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Challenges and Opportunities in Horticultural Crop Development and Agro-Processing in Haryana

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ABSTRACT
As agriculture is the primary economic activity in Haryana, this sector plays a significant part in the state's overall economy. For their means of subsistence, more than half of the state's population is dependent, either directly or indirectly, on this division. Because of the state's generally favorable agroclimatic conditions, there is a decent chance that the state's horticulture crops will be successful. The purpose of this study is to look at the specific challenges that are faced by horticultural crops in Haryana. Crop diversification is not only essential but also achievable if the state invests more resources into the horticultural business. In the current research, an effort has been made to investigate the current state of protected cultivation as well as the agro-processing industries. This is due to the fact that, in order to reduce post-harvest losses, a comprehensive plan that includes the construction of physical, functional, and market infrastructure as well as the provision of single window systems, tax rebates, and export subsidies must be developed in order to increase the amount of agro-processing that takes place within the state. This is necessary in order to cut down on the amount of food that is wasted after it has been harvested.

Keywords: Agriculture, Agroclimate, Horticulture, Cultivation, Agro Processing, Protection

1. Introduction

The land of the state of Haryana, sometimes known as the "Green Land of India," is exceptionally fertile. There are 43,711,000 hectares of land in Haryana, of which there are 64,711,000 hectares that are utilized for agricultural purposes. More over 80 percent of the area is put to agricultural use; of that, 84 percent is irrigated, and the crop intensity is 182 percent. Horticultural crops are grown on more than 8.17% of the cultivated area, which is equivalent to 5,28,940 hectares. The agricultural sector is a significant part of Haryana's economy due to the state's predominant reliance on agriculture. This industry is the primary source of income for more than half of the state's population, and its influence might be either direct or indirect.Currently, Haryana is responsible for 6.4% of the state's total agricultural region and has been responsible for the production of significant amounts of horticultural crops such as fruits, vegetables, flowers, and mushrooms. The goal of achieving 10% is getting closer and closer with each and every attempt. Moreover, there is a small quantity of land in the state that is

cultivated with aromatic, medicinal, and spice plants. At this time, the state of Haryana is the most successful in the nation in cultivating mushrooms. In the future, the most effective plan of action would be to combine commercial cultivation of mushrooms with the cultivation of other types of therapeutic mushrooms. As a result of higher earnings, there has been a rise in the cultivation of aromatic plant species.

Changes in the yield of significant horticultural crops throughout the course of time provide the impression that substantial progress has been accomplished up to this point. Under the auspices of the Horticultural Mission, an attempt will be made to raise it. In order to persuade the farmers of Haryana that horticulture is a worthwhile endeavor, each stage will be carried out while using the most cutting-edge innovations. It is expected that more focus will be placed on extending the area planted with hybrids, implementing protected agriculture in greater regions with soft financing facilities, and creating improved agro techniques. The priorities of forward-thinking initiatives will shift to accommodate the requirements and considerations of farmers. The production is going to be accorded the utmost importance. An investigation will be conducted into agroforestry systems and new possibilities in dry horticulture. Also, the creation of functional foods and nutraceuticals that make use of local fruits, vegetables, and flora will be examined. It is essential, in order to assure a better agricultural yield, to stimulate the growth of perennial fruits in agro horticulture by using micro irrigation, and to increase tree species in agroforestry by using these same techniques.

1.1Haryana horticulture scenario

Although Haryana has a total land area of 4.42 million hectares, only 3.55 million ma are suitable for agricultural use. The state has a total net irrigated area of 3073 thousand hectares in 2013–14, of which 1879 thousand hectares were irrigated by wells and the other amount was irrigated by canals. In 2015-16, there were a total of 392 thousand hectares of land under cultivation, with small holdings spanning an area of 392 thousand ha, marginal holdings covering an area of 803 thousand ha, and small holdings covering an area of 314 thousand ha. In the 2015–2016 fiscal year, the total number of holdings was 1,628,000, and they were spread out across an area of 3,609,000 hectares.

