

Youth towards Smart Agriculture in India

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ABSTRACT: Agriculture plays an important role in India's economy and at present, it is among the top two farm producers in the world. Our country is an agricultural land and 60% of people belong to agricultural background. Agriculture is the only means of living for almost two-thirds of the employed class in India. But other than this, Agriculture also facing some problems such as Fragmented land-holdings, Lack of Mechanization, Agricultural Marketing, Scarcity of Capital, Transportation and many more. In India, most of the Farmers are Illiterate. And to resolve these problems, we should Empower Youth in the field of Smart Agriculture. Because Youth has Latest Technological Knowledge, Ideas and Methods. So they can work more comfortably and efficiently. There are also certain Social Issues faced by Women Farmers which should be resolved for the Growth of Smart Agriculture. Besides these, Corruption plays a very terrible role in Agriculture. Because of these problems youth doesn't get into this field as there career. Hence, Agriculture is the backbone of the Indian Economy which plays the most vital role in the socio-economic development of the Country. Once in a life time we need a Doctor, a Lawyer, a Teacher but every day you need to meet a Farmer. It also provides huge number of Employments in India.

Keywords: Agricultural schemes; corruption; smart agricultural; women farmers; youth empowerment

INTRODUCTION

Agriculture is basically a Latin word in which ager means field and culture means growing. It is the cultivation and breeding of animals, plants and fungi for food, fiber, biofuel, medicinal plants and other products used to sustain and enhance life. But here we are going to discuss about the Plants and Food Agriculture. In relation to crop farming and livestock farming, the term "agriculture" may be defined as: the art and science of growing plants and other crops and the raising of animals for food, other human needs, or economic gain. Agriculture is the systematic raising of useful plants and livestock under the management of man[7]. The history of agriculture is the story of humankind's development and cultivation of processes for producing food, feed, fiber, fuel, and other goods by the systematic raising of plants and animals. India is the second largest producer of milk and rice. In India, when weighing career choices, many young people in the developing world tend to shy away from agriculture. Nowadays, Smart agriculture provide a system which user friendly, easily installable, easily accessible and can be used for various other purposes. Smart agriculture, also known as precision agriculture, allows farmers to maximize yields using minimal resources such as water, fertilizer, and seeds.

SMART AGRICULTURE IN INDIA

More productive and smart agriculture requires some major shift in the way soils, water, nutrients and other agricultural resources are managed. Smart agriculture as defined by the FAO aims to jointly address food security and climate challenges. Smart Agriculture is

also focusing on some developing solutions mainly for small farms, such as the "Microbot," which can fertilize, and sow seeds for cover crops. It is composed of three main pillars:

Sustainably increasing agricultural productivity and grower incomes.

Building and adapting resilience to climate change.

Reducing and removing greenhouse gases emissions in the environment.

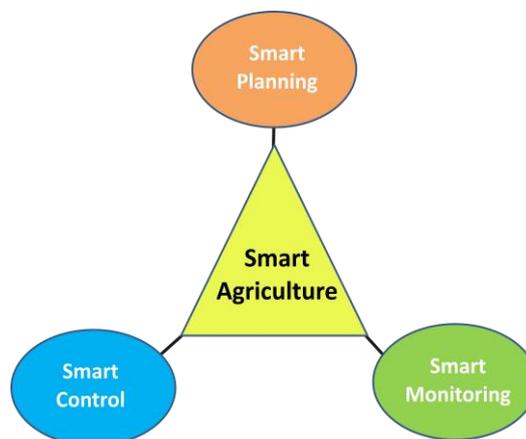


Figure 1: Elements of smart agriculture

Smart Planning: Smart Planning is a preplanning for Smart Agriculture, programming and implementation. It is done before any crop is being sowed. Smart Planning Includes:-

- Select land for particular crop.
- According to the type of soil, crop is selected.
- According to the crop, Smart Technique is used for better production.

- Time Management.

Smart Control: Smart control is a ‘Total Overall Solutions’ that provides the end-to-end solution in the field of Smart Agriculture, Right from Conceptualization for Production using the most recent technology available in the market. By installing sensors and mapping fields, farmers can start to understand their crops at a micro scale level, conserve resources, and reduce impacts on the environment. Smart Agriculture includes:-

Location Sensors mostly use signals from GPS.

Optical Sensors use light to measure soil properties.

Dielectric Soil Moisture Sensors that senses moisture levels.

Airflow Sensors measure soil air permeability.

IOT (Internet of Things) helps in Remote access and control of the irrigation system.

