

FUTURE OF AGRICULTURAL DEVELOPMENT: A COMPARATIVE STUDY OF TRADITIONAL AND MODERN FARMING TECHNIQUES

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Abstract

Indian agriculture is labor-intensive and typically resource farming. These two remarkable neighbors, who house a sizable portion of the world's poorest people and have just recently begun undertaking sizable projects of extension and development after a significant period of unfamiliar control, confusion, and stagnation, are constantly fascinating to monitor and observe. Food, raw materials, employment, business sectors for modern goods, and foreign trade acquired through commodities of essential items are all provided by the agricultural sector as the fundamental framework for modern extension, even though in the two countries the emphasis is largely on rapid industrialization due to the economies' predominately agrarian natures. Our agricultural yields per acre are well below the global average. If we could position our "home" to approach top-notch standards, India could become a colossal food exporter. Outside of India, Indians perform well in execution. This is justified by the idea that the Administration functions better outside. The essential innovations in agriculture, such as machines, have changed a little bit recently. However, thanks to contemporary ingenuity, growers and collectors have improved or undergone some change from their forebears.

Keywords: Agricultural Development, Comparative Study, Traditional Farming, Modern Farming, Techniques

1. Introduction

The Indian economy depends heavily on agriculture. The debate between ancient and modern methods of farming has vanished as a result of mechanical advancements and upgrades in various designs, leaving ranchers and consumers in a bind. Agriculture is the sector that produces food, the most fundamental human need. Agriculture and civic institutions were intertwined throughout the world, and during the post-industrialization era, agriculture served as the cornerstone of all national economies. Even though some regions of the world still engage in traditional agriculture, industrialization has changed the principles of farming. While old agriculture relied on antiquated knowledge, outdated tools, and natural manures, modern agriculture relies on mechanically improved technology. As the effects of globalization and technological advancement increase, traditional farming methods and skills become obsolete. These conflicts have caused the food system to change from being dominated by a large number of ranchers to a few large agribusinesses. Input force, creation, capital growth, and harvest consistency are all crucial components of contemporary agricultural approaches. On the other hand, traditional agricultural methods place an exceptional value on constraint, biodiversity, shared inherited assets, and a societal respect for a variety of harvests. The biodiversity of domesticated and wild plants will be significantly impacted by changes in agriculture from traditional to contemporary. Despite widespread ecological concerns, agriculture should continue to be adaptable in order to support and increase food security. Agricultural flexibility demands social and ecological diversity; if one plan or harvest fails; there are many alternatives to fall back on. Social diversity can help to maintain biodiversity if there is little desire to modernize and an increase in the number of preservation efforts.

Over the past fifty years, changes have been made to agriculture development that emphasizes external contributions to increase food production. This has led to an increase in the use of insecticides, animal feedstuffs, farm haulers, and other machinery as well as inorganic compost on a global scale. These external sources of information have replaced typical assets and cycles, giving them in a weaker way. Natural, social, and mechanical methods of preventing annoyances, weeds, and diseases have been replaced by pesticides. Composts made of inorganic materials have replaced manures, fertilizers, and crops that fix nitrogen in homespun animals. To make better use of these internal resources is the essential test of controllable agriculture. Limiting the amount of external

inputs used should make it easier to recover internal assets more successfully. There is growing evidence that regenerative and asset rationing inventions and practices can benefit ranches, networks, and nations in both natural and monetary ways.

The creation and viability of agriculture can be considerably impacted by new or contemporary innovations. For instance, excellent administrative practices for agriculture development are widely used nowadays. New infection-safe technologies, reduced pesticide use, natural vermin management, and societal norms that can reduce annoyances and infections are all beneficial. Bug-specific synthetic compounds and natural bug controls are being used in place of a variety of pesticides, which drastically reduces the amount of splashes required and, thus, its capitals. Ranchers can obtain information from GIS, Harvest models, and remote sensing for precise agriculture by comparing the information sources with the actual yields of different field segments. These tools play a big role and also make it possible for agriculture to manage land for both agriculture and natural life.

Indian human progress has always been agrarian. Ranchers have developed this fertile land and valued their connection to Mother Earth from the period of Vedic Saraswati human advancement to the present. Therefore, it comes as no surprise that India is a country with a surplus of intelligence. Agriculture farming is an extremely old industry in India and currently the most significant contributor to the country's GDP. India remains spotless because of the mindless nature of marketing. This suggests that India's agricultural revolution will expand in two ways. The Indian food business also anticipates producing large quantities at once. As a result, we can observe that both conventional and commercial agriculture benefit India.

2. Literature Review

According to Carletto et al. (2007), there are two key factors that influence effective agricultural innovation in non-industrialized countries: the first is the accessibility and acceptability of advancements and the second is rancher assumptions that reception will remain beneficial — both of which determine how risk averse ranchers are. The aforementioned hypotheses are supported by a number of variables, such as the size and accessibility of the land, work done at home, the cost, and the results of agricultural undertakings.

