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Modern Management of Agriculture

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Abstract:

Going down the history, animals were the main source of energy in farming. Later, steam power gained importance. After the World War I gas powered tractors became common, followed by diesel engines later. In the developed countries, it resulted to lower number of farm workers, while farm production continued to increase due to the use of machinery. The Green Revolution accelerated new methods and technologies that increased agricultural production worldwide, including the transition from animal to mechanical power, the increased the use of chemical fertilizers, agro-chemicals and synthetic pesticides, and single cropping practices. The rapid industrialization of agriculture during this time period required farmers to become more efficient to remain competitive. It resulted in small farms, which had historically grown a wide variety of crops, being pushed out by large, corporate farms specializing in large-scale monocultures of single high-yielding crop varieties, like corn, soy, or wheat. These corporate farms were able to produce large quantities of food more efficiently to feed a growing population. Yet, this progress occurred at an environmental cost: the proliferation of synthetic pesticides, widespread soil depletion, and a heavy carbon footprint. As a result, many researchers and companies sought more efficient and environmentally friendly ways to feed a growing and increasingly urban population.

Keywords: Industrialization, Combine, Irrigation, Drainage, Subterranean, Innovative, cultural, Crops, Hungry, Technology, Fertilizers, Marketing, Harvesting, Pesticides, Drag.

Introduction:

According to the United Nation's Food and Agriculture Organization [FAO], the world's land area for food grain harvesting rose only slightly over the 35 years up to 1995. During the same period, the world's population increased 1.8 times. Despite this, today population increase rapidly.it was possible to avoid a food supply crisis because the yield per unit of land doubled due to various reasons including improved farm technology, other inputs and application of better management methods and techniques. About 90% of this dramatic increase was due to the introduction of chemical fertilizers and pesticides, along with the improvement of crops and the expansion of irrigation. In order words, agricultural fields assumed the form of factories. But the wide-ranging use of chemicals has impaired soil conditions, and excessive irrigation using underground sources of water has lowered subterranean water levels. As a result, over a period of time the improvement in harvesting has subsided. Nearly 65-75% of the population in Asia-Pacific countries depends on agriculture. Farm income has been the main source of livelihood. Farm practices and means are traditional. Application of methods and technology for farm management, crop protection,post-harvest, diversification of cropping patterns, use of farm inputs, mechanization of farming, farm guidance, farm production planning, have not yet been used extensively. Pressures on agricultural lands due to ever-increasing population, urbanization

and development of other non-farm infrastructures have been heavy. Organization and management of farmers' groups or associations has been weak. In the rural areas, agricultural cooperatives have been playing significant roles by way of disbursement of farm credit, farm supplies, marketing and agro-processing. Although there are a large number of such cooperatives, their main functions largely remain confined to the distribution of credit, fertilizers and procurement of farm products for national food stocks. Marketing, agro-processing, ware housing activities are still weak. Their services to the members are inadequate. Many of the agricultural cooperatives largely remain blissfully content with implementing some of the government-sponsored programmers. Income by way of commissions and service charges received by the cooperatives often form a major portion of their working capital. It is often assumed that world food shortage can be eliminated by increasing food and agricultural production through the application of modern technology. It is also argued that supplying modern inputs such as large-scale irrigation, chemical fertilizers, farm machinery and pesticides can improve the productive capacity of the land. New agricultural technology supported by other factors like, finance resources, credit worthiness, government policies, and political influence makes a lot of difference. Such functions include preserving the soundness of national land, dealing properly with water sources, protecting the environment and scenic landscapes, and properly transmitting the cultural heritage of rural communities.

Objectives:

1. To study mechanization used in agriculture.
2. To study modern management of agriculture.
3. To study advantage and disadvantage of modern management in agriculture.

Farm Management:

Farm management, making and implementing of the decisions involved in organizing and operating a farm for maximum production and profit. Farm management draws on agricultural economics for information on prices, markets, agricultural policy, and economic institutions such as leasing and credit. It also draws on plant and animal sciences for information on soils, seed, and fertilizer, on control of weeds, insects, and disease, and on rations and breeding; on agricultural engineering for information on farm buildings, machinery.

