ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– III May - June 2021

A STUDY ON CONSUMERS (FARMERS) BEHAVIOR TOWARDS ORGANIC CROPS AND GM CROPS FROM WARDHA DISTRICT

Miss. Payal Kapse

Dr. Ambedkar Institute of Management Studies and Research, Deekshabhhomi, Nagpur

Dr. Ashutosh A Paturkar,

Dr. Ambedkar Institute of Management Studies and Research

Abstract

Agriculture is the main stay of India's economy. Agricultural development is therefore, a precondition of our national prosperity hence Indian agriculture system has taken up new modifications and changes by turning towards organic farming and implementation in conventional farming.

Organic crops are crops which are grown without use of synthetic fertilizers and the grains/ seeds which are used for sowing are complete organic variety of grains. They contain all kind of nutritious qualities and are completely healthy.

Organic farming refers to a technique, which involves the cultivation of plants and rearing of animals in natural ways. This process involves the use of biological materials, avoiding synthetic substances to maintain soil fertility and ecological balance thereby minimizing pollution and wastage.

GM crops include the genetic modification in the genes of the crops so as to increase the resistance of the crops from certain pests , diseases, environmental conditions, reduction of spoilage, resistance to chemical treatments or improving nutritional profile of crops.

Conventional farming also known as industrial agriculture, refers to farming systems which include the use of synthetic chemicals fertilizers, pesticides, herbicides and other continual inputs, genetically modified organisms, concentrated animal feeding operations, heavy irrigation, intensive tillage, etc

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL
Volume–X, Issues– III May - June 2021

Objectives of this study were to evaluate the perception of farmers towards GM technology as producers and as a consumer, know the Organic and Conventional farmer's attitude towards Agricultural sustainability, find out the consumer opinion towards organic and GM crops production at a commercial level, find the ways for minimizing the cost of cultivation of organic farm products.

This study concluded that the demand for organic product is high but the population of farmers who are doing organic farming is less as compare to the farmers doing conventional farming.

Key Words: *Organic Farming, Conventional Farming, GM Crop.*

Agriculture is the main stay of India's economy. It accounts for 26% of the gross domestic product. It ensures food safety and security for the country and produces several raw materials for industries. Agricultural development is therefore, a precondition of our national prosperity. Agriculture in India is livelihood for a majority of the population. 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.

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. but as per the estimates of Indian Council for Agricultural Research (ICAR), demand for food grain would increase to 345 million tonnes by 2030.

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.

Increasing population, increasing average income and globalisation effects in India will increase demand for quantity, quality and nutritious food, and variety of food. Therefore, pressure on decreasing available cultivable land to produce more quantity, variety and quality of food will keep on increasing and due to this, the Indian agriculture system has taken up new modifications and changes. The conventional farming over traditional has come up. The organic farming relies on natural processes, biodiversity and cycles adapted to local conditions rather than use of synthetic inputs. Whereas the conventional farming includes the Genetically Modified technology. The GM crops includes the genetic modification in the genes of the crops

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– III May - June 2021

so as to increase the resistance of the crops from certain pests, diseases, environmental conditions, reduction of spoilage, resistance to chemical treatments or improving nutritional profile of crops. Recently farmers have widely adapted the GM technology for the commercial growth.

Organic farming

Organic farming is a technique, which involves the cultivation of plants and rearing of animals in natural ways. This process involves the use of biological materials, avoiding synthetic substances to maintain soil fertility and ecological balance thereby minimizing pollution and wastage.

Organic farming is in a nascent stage in India. About 2.78 million hectare of farmland was under organic cultivation as of March 2020, according to the Union Ministry of Agriculture and Farmers' Welfare. This is two per cent of the 140.1 million ha net sown area in the country. Even though India has very small organic area under cultivation, in terms of number of organic farmers it is being ranked first. India has over 1.9 million farmers as of March 2020, which is 1.3 per cent of 146 million agricultural landholders.

Consumers demand for organically produced goods continues to show double digit growth. Owing to the growing incidences of food adulteration, the demand for organic food is rapidly increasing. The growing level of health consciousness in the country is a key factor driving the demand for organic food. The nutritional content and quality of food they eat have begun to be paid attention to by Indian consumers leading to the growing demand for organic food. In addition, the consumer spending on health and wellness products has increased dramatically due to factors including strong economic growth, urbanization and rising income levels.

