DATA ANALYSIS BY TABLEAU

INDIA'S AGRICULTURAL CROP PRODUCTION ANALYSIS (1997-2021)

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INTRODUCTION

➢ Overview

India is one of the major players in the agricultural sector worldwide and it is the primary source of livelihood for 55% of India's population. India has the world's largest cattle herd (buffaloes), the largest area planted for wheat, rice and cotton, and is the largest producer of milk, pulses, and spices in the world. It is the second-largest producer of fruit, vegetable, tea, farmed fish, cotton, sugarcane, wheat, rice, cotton, and sugar. The agricultural sector in India holds the record for second-largest agricultural land in the world generating employment for about half of the country's population. Thus, farmers become an integral part of the sector to provide as with the means of sustenance.

Consumer spending in India will return to growth in 2021 post the pandemic-led contraction, expanding by as much as 6.6%. The Indian food industry is poised for huge growth, increasing its contribution to world food trade every year due to its immense potential for value addition, particularly within the food processing industry. The Indian food processing industry accounts for 32% of the country's total food market, one of the largest industries in India and is ranked 5th in terms of production, consumption, export and expected growth.

India is currently the world's second largest producer of several dry fruits, agriculture-based textile raw materials, roots and tuber crops, pulses, formed fish, eggs, coconut, sugarcane and numerous vegetables

➢ Purpose

Agriculture is the process of growing crops by using land, water, seeds and other things. We can't imagine human life without agriculture as it provides basic essentials like food for us to live a healthy life. Along with that, agriculture plays many important roles in our daily life and provides numerous benefits. Agriculture plays a vital role in the national revenue as in developing countries like India farming is the main source of revenue. Comparatively in developed nations where conditions are different and they do not completely rely on the agriculture sector for the revenue. This national revenue helps the nation to grow financially.

Every land has some unique characteristics like sand type, climate, water intake, and other factors that are the reason we cannot grow all the things and so others. Thus, our country exports produce which are excessively grown in our country like tea, sugar, rice, tobacco, spices, coffee, and other things. Along with that we import some produce from other nations which we cannot grow. The transportation sector is majorly dependent on agriculture and generates most of its revenue from transporting crops from one

