VOLUME-6 | ISSUE-1 | JANUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

Original Research Paper

Potential of organic farming for sustainable agriculture in Uttarakhand

Geography

KEYWORDS:

Priyanka Negi Research scholar Department of Geography, HNBGarhwal University Srinagar

Dr. M.S. Negi Associate Professor Department of Geography, HNBGarhwal University Srinagar

ABSTRACT

Sustainable agriculture is a universal need. This paper addresses the scope of organic farming as an effective way to promote sustainable agriculture in Uttarakhand. Concept of sustainable agriculture has many operational meaning, is discussed in this paper. In present time people starving from many ecological and health problems, organic farming is essential to solve these problems which based on use of chemical fertilizer. This paper discussed why organic farming is the way of sustainable agriculture. It evaluates possibilities of espousing organic farming as an effective strategy to promoting sustainable agriculture in Uttarakhand. Organic agriculture can contribute to a widely developing agriculture production, food security, generate employment opportunities for local people and reduce health problems while promoting the environment conservation. State has to adopt new strategies with strong infrastructure, governance, and public participation, and for the achievement seeking to contribute to poverty reduction, raise regional integration, increase rural development and improve productivity in agriculture.

Introduction

Founders of organic agriculture and food movement focused on the food, which is healthy and environmental friendly and which have recent advances of science. Organic agriculture is only farming without chemical fertilizers, insecticides, hormones and genetically modified crops. The use of organic manure, bio-fertilizers or pesticides in the cultivation increase not only production but also produce a number of benefits like; maintain soil fertility, decrees water and soil pollution and provide healthy or natural food. Organic farming utilizes the bio-waste, create the employment opportunities, generate natural ecosystem.

Organic farming include long term fertility of soils effective recycling of organic materials, including crop residues , livestock wastes, weed, diseases and pest control relying primarily on crop rotations, natural predators diversity , organic manure and resistance varieties (chhonkar 2002). Organic agriculture depends upon crop rotation, crop residues, animal manures, legumes, green manures, off-farm organic wastes, mechanical cultivation, mineral-bearing rocks and aspects of biological pest control(vandanashiva).

The term 'organic' used in 1940's by a British writer Lord Northbourne. He described an integrated farm as a "dynamic living organic whole" in his book "Look to the Land". Organic farming encourages crop rotations, cover crops and balanced predator relationships. Unlike sustainable farming practices organic farming is well-defined organic techniques are unique for they are the only ones codified as low.(Mac Cormack 1995).

Agriculture is a multi-functional industry supplying primary products such as food, fuel, fiber and pharmaceutical inputs to a wild range of industries, as well as social and environment good and services. (Defra,2007). Modern organic farming can be traced in Europe in the first quarter of the early 20th century (stock dale etal2009). In India Sir Albert Howard give way for organic farming. He considered the father of organic farming in India. He believed that sift from nature's methods leads to the loss of soil fertility (Howard 1940).

Objective

1. To measure the yearly production of organic farming.
2. To find out the changing consumption of organic fertilizer.
3. To find out the changing pattern of land under organic farming.

Methodology

The study is based on secondary data collected from UOCB and report of NOCF. Table and bar diagrams are used to show area under organic farming practice in Uttarakhand in comparison of India. Line diagram shows the sale status of organic products. Actual production of bio-fertilizers in Uttarakhandis calculated comparison of India. After analyzing the data and literature problems and their suggestions are given.

Organic Farming and Sustainability

Organic farming defined as a sustainable agriculture system that produces agriculture products without the use of artificial fertilizers or pesticides. "Sustainability lies at the heart of organic farming and is one of the major factors determining the acceptability or other wise of specific production practices" (Limpkin 1995). Organic farming contains not only environmentally sound management system that is socially and economically reasonable and responsible. Today organic agriculture is attached to certification and labeling process which are regulated by international standards and national lows. The biodynamic farming is a similar system utilizing lunar and planetary rhythms in the farming calendar, as well as a number of microbial preparations to improve soil health.

