ORIGINAL RESEARCH PAPER

Management

A STUDY ON CHALLENGES AND OPPORTUNITIES IN ORGANIC FARMING WITH SPECIAL REFERENCE TO ORGANIC FARMERS IN ERODE DISTRICT

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ABSTRACT

Organic farming is a method of crop and livestock production that involves much more than choosing not to use pesticides, fertilizers, genetically modified organisms, antibiotics and growth hormones. Organic production is a holistic system designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem, including soil organisms, plants, livestock and people. The principal goal of organic production is to develop enterprises that are sustainable and harmonious with the environment. Organic farming promotes the use of crop rotations and cover crops, and encourages balanced host/predator relationships. Organic residues and nutrients produced on the farm are recycled back to the soil. Cover crops and composted manure are used to maintain soil organic matter and fertility. Preventative insect and disease control methods are practiced, including crop rotation, improved genetics and resistant varieties. Integrated pest and weed management, and soil conservation systems are valuable tools on an organic farm. Organically approved pesticides include "natural" or other pest management products included in the Permitted Substances List (PSL) of the organic standards. The Permitted Substances List identifies substances permitted for use as a pesticides in organic agriculture. All grains, forages and protein supplements fed to livestock must be organically grown.

INTRODUCTION TO ORGANIC FARMING

As per the definition of the United States Department of Agriculture (USDA) study team on organic farming "organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection".

Organic Farming In India:

Organic farming system in India is not new and is being followed from ancient time. It is a method of farming system which primarily aimed at cultivating the land and raising crops in such a way, as to keep the soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (bio fertilizers) to release nutrients to crops for increased sustainable production in an eco-friendly pollution free environment.

India is home to 30 per cent of the total organic producers in the world, but accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares, according to the World of Organic Agriculture 2018 report. At the same time, most organic farmers are struggling due to poor policy measures, rising input costs and limited market, says a study by the Associated Chambers of Commerce and Industry of India (ASSOCHAM) and global consultancy firm Ernst & Young.

Statement Of The Problem:

Green revolution technologies played a great role in alleviating hunger but have also resulted in some adverse effects on our natural resources. Due to these adverse effects, stress is being laid on alternate forms of agriculture that are more sustainable. Organic farming, a holistic way of farming, is one of these alternate forms that are aimed at sustainable agricultural production. It relies on crop rotations, green manures, organic manures, bio fertilizers, composts and biological pest management for crop production excluding or strictly limiting the use of synthetic fertilizers, chemical pesticides, plant growth regulators and livestock feed additives. Organic farmers have found this methods to be personally rewarding and profitable. The main reasons farmers state for wanting to farm organically are their concerns for the environment and about working with agricultural chemicals in conventional farming systems. There is also an issue with the amount of energy used in agriculture, since many farm chemicals require energy intensive manufacturing processes that rely heavily on fossil fuels.

Consumer's wanted to buy food products that are free of chemical pesticides or grown without conventional fertilizers. Some simply like to try new and different products. Product taste, concerns for the environment and the desire to avoid foods from genetically engineered organisms are among the many other reasons some consumers prefer to buy organic food products. There is an increasing trend in organic consumers, recent study revealed the fact, over 60 per cent of consumers bought some organic products. Approximately five per cent of consumers are considered to be core organic consumers who buy up to 50 per cent of all organic food.No doubt, the advantages of organic farming outweigh its disadvantages but in practical it has several constraints viz. threat to national food security, limited availability of organic manures, profitability to farmers and affordability of organic produce by consumers.

Increased awareness of consumers' and their health concerned diet in last decade has increased the demand for organic food products to multi-fold. Though there is a huge need for organic food products, the cost of production, need for certification, irregular supply of fertilizers and seeds, high maintenance cost, poor distribution channel networking facilities etc., were considered to be the major hurdles for the present day farmers. Size of the farm land and the quantity and types of crops produced plays an important role in profitability, as the size increases, networking and distribution becomes easier and it reaches consumers on time in reasonable price which fetches profit. Whereas small farmers faces cost issues and distribution issues. Thus, a complete shift to organic farming is neither desirable nor possible in high input use areas which are the major contributors of food grains to central pool.

The following study is aimed at identifying the challenges faced and perceived benefits and opportunities faced by organic farmers cultivating different crops in and around erode district. An attempt has been made to identify the difference of opinion from organic farmers with respect to their experience in organic farming and the size of the farm land. This research work is believed to provide a better

insight about the following phenomenon:

- Impact of demographical differences of framers on their opinion about challenges and opportunities in organic farming.
- Relationship between size of the farm land and farmers opinion about challenges and opportunities in organic farming.
- Impact of farmer's perception about challenges & opportunity on consumer's decision making behavior about organic farming.