Throughout the course of the most recent decade, a number of cutting-edge new tactics have been developed. Several steps were taken by the government of Haryana in order to build the state's horticultural industry. Changes in the climate that are significant on a global scale will have an impact on all aspects of agriculture and horticulture, which will, in turn, have an effect on the availability of food across the world. The risks posed by climate change are not nearly as great as those posed by irrational phenomena, which are notoriously difficult to forecast. The shifting high temperatures and increasingly varied patterns of precipitation are having a negative impact on crop productivity as a direct consequence. As a result of the vulnerability of horticulture crops to extremes in temperature, low yields will become even more severe as a result of climate change. The primary causes of low yields are high temperatures that persist throughout the growing season and inadequate levels of soil moisture. The usage of protected cultivation is incredibly helpful in producing the optimal atmosphere that is necessary for the growing of horticulture. In order to produce plants in controlled environments, a structure with a protective covering known as a poly house is utilized. These structures can be as small as sheds or as large as gigantic factories, and come in a wide range of sizes.

The growing of horticultural crops using modern safeguards and advanced technology is the most recent development in this field. Even on a commercial scale, protected culture has the potential to improve the

quality of horticultural output by producing virus-free cultivation in insect-resistant net houses. Additionally, protected culture has the potential to increase vegetable productivity by a factor of ten or more. The cultivation of protected horticultural crops might therefore assist in the diversification of agriculture in Haryana while also contributing to the expansion of production of horticulture in the state. Significant changes are required for the state of Haryana to diversify its economy into horticultural products. These changes include a favorable price regime, scientific developments to boost the output of these crops, financial aid, and more modernized and acceptable infrastructure facilities.

1.2Indian Horticulture Scenario

In the last several years, there has been an increase in horticulture output in India. Significant improvements in zone development have increased productivity. During the past several years, India has seen a surge in horticultural production. The growth of the region has advanced significantly, increasing productivity. The area used for horticulture expanded by 2.6% annually during the past ten years, and yearly production rose by 4.8%. Horticulture crops were produced in 2017–18 over an area of 25.43 million hectares, totaling 311.71 million tons (Table 1). Figure 1 shows that between 2004-05 and 2017-18, the output of fruits climbed

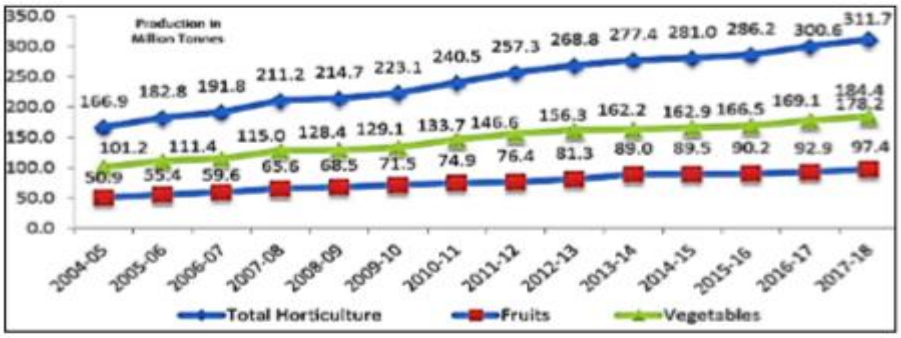

Figure 1. Fruit output climbed from 50.9 million tons to 97.35 million tons from 2004-05 to 2017-18, while vegetable production increased from 101.2 million tons to 184.40 million tons during same time.

Growing vegetables is good for a country's economy since they provide a consistent supply of both cash and labor, in addition to their health advantages. Figure 2 displays the percentage share of vegetable production in total horticultural output during the past five years.