Making an allowance for meaning and definitions of sustainable agro-ecological or low input agriculture, it is important to adhere these rules and standards when discussing organic agriculture (Rigby & Caceres 2001). There is not any argument that organic agriculture and sustainable agriculture are related with each other. According to some scholars, they are synonymous and other says equivalently disingenuous. Organic farming is the system based on renewal of ecological processes and strengthening of ecological functions to produce sale and healthy food sustainability. Organic farming represents a wide system of agriculture instead of a set of technologies. Organic agriculture is the best way to get sustainability through the uses of nature given resources.

Status of Organic Farming in Uttarakhand

Uttarakhand is 27th state of India, located in the northern part of country. Uttarakhand is known for its beauty and due to shrines, temples & places of devotion and meditation it is also known as "Devbhoomi". The plain region of the state known as Tarai-Bhabar region comprises of Haridwar, Udham Singh Nagar and parts of Nainital and Dehradun districts. The hill region is consists of Chamoli, Rudraprayag, Almora, Bageshwar, Uttarakashi, Tehri, Pauri, Champawat, Pithoragarh and parts of Dehradun and Nainital districts. The whole state is rugged mountainous landscape excluding Udham Singh Nagar, Haridwar, Dehradun, Pauri and Nainital districts. Administratively, it comprises in two divisions, Kumaon and Garhwal, which are composed of thirteen districts. Uttarakhand is in 9 and 14 zone of National Agro-climatic zone.

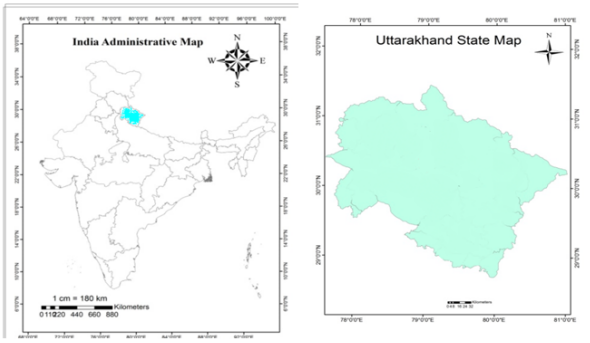
The hill state of Uttarakhand with its favorable climatic condition and traditional farming practices often tends to be already organic by default. Organic farming is wildly believed to be, not just a possible growth path to be followed by the state, but also a solution to many

VOLUME-6 | ISSUE-1 | JANUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

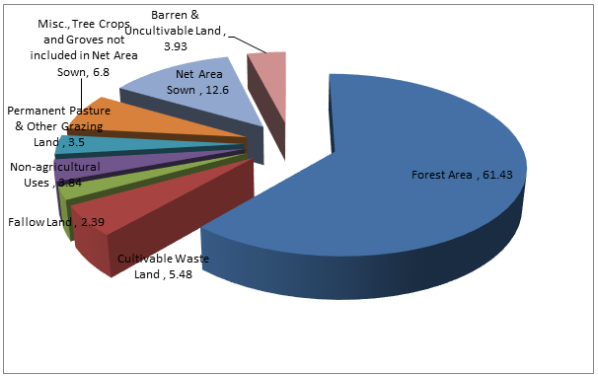
economic and ecological problems of the state.

The cropping pattern of Uttarakhand reflects the varying conditions of altitude, climate and soil. In spite of the steep and rugged terrain of the region, the tremendous difficulties of the environment have not been able to suppress the initiative and energy of man. On the other hand they have induced a high degree adaptive skill and uncommon physical vigor to cope with inhospitality of the environment.