De Janvry et al. (2011) claim that having access to land helps families have lower financial requirements and exhibit less risk aversion. The ownership of specific parcels of land, however, can affect the rate of adoption through trial and error with new agricultural innovations because large landowners are likely to be the early adopters. On the other hand, in a bad asset scenario, the inaccessibility of land may encourage the usage of natural manures.

According to Carletto et al. (2007), the character of the land may play a vital role in determining whether to use important data sources like substance composts or adopt superior harvest selections in light of predicted higher yields. Due to Uganda's established inhabitation and relatively shaky property ownership rights, the availability of land may not be sufficient to encourage the adoption of agricultural innovation.

According to Kijima et al. (2011), the productivity of agricultural enterprises is a key factor in determining supported reception, and shifting agricultural product costs are shown to be a key aspect of agricultural innovation reception. It is first attracted by increased item costs; ranchers might forego the advances if the typical benefits from reception are greater than the typical expenditures. There are several ways that something's productivity could be decreased. This fact is best illustrated by the falling prices of cotton in developed countries worldwide.

Oster and Thornton (2009) assert that peer impacts function in three fundamental ways in every innovation reception process: first, people gain from acting in a friendly or neighborly way; second, they learn about the advantages of the innovation from their friends; and third, they learn about a different methodology from peers. Peer effects can minimize transportation costs, which can enhance the adoption of agricultural advances, but they can also increase competition and land prices, which can decrease acceptance. The Acceptance of Agricultural Innovation in Uganda is Limited 94 Neediness, value volatility, productivity, and the effects of population changes all suggested that progress by doing had an impact on specialized change in pineapple growth.

3. Agriculture in India: Techniques of the Farmer

The most traditional activity in India is agriculture farming, which has historically been a crucial profession for ranchers. Long-term farming methods in India have altered as a result of technological

advancements that have made ranchers' lives easier. Different perspectives, climatic conditions, and socio-social behaviors have all contributed to the evolution of Indian agriculture. Both contemporary farming methods and ancient farming practices in India are currently being taught.

3.1. Traditional Agriculture

Traditional farming is defined as a primitive method of farming that makes use of labor that is increased, traditional knowledge, tools, common resources, natural manure, and old customs and social convictions of the ranchers.

3.2. Deforestation Caused by Traditional Farming Methods

Deforestation is the act of removing trees for agricultural and practical reasons. It is the procedure of clearing a woodland or tree stand from a plot of land so that it can be used for ranches, pastures, or urban purposes. Tropical rainforests exhibit the highest concentration of deforestation. Resource-poor agriculture includes cut-and-eat farming, sometimes known as moving development. It is common for crops to be planted in the middle of other plants at regular intervals so that the yield can be adjusted to continuously produce food.

3.3. Reduction in the soil's nutrient content

Slicing and dicing farming swiftly increases the amount of supplements in the soil that are absorbed by the produce while reducing the soil's organic matter. As a result, the ranchers are forced to relocate their farming operations to another location.

3.4. Agro Forestry

The terms "agro ranger service" and "ranger service" are interchangeable. This plan aims to raise trees that can offer favorable climatic conditions for local harvests. It controls the temperature, lighting, and airflow. This technique benefits us since it reduces soil erosion and enhances soil quality on our cow farmstead in Chennai. The crops can produce more due to the favorable microclimate this technique provides for them.

3.5. Rotation of Crops

Crop turn has been refined to establish various yields on comparable land at various periods of the year. The productivity of the land is increased by this kind of agriculture. Without the use of pesticides or herbicides, we might boost our yield.

3.6. Various Cropping

In this situation, mixed trimming is applied. On ranches, at least two yields are planted side by side. Additionally, ranchers have the option of adopting column trimming, in which each line on the ranch produces only one crop.

3.7. Primitive Farming

On small ranches in India, crude farming is carried out with standard tools like a digger, digging sticks, etc. It is probably the most often used approach. Ranchers rely on the quality of the land, the state of the environment, and other elements like harvest intensity. This strategy is frequently used by people who use the results for their own purposes. As a result of ranchers using the land for other purposes after the crops are harvested, this farming technique is often referred to as "Slice and Consume" farming.

3.8. Subsistence Agriculture

Wider and more expansive land areas are developed, producing wet and dry harvests. Paddy is included in wet harvests, and wheat, maize, and heartbeats are produced in dry harvests. This plan calls for widespread use of compound composts and a variety of water system techniques.

3.9. Commercial Farming

The ranchers use a variety of cutting-edge tools in this modern farming practice to gain additional benefits. Due to the fact that the harvests produced are dispersed over vast areas of land, bug sprays and composts are also used. Its contribution to the country's Gross domestic product is astounding. Ranchers in Orissa continue to incline toward means farming for large productions whereas ranchers in Haryana, Punjab, and West Bengal use business farming tactics.