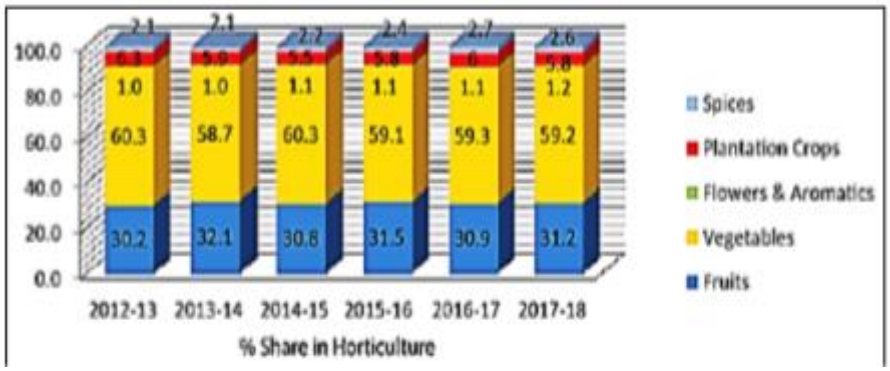

Figure 2.Shares of various horticultural crops in production

In the academic year 1991–1992, there were 2.87 million hectares of land dedicated to the cultivation of fruit, which resulted in a total production of 28.63 million tons and an average productivity of 9.96 MT per hectare. By the end of the 2017–2018 growing season, there were 6.5 million hectares of land dedicated to the cultivation of fruit, which resulted in a total production of 97.4 million tons of fruit as well as an average productivity of 14.96 MT per hectare. In all, there were 5.59 million hectares dedicated to the cultivation of vegetables, which resulted in the production of 58.5 million tons. Back in 1991–1992, the average productivity per hectare was 10.47 MT, but it has since increased to 10.26 MT. By the end of the 2017–18 fiscal year, hectares had produced a total of 184.40 MT across the board, with an average yield of 17.97 MT per hectare. In the previous year, 1991–1992, the country did not have any floral, medicinal, or aromatic plant agriculture; in the current year, 2017–2018, the country had 1.04 million hectares covered with a total output of 3.65 million tones and a yield of 3.49 MT per hectare.

Table 1:During the Years 1991–1992 and 2017–2018, the Total Area, Output, and Productivity of Horticultural Crops in India

Year	Fruits			Vegetables			Flowers, Aromatic & Medicinal			Plantation Crops			Spices			Total		
	A	P	Pdy.	A	P	Pdy.	A	P	Pdy.	A	P	Pdy.	A	P	Pdy.	A	P	Pdy.
1991-92	2874	28632	9.96	5593	58532	10.47				2298	7498	3.26	2005	1900	0.95	12770	96562	7.56
2001-02	4010	43001	10.72	6156	88622	14.40	106	535	5.05	2984	9697	3.25	3220	3765	1.17	16592	145785	8.79
2002-03	3788	45203	11.93	6092	84815	13.92	70	735	10.50	2984	9697	3.25	3220	3765	1.17	16270	144380	8.87
2003-04	4661	45942	9.86	6082	88334	14.52	101	580	5.74	3102	13161	4.24	5155	5113	0.99	19208	153302	7.98
2004-05	5155	50988	9.89	6744	101246	15.01	249	818	3.29	3147	9835	3.13	3150	4001	1.27	18445	166939	9.05
2005-06	5324	55356	10.40	7213	111399	15.44	391	856	2.19	3283	11263	3.43	2366	3705	1.57	18707	182816	9.77
2006-07	5554	59563	10.72	7581	114993	15.17	468	1058	2.26	3207	12007	3.74	2448	3953	1.61	19389	191813	9.89
2007-08	5857	65587	11.20	7848	128449	16.37	563	1264	2.25	3190	11300	3.54	2617	4357	1.66	20207	211235	10.45
2008-09	6101	68466	11.22	7981	129077	16.17	597	1417	2.37	3217	11336	3.52	2629	4145	1.58	20662	214716	10.39
2009-10	6329	71516	11.30	7985	133738	16.75	692	1593	2.30	3265	11928	3.65	2464	4016	1.63	20876	223089	10.69
2010-11	6383	74878	11.73	8495	146554	17.25	701	1636	2.33	3306	12007	3.63	2940	5350	1.82	21825	240531	11.02
2011-12	6705	76424	11.40	8989	156325	17.39	760	2218	2.92	3577	16359	4.57	3212	5951	1.85	23243	257277	11.07
2012-13	6982	81285	11.64	9205	162187	17.62	790	2647	3.35	3641	16985	4.66	3076	5744	1.87	23694	268848	11.35
2013-14	7216	88977	12.33	9396	162897	17.34	748	3192	4.27	3675	16301	4.44	3163	5908	1.87	24198	277352	11.46
2014-15	6110	86602	14.17	9542	169478	17.76	908	3143	3.46	3534	15575	4.41	3317	6108	1.84	23410	280986	12.00
2015-16	6301	90183	14.31	10106	169064	16.73	912	3206	3.52	3680	16658	4.53	3474	6988	2.01	24472	286188	11.69
2016-17	6373	92918	14.58	10238	178172	17.40	970	3364	3.47	3598	17972	4.99	3671	8122	2.21	24851	300643	12.10
2017-18	6506	97358	14.96	10259	184394	17.97	1044	3651	3.49	3744	18082	4.83	3878	8124	2.09	25431	311714	12.25

