

A Review on Women Agri-Entrepreneurship: Roles and Opportunities in Agriculture for Sustainable Growth

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Abstract

Agriculture sector provides vast scope for employment generation, sustainable growth and women empowerment. Continuously growing Indian population require adequate amount of nutrition for feeding the youth population to work for countries growth. As per Indian scenario farmers are giving their best to growing crops as per the need of hour for economic gains and life improvement through livelihood promotions. Indian women have also been playing role in this sector. Empowering Indian women farmers and agripreneurs can lead to increase the income generation and self-sufficiency. There are vast opportunities in agriculture, value addition and marketing of agricultural produce. Indian women have been actively engaged in all type of agricultural practices to earn economic gains for the family. Still in agriculture sector Indian women farmers condition and status is having labourers tag with themselves. They should be compensated appropriately for their efforts encouraging them to be renowned farm owners and leading agripreneurs in the country. Women agripreneurs require handholding, technical support and skill development from government through schemes, initiatives and training programmes. Women agripreneurs are the key to achieve sustainable growth. Although, government has launched various schemes for upliftment of women agripreneurs but still there is a lot to achieve for enabling women groups from rural and tribal areas to earn economic gains from agriculture sector. This review study provides insights into the scope of agriculture entrepreneurship for upliftment of Indian women. Major roles, opportunities and challenges for Indian women to conquer in agriculture sector to achieve sustainable growth.

Keywords: Government • Empowering • Agriculture • Agri-entrepreneurship

Introduction

Latin words "Ager" (land or field) and "culture" (cultivation) defines the "agriculture" which is a field of science of crops cultivation for self-consumption and economic gains. Cultivation for economic gains after self-consumption is the most ancient science related to cultivation of crops. The natural environment and need for food resources for feeding increasing population are the main engine for human energy in urbanization. It provides human resources for livelihood promotions and generation of revenues.

Agripreneurs is a term used for entrepreneurs in agriculture. Agripreneurs must be aided by government officials and teach new skills leading to commercialization. Farmers must start collective farming and collaborate with societies, FPOs, NGOs, funding and technical agencies of government. Bigger markets can be explored with such initiatives. Agripreneurs also assist farmers or groups and guide them to use improved methods/techniques/machinery to increase crop profits. An agripreneur provides scope for handling the business, taking the risks, and organise the agribusiness for economic gains. Manufacturing and processing of agriculture

produce is also a job performed by agripreneurs. Producing food for family's consumption is the basic need of the farmers. Farmers selling a small portion of their cultivated agri-produce in market to earn profits with or without value addition called as agripreneurs. This work is done to generate revenues.

Women also play a critical part in all economic and crop production operations. Women farmers are the backbone of subsistence agriculture. Despite this, they do not receive their deserved recognition. The needs and rights of women farmers have been completely overlooked. Women farmer's situation is no better than that of agricultural labour. For sustainable development, it is necessary to include women farmers in development operations and compensate them appropriately for their efforts.

Women farmers are a part of integral agriculture of the country as from sowing to harvesting they work along with another family member for cultivation. They do in-house works firstly then they do work in fields. Still their contribution in fields is recognisable. As per statistical data from national sample survey office, more than 70 percent of the women from rural area are indulged in agriculture sector. With such huge participation in agricultural work, women have

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Received: 02 May, 2022, Manuscript No. JEOM-22-62505; **Editor assigned:** 05 May, 2022, Pre QC No. JEOM-22-62505 (PQ); **Reviewed:** 20 May, 2022, QC No. JEOM-22-62505; **Revised:** 24 May, 2022, Manuscript No. JEOM-22-62505 (R); **Published:** 30 May, 2022, DOI:10.37421/2169-026X.2022.11.365

very low percentage of own landholdings *i.e.* 13.9 percent only. Some women groups are also doing value addition of agricultural produce and post-harvest management.

For sustainable development in urban and rural parts of the country, women agripreneurs must also come forward. Women agripreneurs are the key to achieving sustainable development and economic upliftment in the agriculture sector.