LOCATION MAP OF UTTARAKHAND



Total Reported Area 2011-12



Organic Farming system in Uttarakhand is not new and is being followed from ancient times.Today the need for organic products is increased in all over the world. With the continuous increase in the number of organic activities and through various projects in Uttarakhand more and more farmers are adopting organic farming both in planes and hill region. Uttarakhand is the state where status of using chemical fertilizers and pesticides is very low. This situation provided opportunities to the state to develop environment friendly and sustainable agriculture. Organic farming is a resource to small farmers for producing healthy and organic food, which have broad market opportunities. State is promoting organic farming in a systematic way. Rudraprayag has become Uttarakhand first district to commercially produce organic products. Today organic farmers are modernizing with the rising demand for organic food. The state government plans to declare 6 regions as exclusive organic farming blocks.

These are the programs run by UOCB to promote organic farming.
1. Reinforcement programe of UOCBC (State Sector)

2. National Agriculture Development Programe
Here is the projects running under this-

2.1) Support for Service Providers and Cluster Based Supply Chain facilitator at District for Organic Farming and Marketing of Organic Produce (2014-2015)

2.2) Saturation of Selected Blocks under Organic Farming (2013-15)

2.3) Saturation of Selected Blocks under Organic farming, Phase-II (2015-17)

2.4) Financial Support for Organic certification of Farmers Identifies by Department of Agriculture & UOCB

2.5) Traditional Agriculture development programe.

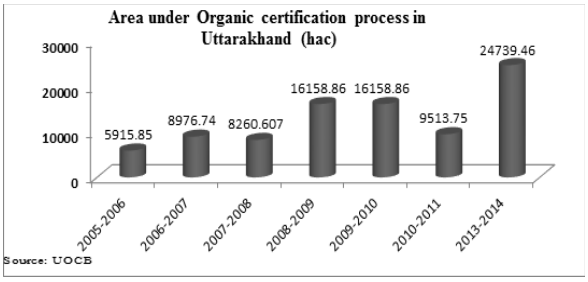
Himoutthan pariyojana, run by center for Organic farming (C.O.F), provide technical and marketing expertise for product development, supply chain management, market linkage etc. 1200 bio villages are covered under this program and 20,000 farmers have been sensitized. Many organization and NGO's are working in the state to promote and coordinate the dispersed organic activity in the state and for the welfare of the farmers. Shikhar arvind shikshan samiti, Sewabharat, Ram krishan ashram, Leader, Sanjeevani, Haksi, Suvidha, Samvedi, Javikash sanstha, Mount velly development association, Shri bubneshwari mahila asharama are most important NGO's working to promote organic farming in Uttarakhand.

The table illustrates the growth of area under organic management in India and Uttarakhand.

Total area under Organic certification process in Uttarakhand

Year	Area in Uttarakhand(ha)	Area in India(ha)	Organic area of Uttarakhand %
2005-2006	5915.85	173682.54	3.40
2006-2007	8976.74	538170.55	1.66
2007-2008	8260.607	40,1002.01	2.06
2008-2009	11093.38	12,07,000	0.92
2009-2010	16158.86	757978.7	2.13
2010-2011	9513.75	60,0003	1.58
2013-2014	24739.46	4700000	0.52

Source: NOCF, Ghaziabad
According to NOCF in2013-2014 total area24739.46ha is included in organic farming process in Uttarakhand. The following fig. illustrates that land holding under organic farming is increasing in Uttarakhand.



Annual report ofNOCF, Ghaziabad represents the data of bio-fertilizers production in India. According to the report in the year 2008-2009 Uttarakhand produce 0.1924% bio-fertilizer, and in the year 2011-2012 Uttarakhand participate 0.6522% in the production of bio-fertilizers in India.

