experiences for not following the principle of organizing well in advance. As they opined the major challenges they have faced are listed below

- Farmers will not get the variety seeds of their choice
- They may face a shortage of chemicals and fertilizers they look far
- Farmers may not get the pesticides of their choice in time to control the disease, hence they may lose the crop
- Last-minute, if farmers try to buy compost fertilizer from a third party, they may not get quality compost fertilizer in the required quantity

These are the challenges almost all the respondents have agreed.

Therefore, it can be concluded that the principle of organizing is phenomenal, it plays a vital role in increasing the yield of the crop and avoiding uncertainties caused by various diseases.

4.3. Staffing

The fundamental principle of staffing implies that having the right number of staff at the right time. It has a significant role to play in the process of Paddy cultivation. Paddy cultivation is a seasonal activity, in a year maximum of 2 times farmers can cultivate Paddy. Hence the requirement of workers/laborers/staff is also seasonal. Hence, there is no concept of recruitment or selection, but there will be a requirement of labors at the time of cultivation and harvesting.

Naturally, villagers are known for leading a harmonious and cordial relationship with each other belonging to the same village. Hence, they will have a practice of helping each other in their heavy work. During cultivating Paddy, also each other helps by going each other's work in alternative days. It is just like a barter system. No money involved, just exchange of labors for each other's work, that is one option and the 2nd option is, there will be a group of laborers who are daily wagers, working on similar kinds of jobs. Based on the demand and booking, they will go to certain farmers' work. They will be paid based on the running rate like male members will be paid Rs 500/day and females 350/day along with pick-up and drop facility.

Each farmer knows the principle of staffing very well. How many workers are required to plant the Paddy saplings in an acre of land in a normal working day, as per the opinion of the respondents, a total of 7 workers are enough to plant the saplings in

an acre of land. Accordingly, they calculate the number of workers required to complete the total available land.

To harvest an acre of Paddy a total of 8 workers are required, accordingly, farmers will calculate the required number of workers. They choose workers very wisely never venture with more workers or less as it is involved cost. In another case, for cultivating or for harvesting the crop, there will be some middlemen to undertake a contract of the work on a pre-fixed rate, where the role of farmers is minimum. The rate contract varies from Rs 3500 to 4500 per acre for cultivating and Rs 4000 to 5000 for harvesting. The person who undertakes the contract has to arrange the required numbers of workers and finish the task within the specified date.

But in the recent past, the whole Paddy cultivation activities are taken over by mechanized methods of cultivation. The tractors, tillers, crop cutting machines, sapling planting machines have changed the whole DNA of agriculture. The dependency on laborers has come down drastically, at the same time timely availability of the laborers is also a big challenge for the farmers. Hence most of the farmers extensively depend upon the mechanized way of doing Paddy cultivation, even it takes more money than the natural method of cultivation, but it is free from headaches.

4.4. Budgeting

Money management is one of the very important tasks of everyone. Without sufficient money on hand, taking on any future projects could be a great challenge. Hence money management is very important. When we use the word management it speaks about the right quantity/amount of money at the right time in the right hands.

The observational survey identifies that even without having a proper academic qualification; farmers will use the concept of budgeting exactly. Clinically they use their limited money for all the proposed activities in a year. Some farmers will use their own money for the purpose, some borrow debt from banks/societies/third parties, etc. Hence, money management is very significant, without proper management, if they spend extra on one activity, they will have a shortage for another activity, hence, they take at most care.

The survey, therefore, asked respondents how they will allocate their money for various activities. It revealed the major activities where huge money is required are

- At the time of arranging seeds
- At the time of buying fertilizers/pesticides
- To pay the wages for daily labors
- To pay the tractors, tiller, or JCBs (subject to usage)
- Miscellaneous

4.4a. The major budgeting techniques

According to the data illustrated in Table 4, The major budgeting techniques are as follows,

Advance planning – 22% (60) of the respondents have agreed that they will arrange the required amount well in advance and therefore they will be able to mitigate the uncertainties associated with the shortage of funds at the right time. And further, the survey has revealed that the farmers who depend upon debt or borrowed money follow this kind of budgeting method

Product life cycle method (PLC) – Maximum that is 58% of respondents has agreed that they will follow product life cycle method. Which means according to them, as the crops grow they arrange for the fund, especially farmers who are having their source of funds will follow this method. They need not depend upon any third party for the fund. In the beginning, they will spend money on machinery like tractors and tillers for ploughing the field and leveling it, further they arrange funds

for seeds, fertilizers, pesticides, labors at the different schedules, and crop cutting.
The fund requirement for chemical fertilizers and pesticides may not happen on standard intervals indeed, it depends upon the level of fertility of the land and the intensity of various diseases. Hence, the farmers will have to have extra money to mitigate these unseen problems.
When we observe closely the opinion of the respondents, it is evident that farmers even without having proper academic qualifications they are using the concept of budgeting appropriately. They do calculate twice before spending a single pie on any activity and consider the return on investment.