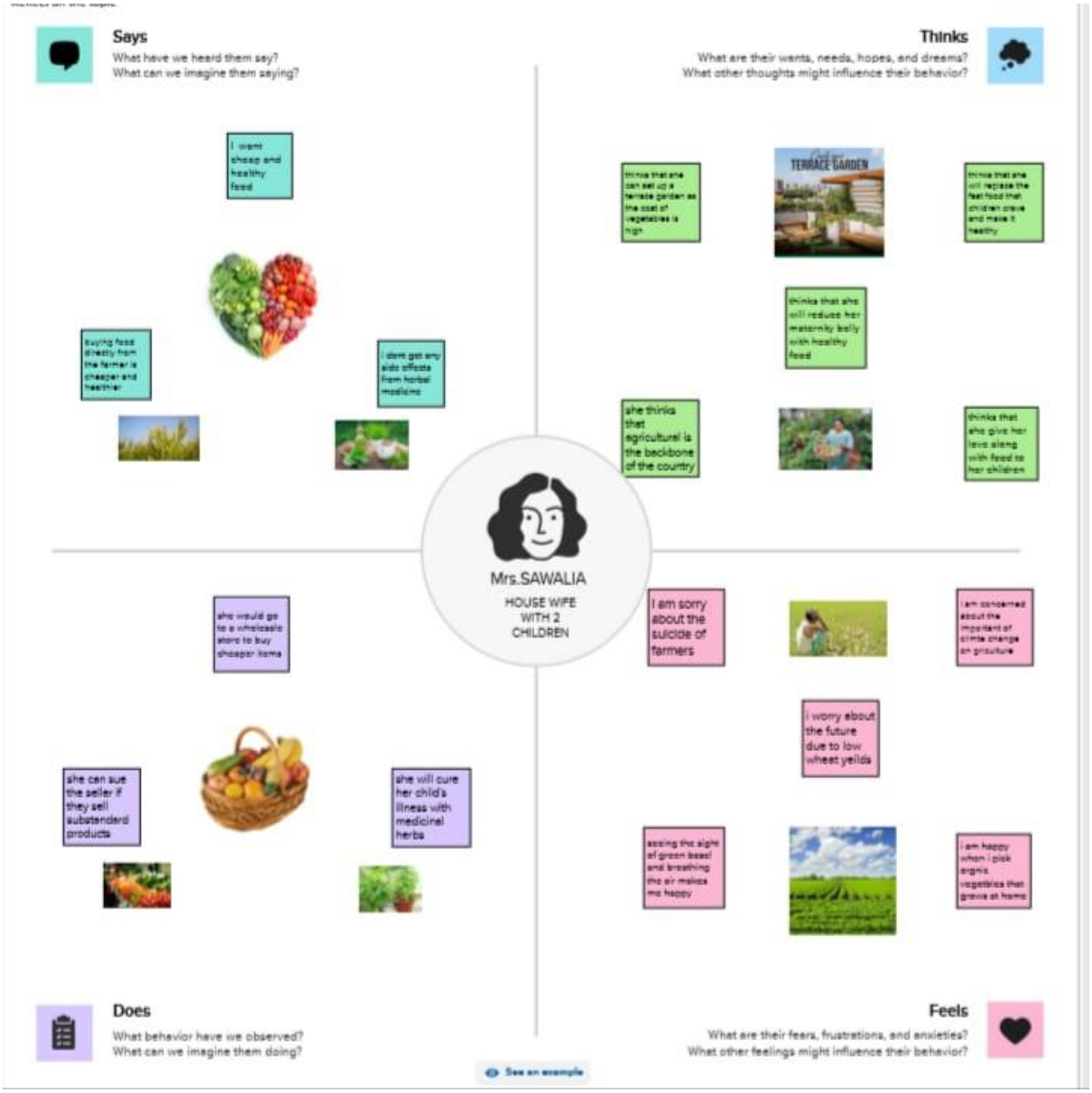
place to another. Mostly farmers use railways and roadways to transport their produce from their farms to factories. Apart from this, if we talk about small farmers they also need tractors, pickups or other vehicles to carry their crops from their farms to the market where they will sell them. Agriculture is the only sector where you can explore unlimited employment opportunities no matter your education or skills.

Since the time of independence, the agriculture sector has been the major contributor to the country's GDP. In the financial year 1950-1951, agriculture and the other related activities had a share of 59% of the country's total GDP in that financial year. Although there is a constant drop in the agriculture sector, is still one of the Indian Economy. On the other hand, in developed countries such as the UK and USA, the agriculture sector contributes only about 3% of the country's total GDP.