Actual Production of Bio-fertilizers (mt)

Year	Uttarakhand	India	Total production of uk %
2008-2009	48.23	25065.035	0.1924
2009-2010	32.00	20040.3531	0.1596
2010-2011	45.00	37997.61	0.1184
2011-2012	263.01	40324.27	0.6522

Source: NOCF, Ghaziabad

In the year 2007-2008 NCOF, Ghaziabad makes a report on the production of organic manure, compost and green manure. The details of organic manure production units sanctioned under different schemes of state and central government. The availability status in Uttarakhand is summarized and presented in this table –

Organic manure production units

	*NADEP Compost (no)	Capacity generated (lakh m.t.)
Uttarakhand	5000	0.81
India	248622	18.704

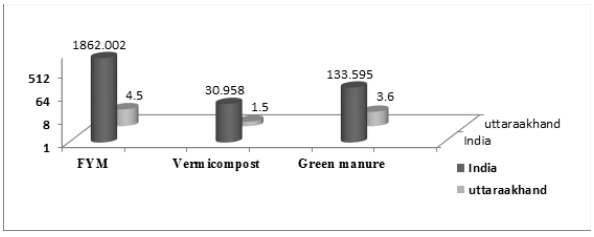
Source: NCOF Annual report 2007-2008
*NADEP- capacity of each NADEP compost pit was around 7.5 ton.

Compost and green manure production

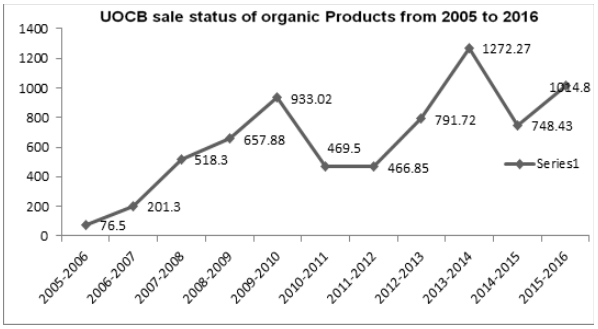
	FYM		Vermicompost		Green manure	
	P&A	AC	P&A	AC	P&A	AC
Uttarakhand	4.50	1.09	1.50	0.60	3.60	0.20
India	1862.002	864.65	30.958	12.63	133.595	13.03

Source: NCOF Annual report 2007-2008
P&A- production and availability (lakh tones) AC- Area covered (lakh hac)

Production and availability of FYM, Vermicompost and Green manure



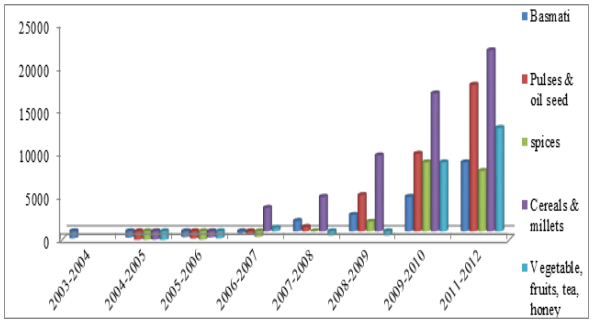
Source: NCOF Annual report 2007-2008
Farmers of Uttarakhand are practicing organic farming with the help of U.O.C.B. this agency brought more than 70,000 farmers over 40,000hacinto organic farming in Uttarakhand. U.O.C.B. Registered over 1600 farmer in Rudraprayag. According the UOCB report in Uttarakhand the area expansion under organic product increased rapidly in the year 2004 to 20012.



Source: UOCB
In the year 2004-2005 total area under organic farming in Uttarakhand is 393hac,its increased70,000hac in year 2011-2012. In 7years 69607hac area increased under organic farming.

Here is a table of area expansion under UOCB. This table shows the area expansion from the year 2004-2012. The organic area is divided into various crops under UOCB.