Government has started various initiatives to convert agricultural produce into products, provide funding and technical knowledge to startup agripreneurs and women agripreneurs. These initiatives will have the impact on the country's economic development.

Before 1991 reforms, the country's economy was growing at a very slow rate. The entrepreneurs mostly preferred traditional methods of cultivation and commercialization. Growth rate below 10 percent has been observed in first decade of 21st century. As per data from the Ministry of Statistics and Program Implementation (MoSPI) agriculture and allied sectors contributed to 20.2 percent in 2020-21. Mostly the land is cultivated by rich household owners. Poor families hardly contribute in commercial cultivation in their owned land.

As per the data from National Statistical Office in September 2021, income per household from June 2018 to July 2019 in agriculture sector was calculated as Rs. 10,218.00 only which is almost equivalent to the minimum wage rate in National Employment Guarantee Scheme.

As per income related data from National Sample Survey Organisation (NSSO) with an initiative from Ministry of Agriculture, Farm income rate reduced between 2012-13 and 2018-19, from period of 2002-03 to 2012-13. The average annual farm income rate reduced to 11.90 per cent from 20.38 per cent between 2012-13 and 2018-19 and 2002-03 and 2012-13 respectively. The annual increase in income from crop cultivation reduced to 4.65 from 21.80 per cent between 2012-13 and 2018-19 and 2002-03 to 2012-13 respectively.

Entrepreneurship development initiatives can provide required knowledge to farmers and women agripreneurs to develop different products from agriculture produce with technology interventions. Such steps are very fruitful on creating an entrepreneurial mind set in recent years. World Trade Organisation (WTO) has also suggested to nurture entrepreneurship with technological advancement for economic upliftment of the countries.

Literature Review

Why agricultural entrepreneurship?

Agriculture is the most ancient knowledge for growing food for families and self-consumption. Due to different geographic conditions across the country, it has been observed that farmers prefer traditional methods for cultivation, and this sector has stayed a low technology preferring industry with limited development, and slow growth rate. This sector is dominated by many small families that use traditional knowledge to cultivate crops and produce food and restrict to old methods instead of new methods.

National Statistical Office data reveals in September 2021 that, main income for a household from wages and animal husbandry achieved an average annual increase of 19.24 per cent and 21.47 per cent respectively between 2012-13 and 2018-19. So it is clearly visible from this data that there is need to accelerate the

entrepreneurship activities in agriculture sector. Government has responded to the situation *viz.* increasing population, rapidly changing market scenario, need for food, changing consumer habits, new product quality chain management, and food safety sustainability by launching new schemes and missions to achieve sustainable growth. As its also mentioned in Government of India Portal. Agriculture with its allied sectors has contributed to the livelihood promotions of the society at very large scale in both urban and rural areas. Agriculture sector has a crucial role in Gross Domestic Product (GDP). Green revolution to white, yellow and blue revolution, Indian Agriculture and allied sectors have flourished in India for economic growth. This sector has vast opportunities to develop entrepreneurs who owns multiple businesses *i.e.* portfolio entrepreneurship. Farmers can sell the agriculture produce directly to consumers and they also have option to use latest technology interventions for processing food which increases the shelf-life of perishable crops fruits vegetable and flowers to a great extent. With such technology interventions, there is a possibility of earning more than traditional agriculture practices.

Agriculture entrepreneurship opportunities

With vast opportunities for employment generation agriculture sector is future to feed a large population. Technology interventions to enhance the level of production and boost farmer's income can shift their method of traditional farming to commercial production of crops leading to economic gains and adoption of agripreneurship. Technical handholding and skill development can enhance the quality and quantity of farm produce. Women agripreneurs can play an important role in agriculture sector through updating their knowledge about the latest packages and practices in agriculture and value addition of the farm produce. Agripreneurs must be made aware about:

Industries depend on cash crops: Cereals and millets, pulses, flowers, vegetable, horticulture, medicinal and aromatic plants, spices etc.

Farm inputs to enhance quality and quantity: Latest agro/horti-technologies, agrochemicals, biofertilizers, organic farming etc.