1.3 Haryana must diversify its economy by focusing on horticulture

The favorable agroclimatic conditions in Haryana present a significant opportunity for theexpansion of the state's horticultural crop production. The ability for farmers in the state to diversify their crop production away from traditional crops and towards horticulture crops presents them with a variety of benefits. For instance, the higher biomass productivity of horticultural crops in comparison to that of open field crops results in a more effective use of natural resources, higher yields per drop, potential for value addition outcomes that advance the prospects of high value crops, and the lucrative nature of horticultural crops, which can help to raise income levels, improve dietary status, and provide job opportunities for farmers. Also, the fact that many horticultural crops are able to be exported is a great benefit. A country's ability to bring in more money from outside and eliminate its current account deficit. Because of these benefits of the horticulture industry, the government of India has long encouraged the diversification of crops grown in India, especially in the state of Haryana, from conventional crops to horticulture crops. This is particularly true in light of the fact that India has one of the world's largest populations. Because of the efforts of the government, a substantial amount of the land that was formerly planted with horticulture crops has been developed.

1.4 Area of study

The state of Haryana, which has 22 districts, is located between 27° 39' and 30° 56' North latitude and 74° 27' and 77° 36' East longitude.

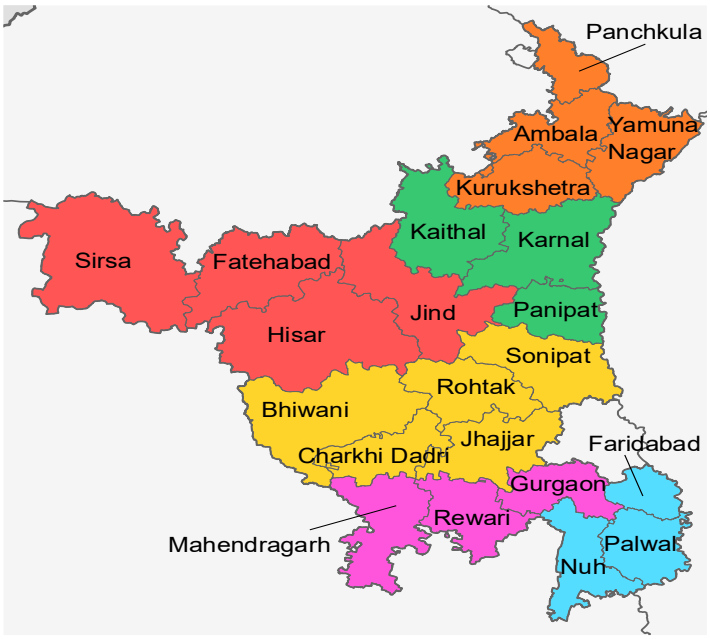

Figure 3. Map of Haryana

1.4.1 Fruits

At the conclusion of the growing season that occurred in 2017–18, the total area in Haryana that was dedicated to fruit cultivation was 64 thousand hectares, and the production of the state was 793.4 MT. In contrast to the land area of the other districts, the Sirsa district has the largest, coming in at around 10.3 thousand hectares, and it is responsible for the annual production of 221.2 MT of citrus. Both in terms of the area of land it occupied (20.8 thousand hectares) and the amount of fruit it produced in 2017-2018, citrus was the most extensively cultivated fruit crop in the state. Citrus was the most widely grown fruit crop in the state (335.8 MT).