Many people choose organic foods to avoid any risks associated with the pesticides, herbicides, and other chemicals used in conventional farming. Parents may be concerned that exposure to these chemicals might harm the development of their children, and therefore they choose organic. Studies appear to support the fact that organic diets lower children's exposure to pesticides.

The biggest criticism of organic food is its cost. There are several reasons it's more expensive. Organic farmers pay more for organic animal feed, and the farming is more labour intensive, since farmers avoid chemical fertilizers and pesticides. Because farmers don't use herbicides, for instance, they rely more on hand weeding. And since they avoid chemical fertilizers, they

ISSN–2278-5655
AMIERJ
AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL
Volume–X, Issues– III May - June 2021

use compost and animal manure, which is bulkier and more expensive to ship. This also means their crop yield is usually lower. Conventional farming also uses every acre of farmland to grow crops, while organic farmers rotate their crops to keep soil healthy.

All of these production costs mean organic farming tends to be more expensive than conventional farming, and this is reflected in how much you pay at the grocery store. However, when you take into account the true "cost" of food production from conventional farming, including replacement of eroded soils, cleaning up polluted water, health care for farmers who get sick, and environmental costs of pesticide production and disposal, organic farming might actually be cheaper in the end.

Conventional farming

Conventional farming also known as industrial agriculture, refers to farming systems which include the use of synthetic chemicals fertilizers, pesticides, herbicides and other continual inputs, genetically modified organisms, concentrated animal feeding operations, heavy irrigation, intensive tillage, etc.

It is the use of seeds that have been genetically altered using a variety of traditional breeding methods, excluding biotechnology, and are not certified as organic. The conventional farming had helped India not only to produce enough food for own consumption but also generated surpluses for exports. However, the increasing population and income will lead to further increases in demand for food and also for raw materials for industry

Its goal is to ensure food security, even if that can be achieved through genetically modified organisms (GMOs). On the other hand, organic farming or modern farming rely on sustainable ways of growing crops. These techniques are farm-focused, improving the natural fertility of the farm.

It has delivered tremendous gains in productivity and efficiency. Food production worldwide has risen in the past 50 years. Conventional agriculture is dependent on large investments in mechanized equipment powered mostly by fossil fuels. This has made agriculture efficient, but has had an impact on the environment.

Conventional farming systems vary from farm to farm and from country to country. However, they share many characteristics such as rapid technological innovation, large capital investments in equipment and technology, large-scale farms, single crops (monocultures); uniform high-yield hybrid crops, dependency on agribusiness, mechanization of farm work,

ISSN–2278-5655
AMIERJ
AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL
Volume–X, Issues– III May - June 2021

and extensive use of pesticides, fertilizers, and herbicides. In the case of livestock, most production comes from systems where animals are highly concentrated and confined

Impacts on Human Health

Many potential health hazards are tied to farming practices. The general public may be affected by the sub-therapeutic use of antibiotics in animal production and the contamination of food and water by pesticides and nitrates. These are areas of active research to determine the levels of risk. The health of farm workers is also of concern, as their risk of exposure is much higher.

Objective of research:

Objectives of this study are

- To study the perception of farmers towards GM technology as producers and as a consumer.
- To know the Organic and Conventional farmer's attitude towards Agricultural sustainability.
- To find out the consumer opinion towards organic and GM crops production at a commercial level.
- To study the ways for minimizing the cost of cultivation of organic farm products.

Research Methodology

The study was conducted at Wardha District of Maharashtra and the primary data was collected from 50 farmers from the Wardha District and 3 Farm product distributers (Krushi Kendras) from Wardha district. The secondary data was collected from Internet, Newspaper, Articles, Magazine, etc.

Review of literature

Suryatapa Das, Annalakshmi Chatterjee, Tapan Kumar Pal (2020) in their study Organic farming in India: a vision towards a healthy nation concluded that food quality and safety are the two important factors that have gained ever-increasing attention in general consumers. Conventionally grown foods have immense adverse health effects due to the presence of higher pesticide residue, more nitrate, heavy metals, hormones, antibiotic residue, and also genetically modified organisms. Moreover, conventionally grown foods are less nutritious and contain lesser amounts of protective antioxidants. In the quest for safer food, the demand for organically grown foods has increased during the last decades due to their probable health

ISSN–2278-5655
AMIERJ
AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL
Volume–X, Issues– III May - June 2021

benefits and food safety concerns. The popularity of organically grown foods is increasing day by day owing to their nutritional and health benefits. Organic farming also protects the environment and has a greater socio-economic impact on a nation.