Tissue culture industries: Seeds and mass propagation of planting material, hydroponics and aeroponics

Livestock industry: Animal husbandry, Fishery, Dairy technology, Poultry and beekeeping

Value-added food products: Perishable vegetables and fruits preservation, Juice, Jam jelly, Candy, Soup, Noodle, Multigrain protein production, and other food products.

Women entrepreneurship in agriculture

Women entrepreneurship is key for the achievement of sustainable development across the globe. Globally, 66 percent of the employment is generated by women [1]. They produce 50 percent of food globally. Women works a lot for welfare of society and receive negligibility from society as they earn only 10 percent of income and own one percent property across the globe. Globally, women put together 40.8 percent of the total manpower in the formal sector [2]

But there is medium level involvement of women in intercultural operations. They are only allowed to decide 48 per cent in such activities. Still their involvement in cutting (45.33 percent), storage

(42.67 percent), sale (42 percent), milk products business (38.67 percent) and 36 percent in planning, organizing, directing and controlling the financial activities had predicted the future role and responsibilities [3].

As per 2011 World Bank Data, agriculture production has contributed to 17.5 percent of total Gross Domestic Product (GDP) of the country [4]. Indian Agriculture sector comprise 140-million-hectare arable land cultivated regularly from 180 million hectare of the total arable land and stands 4th for women contribution in cultivation and production.

Women primarily empower cultivation of crops with their physical efforts and put their processing knowledge to produce significant food, revenues and employment. Women agripreneurs have evolved as significant contributors to the agriculture sector and take part in training programs and awareness campaigns and benefits from sponsored by government.

Women entrepreneurs have also outperformed male counterparts in various fields. Similarly, in agriculture they are doing exceptionally

well. Women agripreneurs can also prove a milestone and show their worth in the agriculture sector. Women groups have always been efficient, hardworking and intelligent whenever given scope.

These "women agri entrepreneurs" have been examples for other local ladies as they adopt new techniques to improve cultivation. Women entrepreneurs have worked hard, accepted all challenges from working in the kitchen to fields and leading to market opening doors for vast opportunities in employment, becoming self-sufficient, adopting innovation techniques. These steps increase the women's role in the economics of the country and provide economic strength and higher position in society. Our first prime minister has also quoted that

"You can tell the condition of a nation by looking at the status of its women" Jawaharlal Nehru

Women role in agriculture

Women are playing an important role in agriculture (Table 1).

S. No.	Particular of activity	rank	Mean score
1.	Transplanting	1	2.9
2.	Drying of grains	2	2.86
3.	Cleaning of grains	2	2.86
4.	Harvesting	3	2.85
5.	Weeding	4	2.82
6.	Shifting produce to threshing floor	5	2.81
7.	Winnowing	6	2.8
8.	Thinning	7	2.72
9.	Manureing	8	2.62
10.	Gap filling	9	2.59
11.	Irrigation	10	2.36
12.	Threshing	10	2.36
13.	Sowing	11	2.27
14.	Nursery raising	12	2.23
15.	Marketing	13	2.22
16.	Storage	14	2.18
17.	Levelling of field	15	2.03
18.	Fertiliser application	16	1.73
19.	Plant protection measure	17	1.56
20.	Ploughing of field	18	1

Source: R. Mohanta, 2017. Participation of Tribal Women in Agriculture, International Journal of Science, Environment ISSN 2278-3687 (O) and Technology, Vol. 6, No 1,745-750

Table 1. Farm activities performed by tribal women in india.

From labourer to agribusiness entrepreneurs, Indian women are conquering every field of income generation. They have brilliantly managed the natural, economic and social resources for family

welfare and economic gains. Women entrepreneur's in agriculture have adopted new methods for crop production, poultry, and livestock production with the support of different Government schemes [5]. Women are playing these important roles as well as organizing campaign to employ other women groups and are:

- Playing critical role in cultivation at grass roots
- Livelihood promotions
- Providing income and more profits to small scale entrepreneurs
- Generating employment
- Contribution in Nations economy
- Increasing family's income and providing education to girls.
- Self-dependence
- Adopting new technologies and methods for more yield
- Working in groups making Mahila Mandal, societies and NGO's
- Awareness among other women groups
- Connecting to government schemes
- Enhancing the shelf life of perishable fruits and vegetables through value addition and food processing.