Area Expansion under Organic Produce 2004-2012 (hac)



Source: UOCB
Potential of Sustainable Agriculture through Organic Farming in Uttarakhand Organic farming has the potential to improve income opportunities for small-farmers all over the world. Organic farming is one of the most expected long term sustainable production system, balancing self-sufficiency, market production and nature conservation as well as bringing an array of other economic, environmental, health and social benefits. Uttarakhand is a hill state with favorable climatic conditions for farming practiced. The traditional farming system of Uttarakhand is already organic by default. In Uttarakhand organic farming is widely believed to be not just a possible growth path, but also a major solution to economic and ecological problems of the state. From the technical assistance it could be an ideal place to organic produce. State has in the last decade developed into a dynamic and potential organic agriculture destination in the country. Uttarakhand is in the initial stage of organic farming. The quantity of agriculture production is not enough to feed the world's population. In this situation, concentrating on the growth and export aspect of organic farming is more suitable opportunity for Uttarakhand. Total area of Uttarakhand is 53,483 km^2 and 714189 Hectare area is in cultivation so here is so much opportunity for agriculture practice. According to NCOF report in the year 2013-2014 organic land of India is 4700000hac and area of Uttarakhand is 24739.46hac which is 0.52% of India's organic land holding. The area expanded 69607hac in organic production from 2005 to 2012. The above data shows that organic farming is cultivating in very small area in Uttarakhand here is so many possibilities for organic farming in Uttarakhand.

Potential of trade in organic products is the best opportunity for improving the agriculture sector and farmer's condition in Uttarakhand. Organic farming can be beneficiary to sustainable agriculture promotion with a long term perspective to foster community institutions that meet employment, ecological and health requirement of the state's people. Organic sector needed to resolve the institutional barriers of development through proper strategy and execution. The traditional and native knowledge of farming should be conserved with including modern technologies of agriculture.

Conclusion

The awareness of people is increasing towards the ecological and health problems. The long term sustainable agriculture system, organic farming is the best solution for these problems. Organic farming is emerged to as an alternative agriculture system which addresses the quality and sustainability of food. Organic farming also ensures profitable livelihood option for the small and marginal farmers of Uttarakhand. In the initial phase of organic farming Uttarakhand need strong institutional mechanisms and government support for sustained agriculture growth. As a preliminary step to promote organic farming the government inventiveness have to assist the unorganized farmers through various means. Government has to launch strong local institution, local guidance, knowledge sharing centre, marketing channels and farmer's community group etc. to achieve social and economic development through organic farming practices.

VOLUME-6 | ISSUE-1 | JANUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

References

1. Chhonkar K. (2002), Organic Farming Myth And Reality in proceedings of the FAI seminar on fertilizer and agriculture meeting the challenges, New Delhi, India Dec 2002
2. Howard A. (1940), An agricultural testaments. The Oxford University Press. pp. 23
3. Limpkin N .,measures M. (1995), Organic Farm Management Handbook. University of wales elm, farm research centre, Aberystwyth.
4. Maccormak H. (1995), Sustainable Agriculture Versus Organic Farming . In bird bultena, gardenar (Eds) What is sustainable agriculture? Planting the future: Developing an agriculture that sustains land and community, Iowa state university press, (chapter 3), pp.60-61
5. Niggli, U. and Diane, B.(2009) , The World of Organic Agriculture Statistics and Emerging Trends 2009.
6. Ramesh, P. et al. (2010), Status of Organic Farming In India. Current Science, Vol. 98, No. 9.
7. Reddy. P. (2008),Organic Farming for Sustainable Horticulture: Principles and Practices
8. Rigby, D.& D. M. caceres (2001), Organic Farming And The Sustainability of Agricultural System. Agricultural System 68: pp21-40
9. Shiva, V. et al. (2004), Principles of Organic Farming Renewing the Earth's Harvest. India : Navdanya publishing
10. Singh,D.K. et al (Eds). (2012),Organic Farming: Status and Research Experiences at Pantnagar. Pantnagar : Directorate of Experiment Station G. B. Pant University of Agriculture & Technology, Pantnagar Ed :1, NO.184
11. Stockdale E.A. et.al. (2001), AgroeconomicAnd Environmental Implications Of Organic Farming System.Adv. Agron 70:261-327
12. Tuteja, U. (2013), Agriculture Profile of Uttrakhand.