M. Arunkumar Victor (2020) while studying Consumer's perception towards organic food, concluded that the food safety, human health and environmental concern in conjunction with sensory attributes like nutritive value, taste, freshness and appearance influence organic food consumer preferences. Demographic variables may define organic consumers but the correlation is not significant. Consumers also associate organic food with natural process, which take care of the environment and animal welfare and thus the non-use of pesticides and fertilizers. Premium price continues to suppress organic food consumption. Understanding the grounds of accelerating level of organic food consumption like motivation are most vital in understanding the potential of the organic food to become a genuinely mainstream market.

Sonam Kale, Kishor Prabhakar Panzade, Narendra R. Chavan (2020) in their study on Modern farming methods: An initiative towards increasing the food production concluded that, in India agriculture is a source of livelihood for more than two third of our population. But before 1950 the Indian agricultural system was not strong as today and hence the production was not sufficient to fulfil the demand for food with the increasing population. In late 1960 the Green revolution has been the major success story of Indian agriculture which used some modern farming methods. This was the reason that the nation was frequently plagued by famines and various food shortages before green revolution and today we are in a position where we are challenging with the problem of surplus. Today with the development of various agricultural technologies/systems which include Genetically modified (Hybrid) technology organic farming, genetic manipulation of crop plants, use of vertical farming, precision agriculture (PA) etc. increases the crop production with this India combat the current issues in agricultural production and fulfil the world current and future food demand.

Owusu, Festus (2020) in a study an analysis of perceptions amongst farmers on the adoption of GM technology in Paarl, Western Cape - South Africa, analysed the perceptions of small-scale and large-scale farmers, located in Paarl, Western Cape, South Africa, on the adoption of GM technology. The commercially and profit-driven farmers avoid using GM technology because public opinion and the markets weigh heavily against it. It was concluded that the farmers regarded GM technology as just one of many agricultural technologies and not as an

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL
Volume–X, Issues– III May - June 2021

exception. It was also considered unaffordable and detrimental to the environment, the economy and their livelihoods. The study recommends that the government should fully investigate public perceptions with regard to the adoption of any new agricultural innovation prior to making policy decisions.

The Indian Scenario

The organic food market in India is a niche market, with the market expected to see wider penetration in the coming years. Owing to the growing incidences of food adulteration, the demand for organic food is anticipated to rise in the coming years. The growing level of health consciousness in the country is a key factor driving the demand for organic food. The nutritional content and quality of the food they eat have begun to be paid attention to by Indian consumers leading to the growing demand for organic food. In addition, the consumer spending on health and wellness products has increased dramatically due to factors including strong economic growth, urbanisation, and rising income levels. The e-commerce industry growth also serves as an aid to enterprises as a way of appealing to potential consumers due to the lucrative offers and wider market penetration of the platforms. In the malls in major metropolitan towns, companies are also opening small kiosks, which is adding to the market growth. Organic beverages like tea have the greatest appeal, followed by milk products and pulses.

In addition, the strong government funding is catalysing the market for organic food in India. The Government of India encourages organic farming through financial assistance to farmers who are implementing organic farming under various government schemes, such as the Mission for Integrated Horticulture Development (MIDH), National Food Security Mission (NFSM), NMSA, and Rashtriya Krishi Vikas Yojana (RKVY).

Despite efforts from government and other agencies, subsidies and other schemes, area under organic farming is still less than 1% of total cultivated area in India. The farmers adopting organic farming face difficulty to survive and market their end products.

These difficulties are as follows:

Loss of crop yield

Non achievement of expected quality

Failure of organic pest management

Shortage of biomass and livestock

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– III May - June 2021

Lack of quality seeds supporting organic agriculture

Lack of storage, transport &organized organic marketing system

Lack of awareness and guideline for organic farming

Inability to meet the export demand

Scarcity and high cost for quality analysis

To overcome the difficulties many strategies are being implemented by multiple agencies in India.