Current need – 16% of respondents said that they will arrange the fund based on current need. Because the current need is varies based on many internal and external factors. In the present pandemic situation, it is hard to decide everything in advance. Uncertainties are very common; there will be new-to-world diseases are seen by the farmers, unseen worms, or insects will attach to the crop all of a sudden. Hence, 16% of respondents arrange the required fund based on current needs.
Both types of farmers will fall under this category. Some farmers depend upon their own money and some are others.

None – Some farmers never follow any of the well-known budgeting methods. They are supposed to be the migrant workers their primary objective is not to grow Paddy but to keep on migrating from one village to another for their livelihood. Such people will fall under this category. If, whether, situation and circumstances in favor of them they will plan for growing Paddy, otherwise no.

Table 4: Major budgeting techniques

Sl. No.	Budgeting technique	% of the Respondents
1	Advance planning	22
2	Product life cycle (PLC)	58
3	Current need	16
4	None	4

The statistics cited above indicates major budgeting techniques. The majority 58% of respondents reported product life cycle, 22% respondents said that they did advance planning and followed by current need (16%) and none (4%) respectively.

4.4b. Uncertainties regarding non-budgeting of funds in advance

According to the information stated in Table 5, all the respondents indeed wholeheartedly agreed that if they do not plan for finance in advance, they will certainly face above listed uncertainties for the Paddy crop. Therefore, arranging the required amount of money in advance is crucial.
To avoid the uncertainties, they will plan and arrange the required amount of money and carry forward all the Paddy required activities without any interruptions.
The survey has proved evidently that the farmers are essentially using the techniques of budgeting in their day-to-day activities without having any theoretical knowledge of budgeting.

Table 5: Uncertainties regarding non- budgeting of funds in advance

Sl. No.	Uncertainties	Number of Respondents	% of the Respondents
1	May not get seeds at the right time	0	0
2	May not get chemical and fertilizers	0	0
3	Preparation of land for cultivation	0	0
4	Availability of laborers at the right time	0	0
5	All the above	272	100
Total		**272**	**100**

The statistics mentioned above indicates Uncertainties regarding non- budgeting of funds in advance.

4.5. Controlling

The meaning of controlling in the management perspective is to set the standard, measure and compare the current performance, and finally to take corrective action.

But in the perspective of the Paddy crop, the concept of controlling will be comprehended and interpreted differently. The actual meaning of controlling is to control the diseases, water flow, weeds, labors, wild animals attach, and controlling from external threats.

4.5a. Implications

- **Diseases controlling** – The 1st and foremost controlling activity is to control the various diseases which are going to spoil the crops or reduce the yield of the crops. It is very common that every farmer, when they cultivate Paddy they will have minimum expected yield, based on their previous years' experiences.

  It is like one hector of Paddy crop will be supposed to yield 4 to 5 tons of Paddy in normal circumstances. The role of controlling is significant in the process of getting a good yield. The Paddy crop is prone to many expected and unexpected diseases. The expected diseases are like in the beginning viral diseases, after controlling it then in the maturity time insects will attach and also some unseen diseases, and at the last stage of growth fungus is also an expected disease, eventually, all these different diseases will significantly affect on the yield of the crop, if not controlled in advance. Hence, controlling disease in advance is phenomenal.

  There are many shreds of evidence to say that the mismanagement of diseases may lead to complete loss of the crop, hence it is pivotal to effectively use management principles.
- **Weed controlling (herbicides)** – 2nd major threats to the Paddy crop is controlling of ubiquitous growing weeds. Weeds are powerful by nature, allowing them to grow inside the crops is proportionately allowing them to kill or swallow the crop. There are multiple varieties of weeds that grow in Paddy cultivating land unevenly. Weeds, before the crops can be utilized as fertilizers by cutting and burying them in the soil. Once the crop is planted then another type of small weed starts growing, it has to be controlled timely for a better yield.
- **Water controlling** – timely water supply to the crops plays a vital role in deciding the yield. At the right time, the right quantity of water is

important. Excess water is also dangerous and less too.