Women empowerment through agriculture

Women groups are indulged in agriculture sector through:

1. Agriculture
2. Horticulture
3. Livestock
4. Value addition
5. Marketing

Women entrepreneurs have tried their hands in almost every field of income generation. They are earning profits by selling the eggs and poultry meat. Women entrepreneurs have owned various shops to earn income and profits. Milking domestic animals is a daily activity for rural area women. Village women sell the milk, ghee, curd and paneer to market and at home to working people and earn money. Some farmer/cooperative societies have taken the step to collect such milk products directly from village houses suitable for housewife groups of various villages. With such initiative, women can easily perform business activities, and time and energy are saved. Women also perform other activities like managing animals and shed cleaning, farmyard manure, cow dung cake preparation, animal food collection, etc.

Value-added food products are key to gain more profits from perishable food and vegetable products. There is scope for individual women farmers and self-help groups to work for value addition of food and milk products that are easy to market and have more shelf life than the raw material.

Market scenario in today's world is changing rapidly with discrete demand of consumers. Today's consumer is interested in buying the products online at home. They prefer quality over quantity. Thus, women agripreneurs who are limited to direct sale of produced products can enter this market to serve the consumers online with quality. These type of markets are expanding globally and provides a great scope to explore, earn a good profit from ventures.

Government and private sectors investments, initiatives and schemes for women Agri entrepreneurship

The government has launched many schemes for supporting and handholding women agri entrepreneurs enabling them to participate in countries economy at larger scale. Some of these schemes are Women's Development Programmes (WDCs), Marketing of Non-Farm Products of Rural Women (MAHIMA), Assistance to Rural Women in Non-Farm Development (ARVIND), Working Women's

Forum, Mahila Vikas Nidhi, Rashtriya Mahila Kosh, Mahila Samiti Yojana, SBI's Stree Shakti scheme and Mahila Kisan Sashakti Karan Pariyojna (MKSP) etc.

In the 21st century there is a requirement of agriculture production for feeding the increasing population. Knowing the situation, recently private sector has also investing in agriculture sector like in November, 2019 Coca-Cola introduced "Rani Float" fruit juice and its logo is fizzy drinks [6]. The company stated that fruits juices come directly from Indian farms and are real pureness blend. (Business Today. In New Delhi, Nov 04, 2019, Updated Nov 04, 2019, 6:49 PM IST). A funding worth \$1 billion received between 2017 to 2020 to boost Agri entrepreneurship attracting significant investor interest. India's agritech companies are expected to invest between \$30-35 billion (Posted on June 30, 2021 by IAC Desk in Agriculture, Agritech in Indoasiancommodities.com). Nestle will also invest in India to make a new Maggi noodle plant and invest 700 Crore rupees in the coming two years in Sanand, Gujarat [7]. This factory will be Ninth in India and Forth dedicated facility for Maggi noodles. In Marketing segment Haldiram has signed contract with Amazon's for Global selling program in 2019 through Electronic retailing (E-tailing) delicacies food for consumers in United States providing scope of export of products. Other Than these initiatives CISCO, ITC Limited, Ninjacart, NCDEX e-markets limited and Jio Platforms Limited have also stepped in Agriculture through signing MoU's with Government.