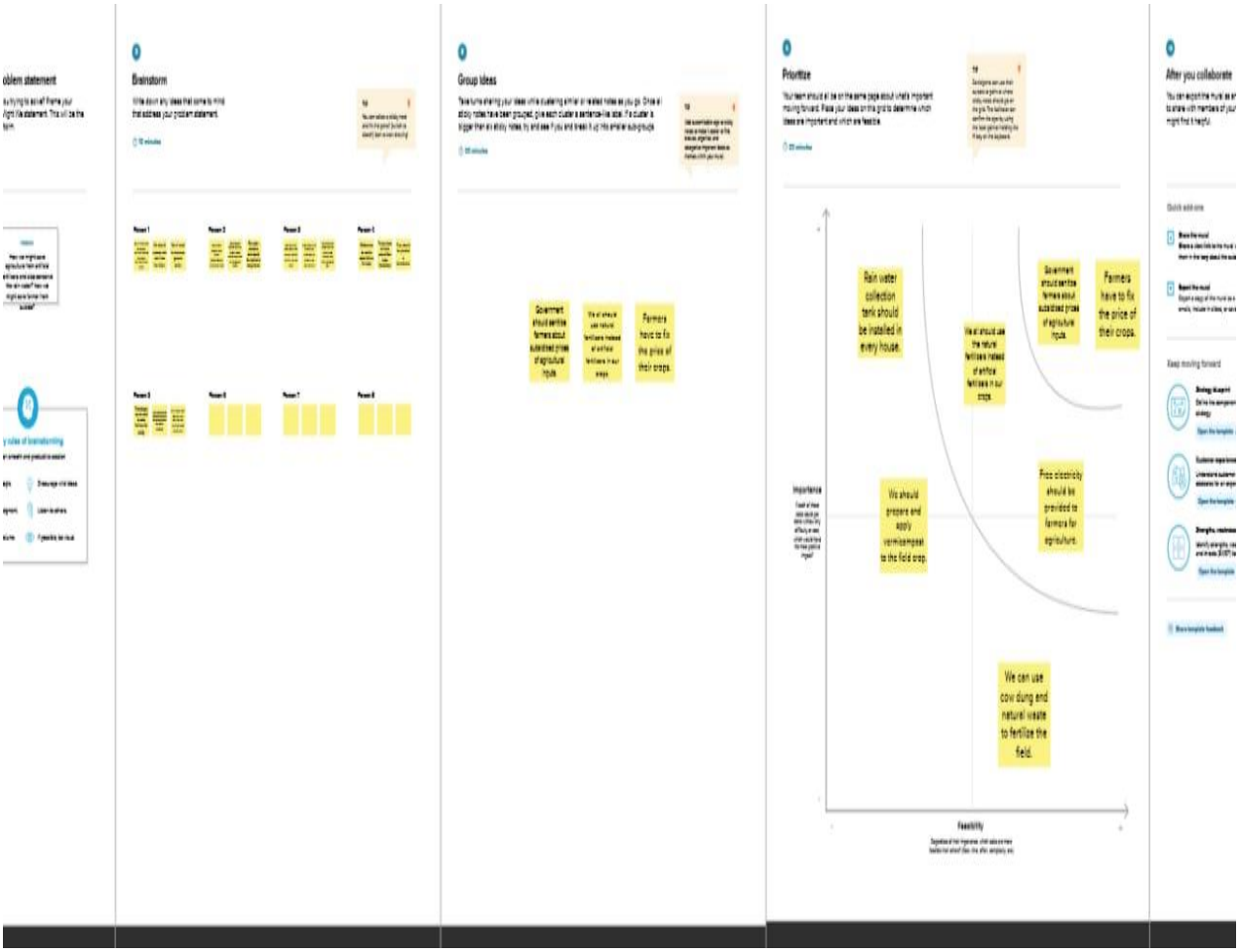
Almost half of the population of India indulged in agriculture. The agriculture sector holds on the important place in the economy. Agriculture provides employment opportunities to rural agricultural and non-agricultural labourers. It plays a significant role in the international trade and import and export activities.