Smart Monitoring: Smart monitoring monitors the agricultural trends or system making it easier for the user, to get data at regular interval about the field. In many areas where one person is not enough to monitor the field status and control that things. To improve, we have to focus on that this system and to collect more regional information and transfer to the online servers for those individual that can work on that field like scientist, farmers, researchers and government officers as well as many more that need to survey the agriculture field. Many technology were used in agriculture field such as remote sensing, global positioning system (GPS), geographical information system (GIS), with satellite system provide images of great areas. Smart Monitoring Includes:-

- Real-time monitoring of the water usage.
- Comprehensive water consumption reports.
- Early Warning Notifications.

AGRICULTURAL PROBLEMS IN INDIA

Agriculture contributes only about 14% to the overall Gross domestic product (GDP) but its impact can be seen in the manufacturing sector as well as the services sector as the rural population has become a remarkable consumer of goods and services in the last couple of decades. Indian agriculture is cursed by several problems, some of them are natural and some others are manmade.

The following points will highlight the major problems of Indian Smart Agriculture:

Fragmented Land Holding: Nearly 80% of the 140 million farming families hold less than 2 acres of land. Large land holdings allow the farmer to implement the modern agricultural techniques and boost the overall productivity. Small land holdings restrict the farmers to use old traditional methods of farming and limits the productivity.

Irrigation Problems: Most of the farming in India is totally depends on monsoon – if monsoon gets tuned with crop, the entire economy is upbeat and when the monsoon fail , everyone everywhere takes a hit to some extent. The main reason is the lack of proper management of water. The cuttings were watered regularly as when depending on weather conditions and moisture status of the rooting medium [1].

Over Dependence on Traditional Crops Like Rice And Wheat: Every crop requires certain climatic conditions to give the best product. Though rice and wheat are produced in a large area in India, certain areas can willingly switch to other crops to get better productivity. The technique of production in India’s agriculture is old and outdated. Still, Indian farmers are using cow-plough method of cultivation on a large-scale

Lack of Market Understanding: Lack of a proper marketing channel forces the farmers to distress sale, makes them victims in the hands of greedy middlemen and ultimately restricts their income [2]. These are issues which need to be tackled at the regional, state and national levels. The major reason behind this problem is due to lack of market values for particular crop.

No Loan without Surety/Security: The banks do not disburse any loan to the farmers without surety and security. The farmers find it very difficult to arrange satisfactory security as well as surety to the bank. Security for loans may be in the form of hypothecation of assets owned by them. But the farmers do not possess many assets except the land which they find it hard to offer as a security. It becomes a big hurdle in obtaining loan from the bank.

Corrupt Practices of Patwardies, Agents and Bank Officials: The farmers need many papers and documents in order to process their loan. It becomes a herculean task to get landholding and other revenue records from Patwaries and other officials of the revenue department. The corrupt practices of patwaries and many bank officials and other agents involved in the loan process create several hurdles and demand their fees to resolve the created issues. The poor farmers find it very difficult to meet the ever growing demands of many persons. As a result, they are unable to get the loans and waste their time and energy without any positive result. Farmer take debt for farming purpose, a farmer is born in debt, lives in debt and ultimately dies in debt.

Lack of Awareness and Illiteracy: It also observed that the farmers' Rights to Life and Livelihood have been grossly violated due to the lack of proper awareness about such a complicated technology [4]. Farmers from rural areas don’t get proper Information about recent Techniques for Smart and Productive

agriculture. They don't get any advertisement and updates about Agricultural Conferences which is held by government.

YOUTH EMPOWERMENT TOWARDS SMART AGRICULTURE

Youth are the primary productive human resource of socio-economic development. It is therefore, essential to locate the role of youth in mainstream development. The youth of India is diverse in ethnicity, religion, and socioeconomic backgrounds. Ours is a land of the youth. This is our greatest asset. One of the major challenges that confront agriculture in India today is that the children of farmers, by and large, are not interested in their family occupation.

Factors for Youth Empowerment towards Agriculture:

Stop the Agro Brain Drain: We need to stop this agro brain drain. There are many ways to enhance job opportunities for students of agriculture. For instance, the government needs to come up with schemes so that students are given a license to market and supply fertilizers and pesticides. In doing so, farmers can get correct advice regarding the amount to be used for a particular crop. It is a pity that management students, and not students of agriculture, are recruited by institutions like the National Bank for Agriculture and Rural Development (NABARD).

Handholding is Required to Strengthen Farm Livelihoods: The youth are not attracted to this profession as there is neither guarantee of income nor enough institutions that provide jobs. At present, only a few crops get a Minimum Support Price (MSP) guarantee from the government. This has created a vicious cycle. Farmers are growing the same crops every season to sustain their livelihoods. It is time to break this cycle and think beyond this stunted vision. The government must assure MSP for other crops as well. This will encourage the youth to take up farming without bothering about the market risks. We must also move away from mono-cropping and invest in the diversity of crops that are indigenous to various regions of the country [3].