Government has also initiated programs to boost agriculture entrepreneurship in India. Recently, ICAR-Central Citrus Research Institute (ICAR-CCRI) has signed MoU with Agriculture and Processed Food Product Export Development Authority (APEDA) to boost and enhance the export of citrus fruits. Union Ministry of Agriculture and farmer's welfare has also launched a seed Minikit distribution program to introduce new high yielding seed varieties. This programme will help to increase seed replacement rate under National Food Security Mission (GK Today Published: June 3, 2021). Indian Government has also introduced a new policy aiming to increase the export of agriculture produce from India with stable trade policy. As per Consolidated FDI Policy (Effective from October 15, 2020) from Department for Promotion of Industry and Internal Trade (DPIIT) amendment has been made to provide 100% of Equity/ FDI Cap in Floriculture, Horticulture, and Cultivation of Vegetables and Mushrooms under controlled conditions (In controlled condition cultivation required condition are controlled artificially artificially [8]. Protected cultivation under greenhouses, net houses, poly houses or any other improved infrastructure facilities where micro-climatic conditions are regulated anthropogenically); Development and Production of seeds and planting material; Animal Husbandry (including breeding of dogs), Pisciculture, Aquaculture, Apiculture; and Services related to agro and allied sectors may effect control in these parameters. This initiative will boost small scale farmers to turn into entrepreneurs and large scale growers. Government has also looked into the plantation sector as more the plants/seeds are available for cultivation more will be the yield from fields so 100 percent of Equity/FDI Cap is provided in (i) Tea sector including tea plantations, (ii) Coffee plantations, (iii) Rubber plantations (iv) Cardamom plantations (v) Palm oil tree plantations (vi) Olive oil tree plantations with prior approval of concerned state government concern is required for future land-use change [9]. After these steps, the Government has also amended the FDI policy provisions on the trading sector, 100% FDI under the Government approval route is

allowed for retail trading, including through e-commerce, regarding food products manufactured and/or produced in India (Consolidated FDI Policy 2020 by Department for Promotion of Industry and Internal Trade) [10]. Govt has launched the Transport and Marketing Assistance (TMA) scheme to assist with smooth transportation and Marketing so that Agriculture produces export could be increased. Govt will invest Rs. 6,000 crores for making mega food parks to increase the capacity of food capacity under Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA)

Women entrepreneur's scenario in country: With efforts of central and state government women population of the country has become trained, skilled and handholding for adopting new technologies, processes and techniques has provided more opportunities than past to Indian women.

Some examples of working females of rural areas are inspiring for other women agripreneurs.

Lady name Smt. Bhavana Nikam from Village Dabhadi, District Nashik, Maharashtra is a renowned progressive farmer in the Dabhadi Circle area by establishing 2000 sq. mtr polyhouse, Shadenet House like modern marvels for agricultural practices. She has adopted the latest technologies for cultivation, irrigation, spraying, and harvesting of capsicum, grapes, and rare vegetable crops. She is also getting income from Fish Culture from her ponds designed with a replicable model for rainwater harvesting and water storing. Smt. Bhavana Nikam has also received many awards and sets up a great example to women. Smt. Gurvinder Kaur has completed her education with M.A. and B.Ed to start her career as a teacher. In 2014 Smt. Gurvinder Kaur left her job to be successful agripreneur. She learned about "Dairy Farming" and latest techniques like chaff cutter, milking machines and silage unit. Currently, this woman is a successful agripreneur and role model for other women with production of 90 litres milk daily, and selling milk to Verka dairy and local consumers. Smt. Sunita Kumari from Village Theta, Tehsil Jehanabad, Bihar an adopted eco-friendly innovation to convert raw material (paddy straw) into decorative wall hanging, decorative household pieces, scenery etc. for income generation, initiative from Smt. Sunita Kumari also led to appropriate usage of paddy straw (agriculture residue) for clean and green environment. This creative artwork has recognized her widely with various awards. Smt. Kalpana Marathe, Ambedem, Sattari, Goa has produced 32 kg jackfruit chips and 36 kg jackfruit papad during the 2020 season after she attended a capacity building programme for processing jackfruit. She sold 200 gms jackfruit chips packet at the rate of Rs 100.00 and papad Rs. 75/per packet, and jackfruit leather Rs 400/ per kg. She earned around Rs. 12,000 from chips, Rs. 9,000 from papad, and Rs. 13,600 from jackfruit leather. Watching her success, there are more women in village adopting her footsteps [11].