PROBLEM DEFINITION AND DESIGN THINKING

➢ Empathy Map



➢ Ideation and Brainstorm Map



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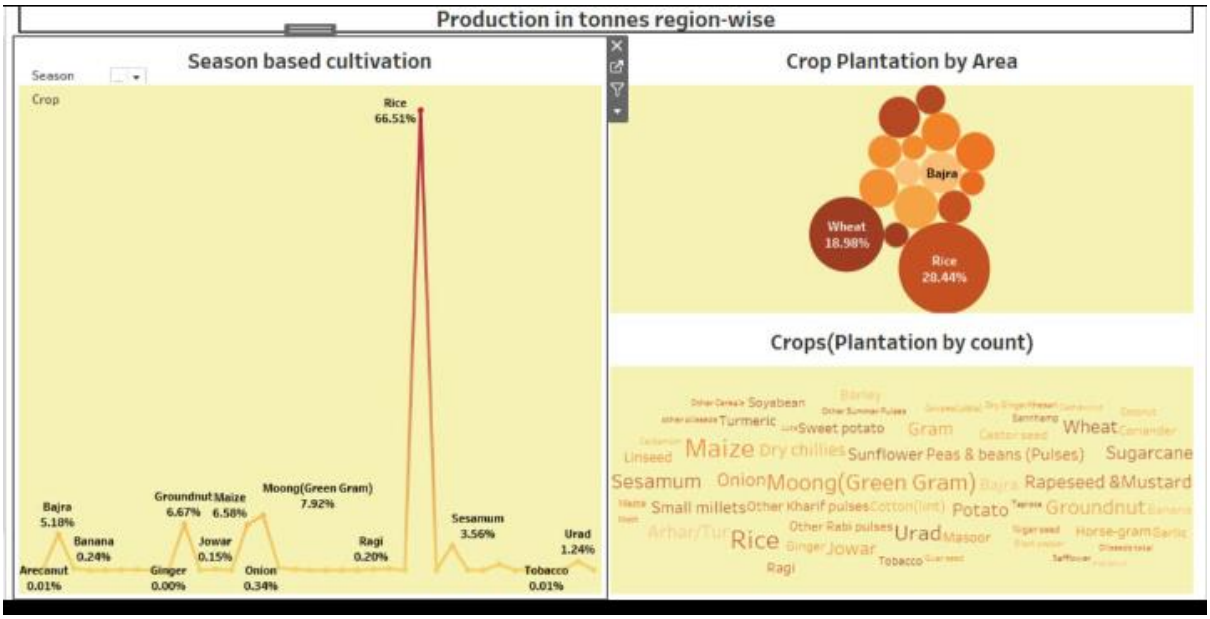
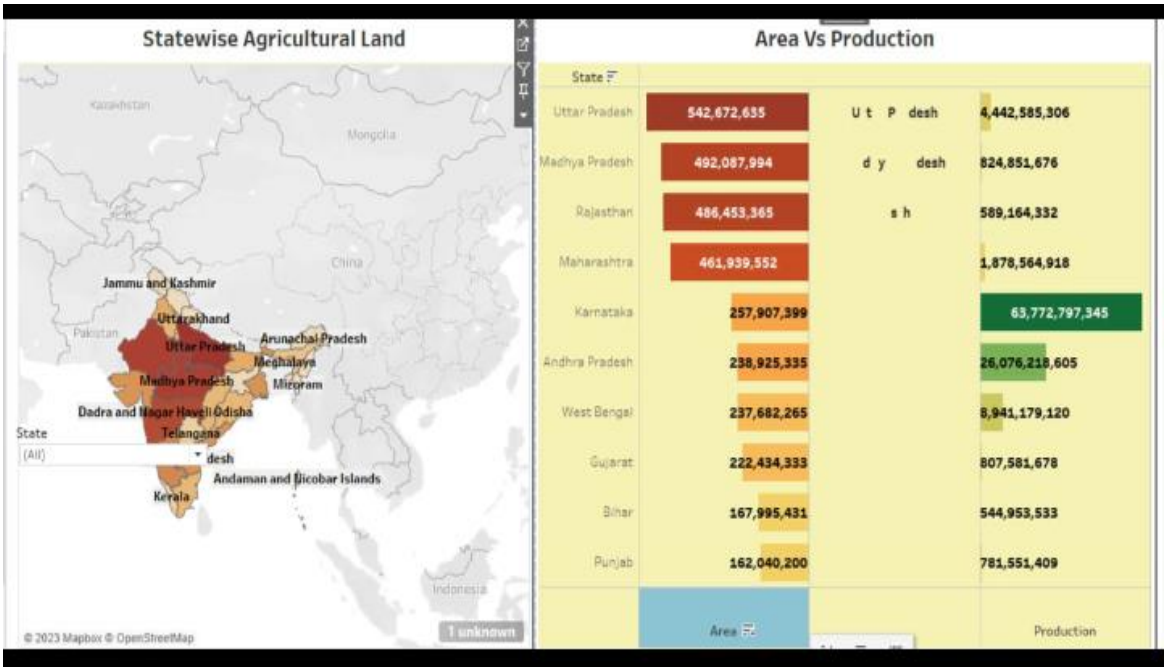
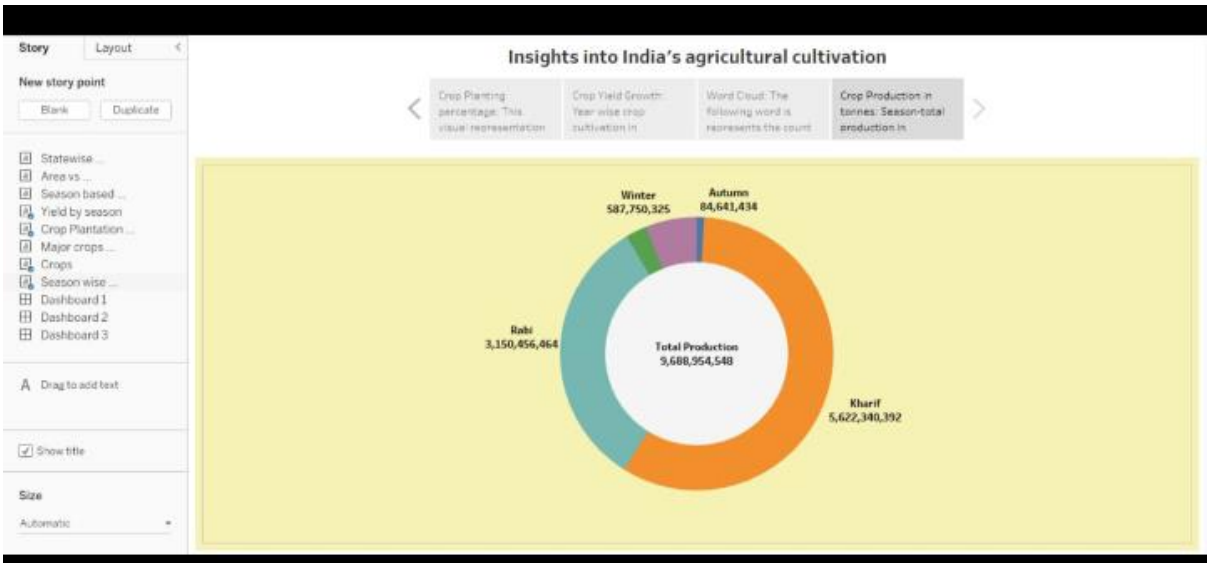
➢ Dashboard