1.4.2 Vegetables

The Indian state of Haryana, which is situated in close proximity to the capital city of Delhi, is an excellent place for the cultivation of many types of vegetables. The overall area under cultivation for vegetables in the year 2017-2018 was 446,9 thousand hectares, and the total production was 7,140.7 metric tonnes. The greatest acreage, a total of 39,900 hectares, was devoted to the cultivation of cauliflower, which resulted in the production of 698,9 tonnes. The second and third place finishers were tomatoes and potatoes, respectively. The Sonipat district was responsible for the largest area, which was around 50,2 thousand hectares and generated 901,2 MT, in comparison to other districts.

Despite the fact that vegetable cultivation is not guaranteed under NHM programmes, in order to support vegetable activities in the state, various components of NHM have been incorporated in order to increase the production and productivity of vegetables. These components include integrated pest management, protected cultivation, and vegetable seed production. Because of its near proximity to the NCR, the market for freshly harvested vegetables has experienced a significant uptick in demand. At the moment, the distribution of the most recent technical advancements is the major emphasis of the Department, working with the Government of Israel. The Center of Excellence for Vegetables of the Indo-Israel

Agricultural Project has just relocated to

1.4.3 Flowers

Because there is a healthy demand for flowers on the local, national, and even international markets, farmers are finding that cultivating flowers may be a lucrative business enterprise. In the state, the total area under flowers was 5.5 thousand hectares, and the state produced 57.6 metric tons of loose flowers and 4.5 metric tons of cut flowers in the 2017-2018 growing season.

1.4.4 Spices

The situation in Haryana with regard to acreage, output, and productivity of spices was diametrically opposed to that of the state's vegetable and fruit crops. The share of Haryana's area under spices at the level of all India was as low as 0.44 percent, but the share of production was around two times that. This was mainly due to the higher productivity (4.55 MT/ha) against the all India average of 2.09 MT/ha during 2017- 18. While the share of production was around two times that, the share of production was around two times that because of the higher productivity. Yamuna Nagar came out on top among all of the other districts in the state when it came to the total area of spice production as well as the total amount of spice produced.

1.5 Agro-processing

Soon after the green revolution began and self-sufficiency in food production was attained, people recognized they needed to start processing their own food. Both of these incidents directly contributed to this insight. When the market is oversupplied, there aren't enough processing facilities to handle the perishable fruits and vegetables, which deprives the farmer of his or her produce and damages the farmer's economics. Due to a lack of processing facilities to handle the perishable fruits and vegetables, it is estimated that between 30 and 35 percent of them—worth over Rs. 23,000 crores—are wasted. In contrast to some other developing nations where it accounts for 40% of total output and other affluent countries where it accounts for between 70% and 80% of total production, processing of fruits and vegetables accounts for just approximately 2% of production in India. The necessity for agro-processing becomes even more clear when agricultural output has already plateaued and is at a stop, as it has done in the state of Haryana. This is so that agricultural goods may be processed into more marketable forms. The importance of the agricultural industry in rural areas, which are seeing a drop in the number of employment available, was the subject of research by Kumar et al. (2016). He said that the age-old procedures for making village oil ghani, jaggery, and khandsari were out of step with modern technology. On the other hand, firms that preserve and prepare fruit, along with the grain and pulses sectors, have seen an increase in popularity recently. Due to this, appropriate post-harvest equipment has been developed and put into use, particularly for the grinding of pulses, the extraction of oil, and the recovery of jaggery. A number of different factors, such as the difficulty in acquiring land and the rise in prices, inadequate investment for small business owners, a lack of awareness and knowledge of skills, higher costs for machinery, and insufficient support on the marketing and policy fronts, all contributed to the slow growth of village-level processing. Because of this, an all-encompassing strategy is necessary to support the expansion of agro-processing in the state. The concurrent development of the state's physical, functional, and market frameworks must be considered in this strategy.

The establishment of a system with a central point of contact, the obligatory filing of tax returns, and the demand for additional research and development of export subsidies.