Smt. Kamamma w/o Nagaraju Mayaganahalli Kasaba Hobli, Village Mayaganahalli has 7-acre land out of which 2-acre land was arable and 5-acre land was dry land. To expand her business, she adopted the integrated farming system, crop patterns, growing fruits and vegetables, polyhouse, sericulture, poultry, and farm ponds. She attended training programs sponsored by Government. Now she is also exporting her produce to countries like Israel, Singapore and Arab Countries Smt. Satya Devi an agribusiness entrepreneur living in Lafughati District Shimla (H.P.). Satya Devi has been growing

apples, vegetables and cereals for profits. Satya Devi then came to know about Zero Budget Natural Farming (ZBNF) in 2018 and switched to Zero Budget Natural Farming (ZBNF). The Himachal Pradesh government has introduced the ZBNF to eliminate harmful chemicals in cultivating cash crops and fruits. She adopted this new modal for cultivation of crops and set an example for the other working women in the area. Satya Devi is now deriving 50 percent more profit from the same fields with technology intervention and governments support.

There are so many examples for women in various fields like Kalpana Chawla as an Indian-American astronaut, Chanda Kochhar in Banking sector, Sushma Swaraj in Politics. Similarly, in agriculture, Yesha Dolma is a name of agribusiness entrepreneur and tribal woman living in Spiti, a high altitude district of Himachal Pradesh. Yesha Dolma has been growing exotic vegetables and high altitude crops like radish, spinach, peas, and broccoli. Yesha Dolma has also switched to Zero Budget Natural Farming (ZBNF). The Himachal Pradesh government supported her by providing technical knowledge in the area. Yesha Dolma is now earning 50 percent more profit in same land space.

There are several other examples inspiring women groups to be agri entrepreneurs. Besides this there are several examples of societies/NGO/FPO/SHG encouraging women groups to work towards livelihood promotions. Some of these are:

In Andhra Pradesh, NGO called Deccan Development Society (DDS) enabled women from poor families to have claim on land through direct buy or land lease with Government sponsored schemes. NGO experimented to ensure food security through "sangams" (Mahila Samooch) to improve degraded land, cultivate the land on lease, public distribution of the produce by making "grain banks" and preservation of seed varieties [12].

Women farmers have shown enthusiasm to gradually shift to the latest innovation from traditional methods. State Government's initiative has promoted Farming and provided the option to learn and deliver in the agriculture sector. For example: Natural Farming empowered more than 1.5 lakh farmers with bountiful women farmer's involvement in such great move providing sustainable development and livelihood promotions in the state.

Sustainable Development Goals (SDGs) for women empowerment

According to the United Nation, Sustainable development goals (SDGs) have focused on improving the women's life through education, health, and entrepreneurship till 2030. SDGs like No Poverty, Zero Hunger, Good health and well-being for people, Quality Education, Gender equality are designed for empowering women through education, training and skill development to be self-independent in income can help achieve this. Population groups like children, senior citizens and males are linked to women regarding food, health and physical and mental wellbeing. Economic growth can be easily achieved in poorest countries to achieve SDG Goal 1 (No poverty). There should be a target of reducing the adolescent pregnancy, providing better resources for women's health as per SDG Goal 3 (Good health and well-being for people). As per SDG Goal 2 (Zero Hunger), there should be no hunger and malnutrition upto 2030. Women and indigenous people should work to double the income by increasing agriculture productivity, food processing, and

increasing the profits for small scale entrepreneurs. Women contribute about 43% as labour in developing countries' agriculture sector. India's Overall Sustainable Development Goal (SDG) was 66 out of 100. As per Centre for Science and Environment's State of India's Environment Report, 2022, India's position slipped mainly in a result of difficulties faced to eradicate societal problems mentioned in 11 SDGs like zero hunger, good health and wellbeing, gender equality and sustainable cities and communities. As per SDG Goal. 4 (Quality Education) education may improve basic literacy skills. As per SDG Goal 5 (Gender Equality) Providing equal chances to women compared to men in each sector for sustainable economic development, and gender equality can empower women.

Methodology

Scope and objective of study

Women are involved in various agriculture practices. They are contributing as labourers in other fields to cultivate crops for family consumption. Some women guide, manage and make others perform agricultural practices through supervision. Nursery raising, transplanting, protecting the plants from diseases, irrigation and harvesting are key activities in which women perform in agriculture fields single handily or in groups. study provide insight to understand the various roles of women in the agriculture sector and various challenges and solutions for sustainable growth with women entrepreneurship.