Objectives Of The Study

1. To evaluate the effect of organic farmers' perception towards challenges in organic farming on their opinion about organic farming decision making behavior.
2. To measure the impact organic farmers' perception towards benefits & opportunities on their opinion about organic farming decision making behavior
3. To examine the relationship between size of organic cultivation land and organic farmers' perception towards challenges faced in organic farming.
4. To examine the relationship between size of organic cultivation land and organic farmers' perception towards benefits and opportunities in organic farming.
5. To analyze the relationship between demographical variables and the perception of organic farmers towards challenges faced.
6. To analyze the relationship between demographical variables and the perception of organic farmers towards benefits and opportunities in organic farming.

Research Methodology

Research Methodology chapter explains the sequence of the process followed in carrying out the research. This chapter summaries research gap identification through reviews, the research problem statement, type of research carried out, the technique followed for sample selection, classification of the sample,data collection methods used & data collection tools deployed, and the technique incorporated in analysing the data for the select period of the study. Further, the hypotheses set of the study have also been dealt herewith.

Research Design

Extensive exploration has been done through reviews of past studies related to organic farming to decide on challenges and benefits faced by organic farmers. Reviews were also selectively chosen with respect to erode district farmers to increase the validity of the study.In addition to review results, organic farmers from erode district were contacted personally to know about their region specific challenges and opportunities. A detailed questionnaire was prepared based on the above exploratory research results & personal interview results. Using the above questionnaire a detailed descriptive analysis was carried out by collecting primary data from organic farmers of different regions of erode district. Probability sampling technique was employed and the findings were statistically validated using appropriate tools and techniques.

Sampling Design

This study collected data through questionnaires administered to organic famers of erode districtfrom Feb 4th 2014 to March 15th 2017. List of organic farmers was obtained from the organic farmers association of erode district. Survey method was adopted for the study as the list from the association had only 462 registrations. Respondents were classified into three categories namely small, medium and large farmers. The division has been made based on the size of the farm land. Farmers cultivating 1-2 acres were considered a small farmers, 3-4 were considered a large farmers and the farmers cultivating organic products in more than 4 acres of land were considered as large farmers for the purpose of the study.A total of 462 farmers were selected for the study, which includes 213 small, 134 medium sized farmers and 113 large farmers. All 462farmers were contacted personally through personal questionnaire administration. A detailed scheduling has been carried out and a prior permission from the farmers were taken before the study.

Variables In Research Study

Independent Variables

Four different sets of Independent variables were used in the study, namely Yield Risk, Input problems, Market risks, and Certification problems were considered to measure farmers' opinion on challenges faced in organic farming. Six different sets of Independent variables were usedto evaluate farmers' perception about benefits and opportunities in organic farming namely Conservation of Resources, Cost Efficiency, Soil Health, Empowerment, Non-Dependability and Export Facilities.

Control Variables:

In an attempt to find the impact of farmer's opinion on challenges and benefits on farmer's overall opinion about organic farming, the other independent variables like Age, Experience, Size of farm land, Number of crops grown and Ownership of the land were used as control variables to check the sensitivity of the effect of framer's opinion on challenges and benefits on their overall opinion about organic farming.

Dependent Variables

Two dependent variables namely farmer's opinion on challenges in organic farming and farmer's opinion on benefits & opportunities were measured using a well-structured item-analysis scale. Third dependant variable overall opinion of farmer's on organic farming is also measured using a validated scales.

Data Collection

Sources of Data:

Primary data was collected through questionnaires and the secondary sources of data were the existing literature can be studied deeply to know and understand the existing gaps in the literature. **Journals, Books, Magazines, reports of the units understudy, Internet and Newspapers.** Majority of the details were borrowed from various sources of organic farming worldwide and India. Previous research papers' references were also used for reviews.

Statistical Tool and Models Used

The data from various sources have been examined through simple mathematical tools like ratios and percentage. Various statistical tools and models were also been applied. The Statistical Package for Social Science (SPSS) latest version software package has been used for computing various results in this study. The test of significance namely "t" and F test have been applied to test the hypothesis wherever necessary.

The numerical data collected from different sources have been examined through simple mathematical tools like Mean, Standard Deviation, Co-efficient of Variation, Analysis of Variance (ANOVA), Regression Analysis, Correlation Analysis, Factor Analysis and Structural Equation Modelling.

Period Of The Study

The period of study has been confined to certain period, from Jan 2014 to May 2017.

Significance Of The Study

The study has an academic and practical significance. It helps the academicians and researchers to develop new ideas for future study. It would also enable organic farming associations of taluk's, districts, state government and farmers to understand the Indian organic farming condition better. This study will be useful to the organic farmers to understand the effect of each of the challenges, benefits and opportunities

and its impact on farmers' attitude towards sustaining in organic farming. This study can also help farmers to take decisions and strengthen their intrinsic value.