Strategies to increase yields in organic Crops

Area of intervention	Strategies to increase yields
Soil fertility	• Crop rotation design and management including optimal management of legume pre-crop effects and green manure crops • Increased crop diversity • Intercropping • New technologies for reduced tillage • Increased cooperation between livestock farms and stockless farms • Adding/promoting supportive microorganisms and fungi in soil
Plant nutrients	Optimal use of legumes in rotations • Effective use of manures • Increased recycling and use of nutrients from society • Novel treatments of organic food wastes to produce high-quality composts • Technological solutions for safe sewage sludge treatments and recycling
Crop-weed competition	Crop rotation design and management • New physical weed control strategies and techniques including cover crop management • Use of the false seedbed technique • Precision farming and robots

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– III May - June 2021

Control of diseases	Use of tolerant or resistant crop varieties • Crop rotation design and management • Preventative strategies like intercropping, deep ploughing, optimal planting date etc. • New techniques and products for preventing fungal infections, physical methods and biocontrol organisms • Replace copper that is currently used • Use of certified and dressed seeds
Control of pests	Crop rotation design • Habitat manipulation (hedgerows, wild flower strips etc.) to strengthen functional biodiversity (e.g. natural enemies) • Physical/biological methods like nets, traps and repellents • Selective pest control products with low negative side-effects

Discussion

This study, which was carried out with the responses of 50 farmers and 3 distributers from the villages of Wardha district, it has been analysed that 95% farmers have knowledge about organic farming. Among these farmers 12.2% farmers perform organic farming, 55.1% perform conventional farming whereas 32.7 perform both types of farming. They perform these kind of farming for their personal and commercial use whereas the average for performing for both the type of farming is 52.4%. 60% farmers think that organic farming is profitable over conventional farming. But for this there occurs various consequences and growing challenges such as shortage of biomass, environmental conditions, irrigation facilities, lower yield, high input cost, problems due to pest and insect, etc. and to overcome these problems they do not have a proper solution hence most of them are not doing the organic farming at a commercial level, where as some are unaware about performing process of organic farming. 80% of the farmers are selling their products to the government corporation and 6% selling directly to customers and 10% selling to the combination of government corporations, customers, wholesalers, etc. Among this 90% of the customers ask for organic products as the customers are becoming more health conscious they are turning towards the intrinsic i.e. inner qualities (nutrition level) of the product rather than extrinsic i.e. Exterior qualities (colour,

appearance, etc). During the Covid-19 pandemic many customers have asked farmers for the organic food products. And hence their sale for organic have increased. 35%of the farmers have got increase in their sale by 10-20%, 40% got hike by 30-40% and 25% farmers got hike by 50%. Among these farmers 75% farmers are willing to grow more organic but 25% are not in future. This is the future perception but currently 80% farmers performing conventional farming whereas only 20% are doing organic farming. It was also confirmed from the Krushi Kendras 100% distributer told that they have more sale of conventional products and synthetic fertilizers as compare to organic one. Hence from the study it can be concluded that at present 80% farmers use GM products and only 20% use organic products for farming. Hence percentage of conventional farming is more than organic farming excluding their future will.

About 84.4 % farmers faced difficulty while performing organic farming. Difficulties such as shortage of biomass, higher input cost, lower yield and inadequate supporting infrastructure. Highest percentage of difficulties they faced was the shortage of biomass of 41.7% following to lower yield and inadequate supporting infrastructure having 27.8% each. There were also the growing challenges faced by farmers while performing organic farming, such as environmental conditions, problems due to insect and pests, improper plant growth and higher weed growth. Among these challenges problems due insect and pest were bothering about 62.2% of the farmers.

Those farmers who were performing organic farming have taken the crops such as wheat, vegetables, red gram, pegion pea, black gram, fruits, etc. other crops included Soyabean, cotton, flowers, millets, black gram, etc.

Recommendation

Based on the observations of the study this study has following recommendations:

Recommendations for the farmers so that they can improve their yield production and soil mechanism. The recommendations are as follows

- Provide organic manure to the soil: Provide organic manure to the soil this would help in increasing the fertility of the soil which is essential for the proper plant growth.
- Crop rotation: Yearly rotation of crops should be done. Such that if one grow soyabean at that area should grow other crop it that place next year rather than cultivating soyabean in the same place. This reduces the stagnation of soil and helps the growth of microorganisms which are essential for the plant growth.