Collection of data

Information collected from various articles published in journals, books, internet, newsletters, and other internet resources. Applied descriptive analysis to know about potential agriculture, entrepreneurship, women empowerment, and sustainable development relationships.

In this study author depicts that identifying, evaluating and to ensue enterprising chances is a characteristic nature of entrepreneurship, including in the agriculture sector [13].

Entrepreneurship is not a trade for an individual, since entrepreneurial behaviour may only occur during a particular phase of their career and/or concerning a particular part of their activities generating several jobs [14].

Study leads to propose that management of the market procedures and structure existing growth with inclusion of new deeds or mercantile should be imposed in existing firm [15].

Study mentioned that authors have linked agripreneurship to the occurrence of non-agriculture businesses setup by established farmers. In contrast, various studies reveal that agripreneurship activities bestow chances to have numerous products and innovation within the business process, distribution and marketing [16].

Entrepreneurship is vital part of the agricultural sector, complex regulatory policy mechanisms have been ambiguous so far suggest that agriculture is a field must be studied differently from other types of economic activities [17].

Farmers are entrepreneurs and decision makers work to gain profit through cultivation of different crops. As a result, agriculture entrepreneurship can be studied using method developed for non-agricultural sectors [18].

The relationship between a grower and his business, but on the other hand, it is a complicated matter because farmer/grower can be a sole proprietor, leaseholder, supervisor, construction firm, or just a combined effect, suggesting that techniques used to evaluate innovators in other sectors are not easily transferable to the agriculture sector [19].

There is great scope in the Rural India mainly in the Himalayan region as suggested by the author due to the wide range of fruits, vegetables to exotic vegetables, flowers, and crops to cash crops. Agroforestry models have been applied differently to know about the agriculture production in different geographic location of IHR. Authors clear view about constraints in agriculture sectors provides glance towards lack of quality infrastructure and poor irrigation facility. There are very less cold storage options for perishable crops. Poor marketing strategies, lack of knowledge about funding agencies and less technology intervention through R and D institutions have to be overturned for sustainable growth of the region [20].

The author has reviewed the situation of Indian women and obstacles and eventuality for rural area women in the agriculture industry as agripreneurs. The author suggests the scope of food processing and cultivation for household and commercial purposes for economic gains. Technology interventions and skill development could ensure food security and economic upliftment of women entrepreneurs in the agriculture sector [21].

By reviewing the study material, the author proposed a requirement of providing marketing training, vocational skills, and microfinance interventions for easy access to credit and loans for women groups in developing countries like Nigeria and India to improve gender equality and generate income from agriculture. Study has also highlighted the importance of providing entrepreneurship programmes/trainings/skills to researchers, farmers and young women in the agriculture sector [22].

Author has suggested for reforms in existing agriculture extension system by involvement of groups/FPO/NGO/Societies/Associations, spreading awareness about profits derived from different cash crops, new techniques and technology interventions in agriculture sector using press and media in rural and far-flung areas of the country and providing vocation skills and extension services to women. Author has brilliantly described the new models to be adopted by women self-help groups in different states and villages with support of R and D institutions to carry out business activities for economic upliftment and women empowerment.

Challenges faced by women agripreneurs in agriculture development: Challenges in agripreneurship and agriculture development have been numerous in its Indian scenario. In India, main obstacle faced by women entrepreneurs is that mostly women so not have property rights on land due to which receiving bank loans or other facilities become difficult due to lack of land papers and documents. Women farmer must also deal with a scarcity of raw