In the recent past, most of the farmers heavily depend upon bore wells as the source of water. It does require electricity to pump the water, but there will be an interruption in the power supply; hence, maintaining the required level of water for the crop is significant. Especially in summer, water management is a daunting task. One day late in supplying sufficient water would take a toll on the entire crop.

These are some of the areas where controlling plays a vital role. Knowing the importance, the farmers are well versed with these controlling techniques. In modern methods, most of the farmers use weed killers (herbicides) than the traditional method. Of course, it is cost effective and gives quick results. This is how management principles are effectively used in the Paddy crop.

These are the major principles of management are been effectively used in the process of growing the Paddy crop. It is not only Paddy crop per se, all most all the crops, if we want to get better yield, must have to follow the principles of management.

5. Implications of the research work

The article is prepared by keeping the fundamental objective of bringing reform in the agricultural activities. India is a country that predominately depends upon agriculture and its allied activities. Little change in the method of cultivation of agricultural activities would significantly affect the GDP. Therefore, it was expected to convey to the farmers who are not effectively using the modern method of growing Paddy. Another important implication could be making youths realize the importance of growing the Paddy crop and how it can become their livelihood. The step-motherly treatment towards agricultural activities must go and more and more educated youths must involve.

6. Conclusion

Paddy is the staple food of over half the world population. Paddy is normally grown as an annual plant, although in tropical areas it can survive as a perennial crop and can produce a ratoon crop for up to 30 years. Though it had a great role to play in deciding the food habit of hundreds of thousands of people of this country, it is reeling with many problems like insufficient water facilities, lack of a modern method of cultivation, shortage of quality seeds, and proper marketing facility and many more. Thus,Determining the best way to cultivate paddy crops in and around the Malnad region of Karnataka state was the main goal of this article. The wonderful outcome has been witnessed in this article that though the farmers may not deliberately call it as principles of management, but effectively use these techniques in their day to day activities. The major principles of management like planning, organizing, directing, budgeting controlling, and staffing all these principles are followed and practiced in their routine activities.

7. References

1. Annual report (2020). Department of Agriculture, Shivamogga district of Karnataka.
2. De Candolle A (1886). Plants Cultivated for Their Seeds. In: Origin of Cultivated Plants, 2nd Edition, International Scientific Series Vol. XLIX, Kegan Paul Trench & Co., London, 376-384.
3. Directorate of Economics and Statistics (2020). Government of Karnataka.

4. Food and Agriculture Organisation (FAO) (2019). Statistics of United Nation.
5. Henegedara GM (2000). Economics of Paddy Cultivation in Sri Lanka. Research Study, 955 -612 -043 -2, pp 156-164
6. Jayaram H (1988). An analysis of yield gap in Paddy and Ragi (irrigated) in Mandya district. M. Sc. thesis (Agri.), submitted to University of Agricultural Sciences, Bengaluru.
7. Nagaraj T (1993). An economic analysis of cropping systems in Tungabhadra Project Command Area (Karnataka). M. Sc. thesis (Agri.), University of Agricultural Sciences Dharwad.
8. Ruqsar Khanum, Siddayya and Arjuman Banu (2022). An Economic Analysis of Rainfed Paddy: A Study in Shivamogga District of Karnataka, India. International Journal of Environment and Climate Change. 12(12):454-459.
9. Shanmugam R, Palanisami K (1993). Measurement of economic efficiency – Frontier function approaches. Journal of Indian Society of Agricultural Statistics. 45:235-242.
10. Singh J, Nareshkumar P (1998). A study into technical efficiency in rice cultivation in Punjab. Agriculture Situation in India, 54: 747-750.
11. SoliengMak (2010). Paddy cultivation - the traditional way, CRBOM Center for River Basin Organizations and Management, Solo, Central Java, Indonesia.
12. Thomas P (2002). Problems and Prospects of Paddy Cultivation in Kuttanad Region A Case Study of Ramankari Village in Kuttanad Taluk. A Project of Kerala Research Programme on Local Level Development (KRPLLD), Thiruvananthapuram.
13. Umadevi S (2012). Paddy Production: What's Holding India Back, facts for you .
14. Vavilov N. I. (1926). Studies on the Origin of Cultivated Plants, Leningrad, p. 248.
15. Watt G (1892). Dictionary of Economic Products in India. Volume 5. W.H. Allen and Co., London, UK. 498 pp.