➢ Story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Insights into India's agricultural cultivation
Crop Planting percentage: This visual representation
Crop Yield Growth: Year wise crop cultivation in
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Crop Production in tonnes: Season-total production in
Winter
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Autumn
84,641,434
Rabi
3,150,456,464
Total Production
9,688,954,548
Kharif
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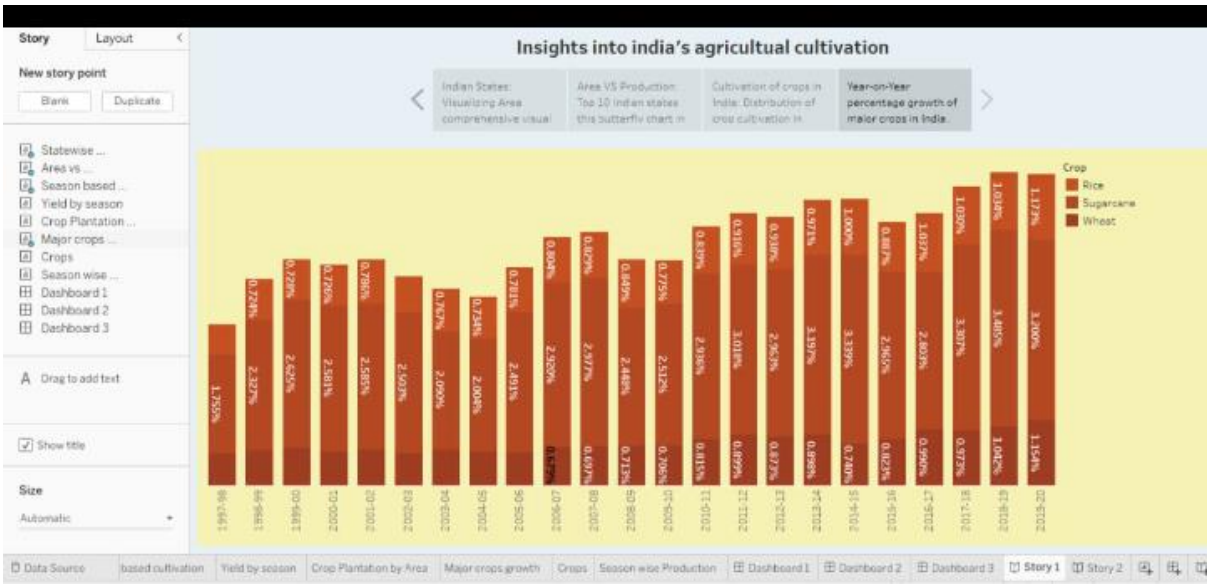
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Cultivation of crops in India: Distribution of crop cultivation in
Year-on-Year percentage growth of major crops in India
Crop
Rice
Sugarcane
Wheat
Data Source
based cultivation
Yield by season
Crop Plantation by Area
Major crops growth
Crops
Season wise Production
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Dashboard 3
Story 1
Story 2

ADVANTAGES AND DISADVANTAGES

➢ Advantages

❖ Natural environment:

Organic farming usually goes down in a natural environment. Unnecessary enclosures are not used for the crops or plants. This way the productivity is increased and is way better compared closed space. An open and natural area for growing the crops would give them wild and instinctive growing nature. This is ideal for the crops and is one of the factors that leads to the plants begin organic.