Moving on, the available sources suggest that agro-processing not only helps in addressing problems. Additionally, agro-processingcenters were found to be a financially viable venture, and they assisted in avoiding difficult deals while simultaneously building forward and backward linkages. This was found to be one of the benefits of establishing these centers. In addition to having a beneficial impact on the economy, these centers also had a significant impact.

1.5.1 Haryana's agro-processing industry: where it stands and where it's headed

Both the level of processing and the degree of processing are directly related to the quantity of accessible innovation and foundation. This is true regardless of the type of processing being performed. Despite the fact that the demand for processed commodities and the supply of raw materials are contributing factors to the expansion of the agro-processing sector, the industry continues to face challenges. According to the findings of Kumar et al., which are presented in Table 2, the annual compound growth rate of production for a range of crop-specific processing enterprises in Haryana is presented below over the course of multiple decades beginning in the 1980s (2016). The processing of grains and pulses at village level enterprises increased at a yearly compound development pace of 2.54% between 1980-81 and 1989-90, but the development decreased between 1990-91 to 2000-01. This growth occurred during the years of 1980-81 and 1989-90. This expansion took place throughout the years 1980–1981 and 1989–1990 respectively. The fruit preservation and processing industry has had sustained expansion over the course of several decades, as measured by a compound annual growth rate (%) that is higher than average.

Table3:GrowthofagroprocessingindustriesinHaryana

Particulars	Compound growth rate (per cent)		
	Period-1	Period-11	Period -III
	1980-81 to 89-90	1990-91 to 2000-01	2001-02 to 2010-11
Processing of cereals and pulses industry	2.54	-3.36	5.80
Village oil ghani industry	-12.71	-8.71	24.71
Jaggery-khandsari industry	-10.22	-2.49	4.38
Fruit preservation and d processing industry	6.28	11.34	2.32

1.5.2 The rate of expansion of Haryana's agro-processing businesses is being impacted by a number of different factors

It should come as no surprise that land values in Haryana are greater than average given the state's proximity to the National Capital Region (NCR) and Delhi, the nation's capital. It was determined that the three most significant obstacles are a lack of available funds, increased prices for raw materials, inconsistent supply, and intense market rivalry. In any event, the lack of technological know-how, a faster rate of interest, a scarcity of power, and a larger charge per unit were judged to be among the top

obstacles that were destroying the speed of agro industrialization in the state (Rai. et al., 2012) [22]. The processing industry faced a variety of challenges, including a shortage of energy and an insufficient use of newly introduced capacity. Because that post-harvest activities are directly related to agriculture, the Government of Haryana may decide to make it easier for citizens to acquire land in order to conduct post-harvest activities. In this context, research and development organizations, such as the Indian Council of Agricultural Research (ICAR) supported AICRP on PHET center and the Haryana Agricultural University, can play a leading role in the creation of region-specific tools, implements, apparatus, and procedure protocols, as well as in the commercialization of these innovations via enterprise advancement programs.

2. LiteratureReview

One of the production methods that can currently be used for producing cut flowers and vegetables outside of their typical growth season is called protected horticulture. This method, which is also known as growing in greenhouses or low poly tunnels, is one of the names given to the cultivation of plants inside of greenhouses. At the moment, one of the production techniques that may be employed is this approach. By the use of protected culture, it is possible to effectively develop high-quality crops such as tomato, cucurbits, cabbage, cauliflower, cucumber, lettuce, onion, spinach, brinjal, pepper, turnip, radish, rose, chrysanthemum, and gerbera, amongst others. Protected agriculture enables high-value cash crops, such as vegetables and flowers, to be properly planted and maintained under regulated environmental settings, which eventually results in increased per-unit productivity and profitability (Choudhary 2016). According to the findings of Ghanghas et al. (2018), protected agriculture necessitates the use of a sizeable quantity of inputs, including land, water, chemical fertilisers and pesticides, as well as electrical power. As a direct result of this, there will be an increase in production in addition to an increase in productivity per unit of land, water, energy, and labour, as well as an increase in the yields of the products that are produced.