Modern Agricultural:

During the latter half of the twentieth century, what is known today as modern agriculture was very successful in meeting a growing demand for food by the world's population. Yields of primary crops such as rice and wheat increased dramatically, the price of food declined, the rate of increase in crop yields generally kept pace with population growth, and the number of people who consistently go hungry was slightly reduced. This boost in food production has been due mainly to scientific advances and new technologies, including the development of new crop varieties, the use of pesticides and fertilizers, and the construction of large irrigation systems.

Modern Management of Agriculture:

Farm Mechanization:

Mechanized agriculture is the process of using agricultural machinery to mechanize the work of agriculture, greatly increasing farm worker productivity.

The agricultural operations for which modern machines are used are diverse. At the crop production level, they include:Technology has transformed agriculture to increase output and quality of yields. In this generation, farmers who are breaking their backs by using traditional

agriculture tools are wasting their good health and time. Tractor that was once the talk of town as a technological genius in the field of agriculture sector is now old news. The strength of modern farm machinery has transformed the agricultural industry for the good. The following are the latest tools which are available to farmers and their uses.

Farmers and their uses:

Tractor:

Old is still gold and as far as tractors is concerned, it will go down the history as one of the greatest invention. This piece of machinery addressed most of the agricultural needs. With wheels that are designed to move steadily on an uneven ground, tractors work well even on flooded farms. A tractor that has a plough attached can help in tilling a piece of land. If it is attached to a cart goods or livestock can be carried to the market. Heavy duty equipment can be carried around the field using a tractor. Moving earth around the field with the help of a tractor is also possible.

Combine:

Basically, this is a lawn mower but much bigger in size. Combines can help farmers chop hay for livestock. A Combine comes with a comb cutter for cutting the plants mature grain and also a long rake in front of that machine which is critical in segregating the grain from the crop.

Plough:

This is a remarkable piece of agricultural machinery, used for furrowing the earth for the planting season. A ploughs has an advantage over a tractor because it can shift the earth using its powerful blades with much ease.

Drag:

This is a machine used for breaking metal, wood, and other solid particles that are I the farm and segregated by the plough. The solid particles hinder the growth of crops in the field.

Sprayer:

This can be drones which spray with precision, or tank filled with fungicide, insecticide or pesticide is sprayed uniformly over the crops requiring these chemicals. If this is done manually, a gas mask must be worn because these chemicals can cause harm to human health.

Tillage planter:

A tillage planter is usually necessary for hard agricultural land that cannot be shifted using a plough easily. This piece of equipment is sows seeds in the ground without any prior tillage.

Fertilizer:

Fertilizer is an essential input for the healthy growth of crops. A fertilizer distributor requires the farmer to add the manure in dump tube only and spread it around his field.

Plant breeding and genetics:

This technique represents an invaluable contribution to crops productivity. Genetics also introduced the scientific basis in animal husbandry. Hydroponics a means by which plants thrive without soil by chemical nutrient solutions is also solving other additional agricultural problems.

Automatic in Row Weeder:

To farmers, weeding is a critical part of making sure farmers maintain a good crop. Thus, the In Row Weeder is designed to effectively and quickly tear up weeds without worrying about hurting the required and original crops.

Drones:

Drone and other unmanned vehicles are used for agriculture purposes, such as spraying, planting, transportation of perishable goods and crop fumigant to control insect diseases and pest.

Agricultural Technology:

Agricultural technology refers to technology for the production of machines used on a farm to help with farming. Agricultural machines have been designed for practically every stage of the agricultural process. They include machines for tilling the soil, planting seeds, irrigatingthe land, cultivating crops, protecting them from pests and weeds, harvesting, threshing grain, livestock feeding, and sorting and packaging the products. People who are trained to design agricultural machinery, equipment, and structures are known as agricultural engineers.

Marketing Techniques of Management:

Keep Adding Something New:

Every time you add something new to your business you create an opportunity to get more sales. For example, something as simple as adding new information on your web site creates another selling opportunity when prospects and customers visit your site to see the new information.