❖ No chemicals:

Unlike other forms of farming, organic farming does not involve any artificial sources like chemicals to drive away pests or to speed up the process of farming. These chemicals are often used in commercial and industrial farming methods. However, organic farming stays true to its title. Its method is true to its natural core and does not use anything that may be of harm to its consumers. Any type of chemical is not entertained in the organic farming industry.

❖ **Eye On You**

Unlike any other procedure, organic farming has a very strict supervision schedule. The reason for this extreme regulation is because of the importance to keep the label organic. It is very difficult to do so as most brands use artificial aspects in their farming. There are various methods of organic farming and its standards must be maintained in order to remain organic. This ensures that customers buying the end product receive what they are truly looking for.

❖ **Environmentally friendly**

Among the advantages of organic farming, this one stands out the most. Today, almost the entire sector of industrial farming consists of chemicals that ruin the environment. However, when you have something like organic farming to replace it, a huge benefit is receive. Organic farming does not use any form of chemical nor does any form of pollution happen because of it. This makes it way better than regular farming. The whole world suffers because of the ignorance methods of regular farming including animals. Organic farming is definitely the way to go.

➢ DISADVANTAGES

❖ Expensive products:

One of the major problems of organic farming methods is that sometimes it can get a bit costly. Some products related to organic farming are too expensive, leading to some common people to not be able to afford it. In a country like India where most of its livelihood are farmers, organic farming brings a huge problem to it. However, organic farming in tamilnadu have had some success stories.

❖ More Labour:

Organic farming is a sector that requires a lot of patience . This is because pests and others obstacles must be tackled manually. Unlike in non-organic farming, the use of pesticides and other chemicals are not permitted. This makes the work of the farmer harder as constant attention and care is needed. Due to the constant attention, a lot of time is consumed. Organic farming has to be executed well which needs a lot of time and not to forget weed-prevention.

❖ High MRP:

It is almost obvious that due to the extreme care taken to go along with organic farming

Once sold to the market, most of the place is devoted to the sale of this organic fruits and vegetables. Most people do that approve of organic products because of this. The items sold in the market are half the price of non-organic products. So, we can say that organic items are expensive and not every consumer is willing to pay the price for it.

❖ Cross Breeding Problem

The seeds of GMO plants once planted, create GMO crops. These crops then produce seeds and the pattern continues. This makes it very difficult to tell from the organic GMO crops this has become a huge problem in the organic farming sector. This could ruin the future of organic planting as a whole. Financial risk results when the farm business borrows money and creates an obligation to repay debt. Rising interest rates, the prospect of loans being called by lenders, and restricted credit availability are also aspects of financial risk.

Human or personal risk refers to factors such as problems with human health or personal relationships that can affect the farm business. Accidents, illness, death and divorce are examples of personal crises that can threaten a farm business.

APPLICATIONS

- ✓ **Agricultural products** means an animal or plant or a product. Including any food or drink that is wholly or partly derived from an animal or plant and includes all after acquired agriculture products of the producer all any proceeds therefore.
- ✓ **Agricultural produce** means all produce (whether processed or unprocessed) of agriculture, horticulture, apiculture, sericulture, livestock and products of livestock, product produce, etc., as are specified in the schedule or declare by the government by notification from time to time and also includes mixture of two or more than two of such products.
- ✓ **Agricultural Operations** means the growing and harvesting of crops or the raising of fowl or animals for the primary purpose of making a profit, providing a livelihood, or conducting agriculture research or instruction by an educational institution agriculture operations do not include activities involving the processing or distribution of crops or fowl.
- ✓ Agricultural activities means agriculture use and practices including but not limited to producing, breeding, or increasing agricultural products: rotating and changing agricultural crops; allowing land used for agricultural activities to lie fallow in which it is plowed and tilled but left un seeded; allowing land used for agricultural activities to lie dormant as a result of adverse

agricultural market conditions; allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement; conducting agricultural operations; maintaining, repairing, and replacing agricultural facilities is no closer to the shoreline than the original facility; and maintaining agricultural lands under production or cultivation;