Some of the benefits that come along with using this method of agriculture include the production of exceptionally high-quality and exceptionally fresh food, increased productivity in the use of fertiliser and water, the creation of high-cost infrastructure with the supply of subsidies, and the generation of work opportunities for poly house farmers all throughout the year. All of these advantages are a direct result of the method's use. In order to gather data, the researchers Kumar et al. (2018) visited all of the District Horticulture offices as well as the Department of Horticulture. Based on the information that they gathered, they determined that there were a total of 1356 poly houses in Haryana during the 2014-2015 fiscal year. 1356 dwellings were present in total, including 74 walk-in tunnels, 5 high-tech poly homes (HTPH), 1010 naturally ventilated poly houses (NVPH), and 267 net houses (NH) among them (WIT). With a total of 220, the district of Karnal in Haryana had the largest concentration of poly homes. The next highest was Sonepat district in Haryana with 183, followed by Rohtak district in Haryana with 156, Bhiwani district in Haryana with 97, Hisar district in Haryana with 84, and Panipat district in Haryana with 83. Just ten poly houses were found in the Mahendergarh district of Haryana, making this district the one in the state with the lowest number of poly homes. Karnal was the neighbourhood that has the greatest number of multi-family homes. The overall number of poly houses reached a total of 1589 for the 2017-2018 academic year, which is an increase from the previous record of 1356. Karnal, Bhiwani, and Rohtak came in second, third, and fourth, respectively, behind Sonepat in terms of the number of poly houses that were permitted to be built with municipal approval. As

compared to the other districts, the number of poly houses that could be found in Mahendergarh was among the lowest. As compared to the open field environment, the poly house environment had the greatest net return and B: C ratios for the various protected technologies. On the other hand, the open field environment had the lowest (Singh et al., 2011). (Kumar et al., 2017) A farmer can increase the amount of money he or she makes throughout the year by growing a range of crops and aiming to sell them at the best possible price, even if they are harvested out of season. This can help the farmer generate income more consistently. This is something that can be achieved through the usage of poly house farming.

Mishra et al., (2010) Protected agriculture is receiving a lot of attention and support from the Indian government at the moment. This is done for a couple of reasons: one, to ensure that every Indian citizen has access to wholesome food that is produced in a manner that is environmentally friendly and safe to consume, and two, to increase the amount of money that is made by the agricultural community. The promotion and development of protected agriculture is not up to par, despite the fact that the government of Haryana has supported and endorsed efforts to utilize bigger production as well as marketing potential in the state. This is in spite of the fact that the government of Haryana is advocating and providing support for the practice of protected agriculture. In addition to this, there are a variety of constraints and problems that make it impossible to cultivate vegetables in controlled surroundings. (Sirohi et al., 2002)

2.1 Horticultural Production Restriction Caused by the Use of Poly Houses

Kumar et al., (2018) carried out study to evaluate the most important difficulties that were experienced by farmers when cultivating vegetables in poly homes. Growing plants in poly homes presented a number of challenges, the most significant of which was the short lifespan of the polyethylene sheeting, which was easily torn apart by powerful gusts of wind. This was by far the most significant of the constraints. In addition to this, another key constraint was the existence of nematode and whitefly infestations, both of which are responsible for causing damage to the plants and reduced levels of output, Sharma et al., (2009). The high cost of fertilizer and the high cost of seed were both accounted for as major limitations due to the fact that a specific sort of seed or seedling is being produced in a poly house. This is one of the essential restraints. Both the lack of availability of this material and the high price of this material were significant limitations. This was because the availability of low-cost alternative materials was limited, and the availability of poly home material was nonexistent. A lack of acquaintance with the most recent set of best practices was another challenge that was faced during the creation of poly homes (Samantaray et al., 2009). Weeds can be considered a constraint in poly house crop production due to the fact that they generate competition for nutrients and space, as well as the fact that they inhibit the development of vegetable seedlings within a poly house. Significant obstacles in poly house production were the high cost of specializedlabor, the impossibility to get fertilizer at the correct time, the high level of weather fluctuation, and the danger of technical failure. The key production-related obstacles that the farmers who responded were presented with were a superior initial investment, a lack of competent counsel, and the high cost of pesticides and fertilizers. All of these factors contributed to a higher cost of output. (Malik, 2017)