Opportunities Of Orgnaic Farmers - Factor Analysis

The appropriateness and adequacy of the data for the factor analysis is tested using KMO and Bartlett's test, the value of KMO for overall matrix (0.782) is found to be more than an acceptable value of 0.6 and the Bartlett's test of Sphericity is also highly significant ($p < 0.001$). The results thus indicate that the samples taken are appropriate and adequate to proceed with the factor analysis. Results of the adequacy and appropriateness are displayed in the table below.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.782
Bartlett's Test of Sphericity	Approx. Chi-Square	7039.246
	df	210
	Sig.	.000

The table below enumerates that communality of the selected 21 variables which had good reliability score of 0.782. Results were keenly checked that no one variable has low loading, i.e., less than 0.5.

Communalities		
	Initial	Extraction
Maintain environment health by reducing the level of pollution	1.000	.842
Ensures optimum utilization of natural resources for short term benefits and helps in conserving them for future generations	1.000	.627
Improves water holding capacity	1.000	.599
Production of clean foods	1.000	.606
Reduces the cost of agricultural production	1.000	.701
Helps in keeping agricultural production at the higher level and makes it sustainable	1.000	.770
Reduces the risk of crop failure	1.000	.888
Improves the soil health	1.000	.835
It improves soil physical condition properties such as granulation and good health, good aeration and easy root penetration	1.000	.745
Improves the soil chemical properties such as supply and promotes favourable chemical reactions	1.000	.798
Potential for cooperative rural and regional development	1.000	.675
Helps in empowering farmers and growers	1.000	.877
Reduces the cost of agricultural production	1.000	.763
Helps in reconnecting public with farming and food	1.000	.879
Green manures act as a green amendments	1.000	.787
Sustaining production system depends largely on on-farm resources	1.000	.832
Prospects of exports of organically produced foods	1.000	.764
Strong consumer demand and brand recognition.	1.000	.730
Indigenous knowledge is valued by government and public	1.000	.763
Reliable and credible standard-setting processes and certification schemes	1.000	.827
Dynamic review of policies and standards.	1.000	.835
Extraction Method: Principal Component Analysis.		

Total Variance Explained

The following table depicts the total variance explained with rotation. The test resulted in seven factors and the Eigen values for the factors one, two, three, four, five, six and sevenare 4.904, 3.206, 2.912, 1.802, 1.339, 1.179 and 1.080 respectively. Percentage of variance after the rotation for the factors one, two, three, four, five, six and seven are 23.355, 15.264, 13.866, 8.579, 6.375, 5.613, and 3.828 respectively. Cumulative percentage for the factors one, two, three, four, five, six and seven after the rotation are 23.355, 38.619, 52.485, 61.064, 67.439, 73.052 and 76.880 respectively. It indicates that the 7 factors extracted from the total of 21 variables have a cumulative percentage up to 76.880 percentage of the total variance in respondents' opinion about opportunities in organic farming.

Research Hypotheses

I. Relationship between farmers' opinion about overall decision making behaviour and their perception towards challenges and opportunities in organic farming Practices:

H1: Organic farmers' perception towards challenges faced is significantly related to farmers' opinion on decision making behaviour.

H2: Organic farmers' perception towards benefits and opportunities in organic farming is significantly related to farmers' opinion on decision making behaviour.

II. Relationship between opinion about overall decision making behaviour and demographic differences &size of the farm land:

H1: Size of the organic farming cultivation land is significantly related to farmers' opinion on decision making behaviour.

H2: Demographic factors is significantly related to farmers' opinion on decision making behaviour.

III. Relationship between demographicaldifferences and Organic farmers' perception towards challenges and opportunities in organic farming Practices:

H1: Demographic factors are significantly related to farmers' perception towards challenges in organic farming practices.

H2: Demographic factors are significantly related to farmers' perception towards benefits and opportunities in organic farming practices.

IV. Relationship between size of the farm land and Organic farmers' perception towards challenges and opportunities in organic farming Practices:

H1: Size of the farm land issignificantly related to farmers' perception towards challenges in organic farming practices.

H2: Size of the farm land is significantly related to farmers' perception towards benefits and opportunities in organic farming practices.

V. Relationship between components of challenges faced by Organic Farmers and overall perception about the challenges in organic farming

H1: There is a significant effect of factors of challenges faced by organic farmers in their overall opinion about the challenges in organic farming.

VI. Relationship between components of benefits and opportunities in Organic Farmers and overall perception about the challenges in organic farming

H1: There is a significant effect of factors of benefits and opportunities in organic farmers in their overall opinion about the benefits and opportunities in organic farming.

CONCLUSION

The organic standards generally prohibit products of genetic engineering and animal cloning, synthetic pesticides, synthetic fertilizers, sewage sludge, synthetic drugs, synthetic food processing aids and ingredients, and ionizing radiation. Prohibited products and practices must not be used on certified organic farms for at least three years prior to

harvest of the certified organic products. Livestock must be raised organically and fed 100 per cent organic feed ingredients.Organic farming presents many challenges. Some crops are more challenging than others to grow organically; however, nearly every commodity can be produced organically. This study evaluates the effect of organic farmers' perception towards challenges in organic farming on their opinion about organic farming decision making behavior. It shows the feasibility of the perceptions of the farmers towards organic cultivation in Erode district.