- ✓ Agricultural property means property that is used primarily for agricultural purposes but excludes any portion therefore that is used commercially for the hospitality of guests, and excludes the use of the property for the purpose of eco-tourism or for the trading hunting of game. The definition includes agricultural properties used for subsistence farming.
- ✓ Agricultural lands means land currently used for the purpose of producing an agricultural commodity for commercial purposes, land left fallow under a crop rotational program, or land enrolled in an agricultural subsidy or set aside program.
- ✓ Agricultural burning means open outdoor fires used in agriculture operations in the growing of crops of raising of fowl or animals, or open outdoor fires used in forest management, range improvement, or the improvement of land for wildlife and game habitat, or disease or pest prevention.

CONCLUSION

Agriculture is an important sector of the country. It is one of the market-driven industries that employee a large segment of the country's population. The new changes over the last few years have been enormously helpful to contribute more towards economic growth. Recent advancements such as drones, and data-driven facilities help to monitor the process of farming. It has been supporting farmers to increase productivity and contribute more towards the agricultural economy.

The future of Indian agriculture seems bright and promising with the advent of new technologies. The government has increased its focus on the sector, implementing the various policies and initiatives to boost productivity and growth. India's vast and diverse agricultural landscape, coupled with advancements in technology, provides immense opportunities for farmers to harness their potential and increase yield. In addition, start-ups in the agriculture sector are working towards providing innovative solutions to farmers in terms of supporting them with better productivity, measuring tools and other data-driven strategies.

FUTURE SCOPE

Agriculture in India is livelihood for a majority of the population and can never be underestimated. Although its contribution in the gross domestic product (GDP) has reduced to less than 20 per cent and contribution of other sectors increased at a faster rate, agricultural production has grown. This has made us self-sufficient and taken us from being a begging bowl for food after independence to a net exporter of agriculture and allied products.

Total food grain production in the country is estimated to be a record 291.95 million tonnes, according to the second advance estimates for 2019-20. This is news to be happy about but as per the estimates of Indian Council for Agriculture Research (ICAR), demand for 345 million tonnes by 2030. India is blessed with large arable land with 15 agro-climatic zones as defined by ICAR, having almost all types of weather conditions, soil types and capable of growing a variety of crops. India is the top producer of milk, spices, pulses, tea, cashew, and jute and the second largest producer of rice, wheat, oilseeds, fruits and vegetables, sugarcane and cotton.

In spite of all these facts, the average productivity of many crops in India is quite low. The country's population in the next decade is expected to become the largest in the world and providing food for them will be a very prime issue. Farmers are still not able to earn respectable earnings.

Even after over seven decades of planning since the independence, majority of the farmers are still facing problems of poor production and / or returns.

Major constraints in Indian agriculture are:

- According to 2010-11 Agriculture census, the total number of operational holdings was 138.35 million with average side of 1.15 hectares (ha). Of the total holdings, 85 per cent are in marginal and small farm categories of less than 2 ha (GOI,2014).
- Farming for subsistence which makes scale of economy in question with majority of small holdings.
- Low-access of credit and prominent role of unorganised creditors affecting decisions of farmers in purchasing of inputs and selling of outputs.
- Less use of technology, mechanisation and poor productivity for which first two points are of major concern.
- Very less value addition as compared to developed countries and negligible primary-level processing at farmers level.
- Poor infrastructure for farming making more dependence on weather, marketing and supply chain suitable for high value crops.

Future of agriculture is a very important for the planners and all other stakeholders. Government and other organisations are trying to address the key challenges of agriculture in India, including small holdings of farmers, primary and secondary processing, supply chain, infrastructure supporting the efficient use of resources and marketing, reducing intermediaries in the market. There is a need for work on cost-effective technologies with environmental protection and on conserving our natural resources.

The reforms towards privatisation, liberalisation and globalisation affected inputs market at a faster pace. Agricultural marketing reforms after 2003 made changes in marketing of agricultural outputs by permitting private investment in developing markets, contract farming and future trading, etc., These amendments in marketing acts have brought about some changes but the rate is less.