2.2 Restrictions Placed on the Selling of Products from Poly Houses

Kumar et al., 2018 revealed that the major and most pressing marketing difficulty encountered by vegetable producers was the absence of a minimum support price. This was identified as a result of the fact that there is no standard minimum support price (MSP) for vegetables (MSP). A key constraint is the substantial price volatility that happens as a consequence of the low prices that are seen during times

of seasonal overstock. This low-price phenomenon comes as a result of the fact that seasonal oversupply occurs. Farmers were confronted with a number of severe problems, some of the most prominent of which included inadequate market information, high expenses, and an absence of transportation infrastructure. The most significant challenges that merchants were up against included improper techniques for weighing, an inadequate supply of high-quality packing material at prices that were affordable, and the absence of an acceptable market place. Of all of the many marketing channels, the producer-consumer channel was determined to be the most successful technique of marketing according to the findings of a study that was carried out by Bhatia et al. (2017). The profitability of growing cut flowers in a poly house was found to be highest in orchids and lowest in roses, according to the findings of the research conducted by Wadkar et al. (2006). They discovered that this was the situation with orchids.

2.3 The Reasons Why Poly Home Will No Longer Be Produced

In spite of the serious efforts that have been put out by the government, the farmers have ceased their practice, and it has been discovered that around 75% of the farmers are now taking part in the reaction. The inability to finance construction as a result of the high expense of maintaining cladding materials is the most important reason for the removal. Other reasons include an increased dependency on foreign help to obtain cash, a lack of return on wealth, the danger of losing capital, and ineptitude. Advice from the government about pricing of products, based on business procedures such as a lack of understanding of horticulture, plant environment, plant physiology, plant protection, and proper engineering. Certificates for the agricultural community Greenhouse construction, does not have specific knowledge of elevation and environmental management needs particularly for various crops, and if the grower does not have horticulture knowledge, it will be more expensive. Offers the best air for plants to thrive in. (Ghanghas, 2019)

3. Conclusion

We address the particular difficulties involved in growing horticultural crops in the Indian state of Haryana in this review paper. We served as an ambassador for India's and Haryana's horticulture sector. The agriculture sector contributes significantly to the state's total economy because Haryana is a mostly agrarian economy. Around 8.17 percent of all farmland is used for horticultural crops. Due to its favourable meteorological and agricultural conditions, Haryana's horticulture crop development has a strong chance of flourishing. Horticulture as an economic sector has to be rapidly diversified in Haryana. In order to create the ideal circumstances needed for cultivation, horticulture must be grown in a protected area. A variety of obstacles and limitations prevent the development of horticultural crops in protected habitats. Just 2% of fruits and vegetables in the Indian state of Haryana are processed, and post-harvest losses there range from 3% to 18%. By being transformed into a range of products utilizing both conventional and modern processing methods, the commodities' value may be increased. As a direct result of the procedure, the produce's shelf life is increased. The quality and safety of the product may be significantly impacted by simple, efficient handling methods. In particular for fruits and vegetables, the increase of agricultural output can be supported by the provision of framework facilities. Because they are perishable, several fruits and vegetables have a limited shelf life. Due to their inability to be preserved without cold storage, growers lose between 20 and 30 percent of their output at various phases of commercialization. This is the main justification for why small and marginal farmers are unable to meet these obstacles and make the switch to horticulture production because they lack the

financial means to do so. Establishing pre-cooling centres in specific commodity production areas, using high-yielding hybrid genotypes, deploying exceptionally experienced and technically trained manpower, and ensuring proper grading, packing, transportation, and marketing are required to prevent deterioration or wastage brought on by the use of micro irrigation techniques and other techniques like these. These techniques are among the many that fall under the category of "techniques like these." In order to keep up with the increased production and productivity, a variety of devices have been created for efficient cultivation, cross-cultural activities, harvesting, grading, packing, and value-adding. These technologies have allowed for greater output and productivity. These gadgets were developed in order to keep up with growing levels of production and productivity.

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