3.10. Plantation agriculture

It is a different branch of commercial farming. As estates are dispersed over vast areas of land, it uses both labor and creativity to ensure that the relationship is profitable. Due to the concept of the developed yields, it includes both agriculture and industry.

4. Modern Farming

Modern farming practices refer to a particular kind of agricultural invention that requires a lot of resources, including cash, labor, and lots of ranch equipment, like harvesters, winnowing machines, and reapers, as well as a lot of innovation, like specialized reproduction, bug sprays, complex manures, and pesticides. Different parts of India continue to practice various farming techniques in addition to those already mentioned. Numerous of them are incompatible with India's traditional farming practices..

4.1. Aeroponics System

In an environment with little or no soil, growing plants without it is known as aeroponics. It is a kind of tank farming where the plant root is suspended in the air. If they employ this technology, ranchers will have better control over how much water they polish off. In an aeroponic system, plants are cultivated in the open or in a misty atmosphere without the use of soil. It falls under the category of tank farming and operates on an air suspension system for the plant root. Ranchers will have more control over how much water they consume by employing this technique.

4.2. Aquaponics

Hydroponics is a closed-loop system that strongly depends on the interaction between agriculture and hydroponics. This growing technique combines aquaponics and traditional hydroponics.

4.3. Hydroponics

The aquaculture farming method uses no specific type of soil and uses less. The cycle calls for employing additives such a mineral-rich water arrangement and healthy plant growth without the use of strong media. A subclass of tank farming called hydro culture uses a variety of sources for its nutrients. Employing additives like mineral-rich water arrangements can help grow healthy plants without the requirement for a strong medium. The supplements used in aqua farming systems and the subgroup of hydro culture known as tank farming come from many sources.

4.4. Monoculture

With this approach, a single yield must be produced in a designated farming area. However, in a nation like India, monoculture farming is not very common. The term "monoculture" refers to indoor farming, including the development of medicinal plants. Monoculture in modern agriculture refers to the production of only one type of plant or crop. Monoculture, in the simplest terms, is a modern agricultural technique that produces only one yield or plant.

4.5. Soil Erosion Is A Result Of Modern Farming

Removal of the top, most fertile layer of soil is referred to as soil disintegration. Modern farming practices like repeated deep furrowing degrade the soil, and strong rains may wash away the best soils for raising crops, making the area unfit for building.

4.6. Fuel Production Is Inspired by Modern Farming

Chemical fertilizers are used in modern agricultural practices to help crops flourish, but this also results in a growth in pollutants that cause more serious environmental harm.

4.7. Animals Life's Are at Stake

On most "modern" ranches, all the animals are crammed inside one another. They need complicated devices to take care of them, and ongoing medication is needed to prevent infections. The savagery used to raise, develop, and murder the current cattle by the CEOs is very horrifying.

Table 1: Farming practices today and those in the past differ significantly.

Traditional Farming	Modern Farming
Traditional farming uses a lot of time-consuming techniques.	Capital-intensive farming is the only type now used.
Crop rotation, agroforestry, and slash-and-burn farming are a few of the practices utilized in traditional farming.	Precision farming and monoculture are two of the techniques employed in modern farming.
Due to the use of natural manure as fertilizer, traditional farming practices are environmentally benign.	The use of chemical pesticides and fertilizers makes modern farming techniques unfriendly to the environment.
Traditional farming produces crops at a low rate since it takes a longer time for them to yield.	Because it produces a crop in a shorter amount of time, modern farming is a quick technique of farming with a high output rate.
Traditional farming requires a lot of inputs.	Low-input farming practices are necessary.

5. Conclusion

Modern agriculture uses cutting-edge technology, requires less labor than traditional agriculture, and produces larger yields because the emphasis is on increasing production while maintaining consistent quality. Modern agriculture makes use of cutting-edge technologies, such as herbicides and plant reproduction methods. Other quality-altering procedures may be used together with combinations of seeds. Due to a greater reliance on machinery than traditional agriculture, modern agriculture requires less serious effort. This applies to harvesting and growing the plants as well as circumstances when manures and insecticides are used. In contrast to traditional agriculture, modern agriculture is more notable for creation. When it comes to modern agriculture, reliability is frequently emphasized as well. For instance, a tomato that assumed an unusual shape would be discarded rather than displayed. Take note that traditional agriculture often produces goods of a superior grade.

In order to accomplish these objectives, the cornerstone of creation in agriculture has come to be defined by six key and significant practices: the employment of inorganic compost, water system, concentrated culturing, monoculture, substance bug management, and enatic regulation of yield plants. Farm equipment like self-driving tractors, crop sensors, VRT and area control technology, harvest water system frameworks that can be monitored and controlled using high-tech mobile phones, GPS field mapping, biotechnology, and ultrasounds for domesticated animals are all being used with a focus on efficiency.

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