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– III May - June 2021

- Ensure Proper Water Drainage: Water supply to the plants should be proper and regular. If the water content would be less, then the crops could dry and destroy and if water level would be higher then the soil could get stagnate and there would be improper growth of plants.
- Proper utilization of fertilizers: Use of fertilizers should be proper and at a specific interval. Appropriate quantity of fertilizer should be provided to the crops. If it gets more then the plants could get destroyed.
- Regular Testing of soil: After completion of one year of cultivation farmer should test the soil so as to know the nutrition content of the soil.
- Weeding early and oftenly decreases growth of weeds:Regular weeding should be carried out. excess amount of weeds in the crops consumes the nutrients from the soil which are essential for the crops to grow.
- Use proper quality of seeds: Usage of good quality of seeds gives a higher yielding crops. The potential of the seeds defines the potential of the yeild they would produce.

Recommendations to distributers for increasing the sale of organic products

After interviewing the distributers, it has been analysed that they have the customer base from the nearby villages only. To gain more profit they need increase their customer base and also strengthen their market by sale of more different types of products other than what they are selling.

There are few recommendations for the distributers for increasing their profit.

- Try to sponsor a charitable event to make a good impression on the audience: In order to connect with the local community, they should sponsor a local event. try to sponsor a charitable event that will help in creating a good impression among the prospective customers. Distribute business cards and brochures in such event.
- Maintain customer relationship: provide the best offer to the customers. Give them the detail idea about the quality of product. Provide them with the best service so that they would approach the store again and again.
- Introduction of new products: If the demand for the product which the distributer doesn't sale increases then one should strenghthen their business by introducing products other than what they are selling.

- Reviews and Feedbacks: Take regular reviews and feed backs from the customers, this will help them to learn about the customer's view towards the products they sale and will also help them to introduce new products where they are lacking.
- Participate in Agricultural Trade Shows: Participate in Agricultural trade show as this will help the distributers to gain more knowledge about the new products and will get a chance to exhibit their own products. This will help them to gain more customers and would help in increasing the sale.
- Promotion: Promotion of their products by sales and advertisements through print and social media. Also by taking small workshops which would include the promotion of product and qualities it holds. Offering the sample of the products so that farmers would get a practicle view of the product. This will help them to rise their customers.

References:

Suryatapa Das, Annalakshmi Chatterjee, Tapan Kumar Pal Organic farming in India: a vision towards a healthy nation, Food quality and Safety, Volume 4, Issue 2, May 2020, Published: 23 June 2020**,** Pages 69-72.

M. Arunkumar Victor, Dr. B. Revathy Consumer's perception towards organic food, Journal Studies in Indian Place Names (UGCCareJournal) Volume40 Issue18 Pages2732-2741 Published: 18 March 2020

Sonam S. Kale, Kishor P. Panzade, Narendra R. Chavan, Modern farming methods: An initiative towards increasing the food productivity. ISSN- 2582-5437Volume 1: Issue 4 Published : April 2020

Owusu , Festus Published: 2020 An analysis of perceptions amongst farmers on the adoption of GM technology in Paarl, Western Cape - South Africa

P. Ramesh, Mohan Singh and A. Subba Rao, Organic farming: Its relevance to the Indian Context. VOL.88, NO.4, 25 February 2005

Rajib Roychowdhary, Mohamed R. Abdel Gawwad, Upasana Baerjee, Sunanda Bishnu and Jagatapi Tah. J. Status (2013), Trends and prospects of organic farming in India: A Review, 2(1): 38-48

A. K. Barik (2017). Organic Farming in India : Present status, Challenges and technological break through Rees. November8-11, , 84-93

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– III May - June 2021

S. K. Goyal, Dr JaiP. Rai, Shree Ram Singh, Prabha (2016) Indian Agriculture and Farmers-Problems and Reforms. January 2016.

Dr. P. Chandra Shekara, Dr. N.Balasubramani, Dr. R.Sharma, dr. A.Kumar, Bakul C. Chaudhari, Mr. Max Bauman Farmers handbook on Basic Agriculture, 2Nd edition. August 2016

Dunlap, R. E., & Van Liere, K. D. (1978).The "new environmental paradigm". The journal of environmental education,9(4):10-19.