Become a Valuable Resource:

Look for ways you can be a resource for your prospects and customers. Supply them with free information. Help them do things faster, easier, less expensively. You get another opportunity to sell something every time they come back to you for help.

Separate Yourself from Your Competition:

Find or create a reason for customers to do business with you instead of with someone else offering the same or similar products. For example, do you provide faster results, easier procedures, personal attention or a better guarantee?

Promote the End Result:

Your customers don't really want your product or service.They want the benefit produced by using it. Make sure your web pages, sales letters and other sales messages are promoting the end result your customers want.

Anticipate Change:

Change is the biggest challenge to your business success. The days are gone when a business could constantly grow by simply repeating what it did successfully in the past or even recently. Aggressive, innovative competitors and rapidly changing technology make it impossible.

Advantage of Modern Agricultural Management:

Higher Productivity:

Modern farming methods like high-yielding crop varieties, optimized fertilization, and advanced irrigation systems significantly increase crop yields per unit area, contributing to food security.

Resource Efficiency:

Technologies like drip irrigation and precision agriculture allow for targeted water delivery, minimizing water waste and maximizing its use.

Labor Reduction:

Mechanization through tractors and other machinery significantly reduces manual labor required for farming operations, increasing efficiency and productivity.

Improved Pest and Disease Control:

Advanced crop protection strategies, including genetically modified crops and targeted pesticides, help minimize crop losses from pests and diseases.

Enhanced Food Quality:

Modern farming practices can focus on producing crops with improved nutritional value and consistent quality.

Data-Driven Decision Making:

Utilizing technology like sensors and data analytics allows farmers to make informed decisions based on real-time information about their fields, optimizing resource allocation and crop management.

Sustainability Potential

Precision agriculture and integrated pest management practices can minimize environmental impact by reducing chemical use and promoting soil health.

Disadvantages of Modern Agriculture:

Soil depletion:

Excessive use of chemical fertilizers can lead to nutrient imbalances and depletion of essential minerals in the soil, reducing its fertility over time.

Water pollution:

Runoff from agricultural fields can carry pesticides and fertilizers into water bodies, causing harm to aquatic ecosystems.

Biodiversity loss:

Monoculture farming practices can reduce the variety of plant species in an area, leading to decreased biodiversity.

Groundwater depletion:

Intensive irrigation practices can lead to over-extraction of groundwater, especially in arid regions.

Environmental contamination:

Pesticide residues can accumulate in the food chain, posing potential health risks to humans and animals.

High dependence on fossil fuels:

Modern agricultural machinery often relies heavily on fossil fuels, contributing to greenhouse gas emissions.

Economic challenges for small farmers:

Large-scale, modern farming practices can sometimes disadvantage small farmers who lack access to necessary technology and resources.

Suggestion:

1) Government to make agricultural technology available at low cost.
2) To planning of modern management of agriculture.
3) To guide the farmers to manage the farm.
4) To inform farmers about new modern technology management through agricultural exhibition every year.
5) To honor farmers who produce more using modern technology.
6) Making the benefits of government schemes available to farmers for purchase of agricultural implements.
7) To promote farmer help modern management of agriculture.

Conclusion:

Over the years it has been observe that animals were the main source of energy in farming. Later, steam power gained importance. After the World War I gas powered tractors became common, followed by diesel engines later. In the developed countries, it resulted to lower number of farm workers, while farm production continued to increase due to the use of machinery. Today modern machinery also developed in agriculture and also different Technology develops agriculture.

With the mentioned modern machinery and technology, farming has become more of a science than an art. Improved productivity, efficiency and sustainable farming have been the end. Modern technology using agriculture also improved good qualities productivities developed. Modern management of agriculture in farm fertilizers and procurement of farm products for national food stocks, marketing, agro-processing, ware housing activities is still developed. In this paper discussion modern management of agriculture in the modern agriculture, form mechanization-tractor,combine, plough, dray, spray, fertilizer, plant breeding and genetic drone etc. agriculture Technology, marketing technology of Management also advantage and disadvantage of modern agriculture all pointe discussion.

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