Teach Them to Become Farm Entrepreneurs: India's agriculture sector resembles a patient battling for life in an intensive care unit. The recent demonetization has shown that the Union government did not anticipate how it would affect the livelihoods of farmers. Across the nation, farmers have incurred heavy losses as they had to sell their produce at throw away prices. Worse, in the middle of a currency shortage, daily-wage agricultural laborers have been left to fend for themselves. Demonetization has also come at a time when a farmer is committing suicide every hour. Ironically, the youth of this country have high energy levels—we comprise 65 per cent of the population. The

youth must be made aware of the prevailing conditions—soil health, rainfall patterns and cropping cultures.

SUGGESTIONS: There should be a Smartphone Application which gives real time information about the recent updates related market price, latest schemes with push notification featured with Regional Languages option. This application will likewise contain a noteworthy component of early cautioning warnings for the climate change.

In Automatic Tracking Machine (ATM), any agricultural machines can be self-operated with the help of Sensors, GPS, and Computer Programming Solutions. In this system, inbuilt computer program help the machine to follow the route or path provided by GPS and other Sensors.

Corruption, so that they get more market value for their products (vegetables, fruits).

Farmers should have their own market to avoid

In India especially, Farmer doesn't get respect as their work is much harder than any other field works so, we should give proper respect like any other Officers because they plays a very important role to make stronger economy of our country.

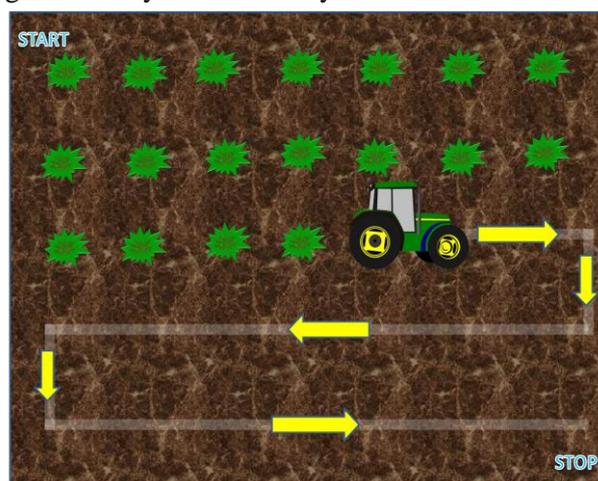


Figure 2: Automatic tracking machine (ATM)

CONCLUSIONS

Like every other sector, the agricultural sector also progressed over the centuries. It's development has brought certain positive and negative consequence to the society [5]. With the advancement in technology, agriculture has come a long way. It is not limited to just growing crops and rearing of cattle. It includes a whole lot of other subjects and someone who is interested in getting into the agricultural field can choose to specialize in one [6]. With the involvement of Youth and above techniques, we can bring agriculture to a new level. Now, a days "Agriculture is just a

mode of work and it will get Smarter with the involvement of Youth and Technology.

REFERENCES

1. Das S, Jha L. K. Effect of Different Rooting Media on Root Proliferation of *Taxus Baccata* L. Stem Cuttings. *Curr Agri Res* 2018; 6(1), ISSN: 2321–9971.
2. Sitra A, What are the problems in the Agriculture Sector in India and how can we solve them in hindi language (August 2014), quora, Retrieved from <https://www.quora.com/What-are-the-problems-in-the-Agriculture-Sector-in-India-and-how-can-we-solve-them-in-hindi-language>
3. Padhy A.K, How to inspire India's youth to take up farming (January 2017) Retrieved from <http://www.downtoearth.org.in/news/how-to-inspire-india-s-youth-to-take-up-farming-56849>
4. Jitendra, Farmers' rights grossly violated due to lack of awareness on pesticide spraying: NHRC (October 2017) Retrieved from <http://www.downtoearth.org.in/news/farmers-rights-grossly-violated-due-to-lack-of-awareness-on-pesticide-spraying-nhrc-58849>
5. AGRICULTURE ESSAY 2 (300 WORDS) Retrieved from <http://www.indiacelebrating.com/essay/agriculture-essay/>
6. AGRICULTURE ESSAY 3 (400 WORDS) Retrieved from <http://www.indiacelebrating.com/essay/agriculture-essay/>
7. Rimando, T.J. 2004. *Crop Science 1: Fundamentals of Crop Science*. U.P. Los Banos: University Publications Office. p. 1.