materials and other critical inputs. Preferably, the root-level market linkages are required to establish a successful venture. Need of knowledge about availability and linkages for continuous supply has to be triggered for setting up food processing and related business. Mostly Indian women take care of family and works under bound circumstances which reduces the chances of taking part in decision making or such activities. In the case of married women, she must create a delicate balance between her professional and personal lives. Literacy rate also has been a challenge to women agripreneurs as literacy rate for women is less than men in India. Illiteracy have always been biggest obstacle in achieving the sustainable development in India. Lack of quality education to women agripreneurs in agriculture have been a problem leading to less or nil knowledge of business strategies, technology interventions. As a result, failure is no wonder in setting up or running business new or existing ventures [23,24]. Less education cannot afford to improve economic situation neither steady nor self-sufficient. These all factors diminish Indian women's ability to deal with the risks and uncertainties that come on the path of self-sufficiency. There is a large segment of women farmers carry out agricultural practices with hands and traditional tools. Large areas of fertile land are subjected to wind and water erosion. This area needs to be treated thoroughly and returned to its former fertility.

Discussion

Over thousands of years, Indian soils have been used to cultivate crops with little concern for restoration. Fertilizer use has depleted and exhausted soil health, resulting in low productivity. Almost all crops have among the lowest average yields in the world. Low yield is a major challenge addressed by increasing manures and fertilizers [24]. Ignoring the fact that India is the world's second-largest irrigated country after China, barely one-third of the cropped area is irrigated. India is mostly dependent on Monsoon rains for agriculture and due to climate change, rains have become irrational and difficult to predict. India will not make sustained progress in agriculture unless and until more than half of the planted area is irrigated.

Marketing of produce in rural India is still a hard nut to crack. Farmers are dependent on local traders and middlemen to sell their agriculture produce because of less awareness of price and negligible market and industry linkages. In remote places, storage facilities are not available so the farmers have no other option except selling their produce before the crop or produce gets spoiled to at least recover the cost of cultivation. One of the barriers in Indian agriculture growth is poor road and transportation facilities in rural and remote areas. Although there is reach of social media in all countries, lack of proper guidance through online mode is still a challenge to overcome in rural and far-flung areas. Hence, lack of proper dispersion of knowledge is a big challenge in India, mostly women groups receive information about the latest technologies through middlemen/growers. Women groups should directly approach R&D institutes for better development and pricing of the end product.

Conclusion

Agriculture sector contribute a lot in national income by empowering farmers with integrated farming system, crop

management and animal husbandry, dairying and fisheries. This sector provides the opportunity for the young population, especially women, to showcase the skillset with dedicated knowledge and technology interventions to be self-sustaining. Agriculture sector is subjected to increase production and profitability for sustainable growth and should feed the required nutrition to every empty stomach. The agriculture sector provides women entrepreneurship opportunities to work in groups to have a wide range of undiscovered fields or be successful while practicing modern techniques for earnings. Women are playing a variety of roles in agricultural growth and development. They contribute to economic growth while facing numerous problems. The ministry of agriculture implemented various schemes and policies to promote agriculture development so that women groups can become successful agripreneurs and increase the income resources. It is not easy or simple to create or raise women agri-entrepreneurship in country or bring in new agripreneurs without dedicated and designed approach of government ministries, agencies and R&D organisation. Many challenges or issues arise in agri-entrepreneurship, such as market linkages, technology interventions knowledge, climate, resources and funds management for infrastructure etc. Agriculture is key to develop rural India, which has so much scope for income generation, quality production, and youth and women employment with natural resources, plenty of diversified arable land to boost the economy of our country. There is necessity for new appropriate policies, action plans to achieve the goals of agripreneurship and women agripreneurship. Women agripreneurs and startups in agriculture sector with a handful of knowledge about agriculture techniques today will make larger population feed like thousands or even larger with agricultural produce and its value addition till 2030.

Acknowledgement

We gratefully acknowledge our Director, Dr. Sanjay Kumar, CSIR-Institute of Himalayan Bioresource Technology for their continuous encouragement and guidance in the execution of this work (Institutional manuscript unique ID No:). Authors also express their gratitude to acknowledge Project No. STS-0006 and CSIR-Institute of Himalayan Bioresource Technology for financial support.

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How to cite this article: Sukhjinder Singh. "A Review on Women Agri-Entrepreneurship: Roles and Opportunities in Agriculture for Sustainable Growth." *J Entrepren Organiz Manag* 11 (2022): 365.