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TRENDS OF FRUITS AND VEGETABLE PRODUCTION IN INDIA

Dr. Surinder Singh

Associate Professor in Economics, Government Degree College Bilaspur

District Bilaspur, Himachal Pradesh

ABSTRACT

India is one of the most significant countries in the world in terms of the amount of fruit and vegetables it produces. In terms of output, it has the position of second place, behind China, for both fruits and vegetables. India is home to almost 17% of the world's people despite having just 2.4% of the world's territory. On a worldwide scale, it would appear that we are inching our way closer and closer to a global food catastrophe. According to estimates provided in a special report on the right to food that was recently issued by the United Nations, close to one billion people across the world go to bed hungry every night, and one kid loses their life to malnutrition every six seconds. Horticulture has made remarkable strides forward over the course of the past few years in terms of increasing the amount of land and production that is devoted to various types of crops, as well as increasing productivity, crop diversification, and technological interventions for production, as well as post-harvest and forward linkages achieved through value addition and marketing. The production of fruits and vegetables in the country accounts for close to 90 percent of the entire production of horticulture. There are a number of obstacles, including erratic weather, seasonal cyclones, occasional drought, population growth pressure, industrialization, urbanisation, and an unprecedented use of pesticides, as well as the compulsion for migration of rural masses to urban areas, particularly for their means of subsistence. In spite of this, the industry of horticulture as a whole has seen significant transformations in recent years, which has led to an increase in the amount of produce grown. Horticulture is not only a method of diversification; rather, it is an intrinsic aspect of food, nutritional security, and poverty reduction, in addition to being a vital component of economic security.

Keywords:*production,consumption,socialimportance, marketing,trading*

INTRODUCTION

ImportanceofVegetables

Vegetables are cultivated in approximately two hundred nations throughout the world and constitute a significant amount of the food that people eat in various areas of the world. Vegetables are extremely important to human nutrition, particularly as sources of vitamins (C, A, B1, B6, B9, and E), minerals, dietary fibre, and phytochemicals. Vegetables also play an important role in the aesthetics of human food (Wargovich, 2000; Liua et al., 2001). Incorporating vegetables into one's diet on a regular basis has been found to be strongly associated with a number of health benefits, including an improvement in gastrointestinal health, good vision, and a decreased risk of cardiovascular disease, stroke, chronic diseases such as diabetes, and certain types of cancer (Keatinge et al., 2010). It is estimated that a lack of vegetable consumption in imbalanced diets is responsible for around 31% of ischemic heart disease and 11% of strokes across the globe.

The International Agency for Research on Cancer (IARC) believes that the percentage of cancer that may be prevented owing to diets like these varies from 5–12% for all malignancies and between 20–30% for cancers of the upper gastrointestinal tract. Some phytochemicals found in vegetables are powerful antioxidants, and it is believed that they lower the risk of developing chronic diseases by preventing damage caused by free radicals, by modifying the metabolic activation and detoxification of carcinogens, and even by influencing processes that cause changes in the behaviour of tumour cells (Wargovich, 2000; Southon, 2000). "Hidden hunger" or micronutrient deficiency is a pernicious problem around the world that is caused by a lack of vitamins and minerals such as vitamin A, iodine, and iron in the human diet and affects the health of between 2 and 3.5 billion people in the developing world. This problem is caused by a lack of vitamin A, iodine, and iron in the human diet (Pfeiffer and Clafferty, 2007). At least half of the preschool children and pregnant women in Bangladesh, Cambodia, Nepal, and the Philippines suffer from micronutrient deficiencies. This number is highest in the Philippines (Helen Keller Inter- national, 2010). A seemingly insignificant change in the diet of the mother, particularly one that lowers the amount of certain micronutrients, can have a profound effect on the growth and development of the foetus.

Production

Vegetables are cultivated all over the world, on farms both big and small, on fertile and barren ground, in urban and rural locations, by major commercial producers as well as by tiny subsistence farmers. The fact that vegetables with short production cycles permit multiple cropping and that a significant volume of the vegetables grown worldwide are produced in small plots militates against accurate production statistics, preventing a clear understanding and appreciation of the value of these crops to the world food supply. Vegetables with short production cycles allow for multiple cropping because they have a shorter production cycle. Even with the low trustworthiness of FAO data regarding vegetable output in poorer countries, the production of vegetables in the globe in 2007 was over 900 million tonnes, as stated by the FAO's statistics (FAO, 2009). On 72.8% of the world's vegetable production land, Asia was responsible for producing 74.7% of the world's vegetables, or 671 million metric tonnes (52.7 million ha). China has always been a significant contributor to the global vegetable production, and at the moment, it produces more than fifty percent of the world's vegetables, which is equivalent to three hundred and thirteen kg of vegetables for each individual.

Consumption

Because there are so few statistics on vegetable production, it is difficult to acquire an accurate picture of the global consumption of vegetables and the role they play in diets. Even in places where crop reporting systems are an essential component of the agricultural infrastructure, relatively limited information is available for the majority of the vegetable crops that are cultivated. There is a large amount of variation in the intake of vegetables and the caloric contribution that vegetables make to the diet based on geographical area, country, local customs, and cuisine. The number one country in the world in terms of vegetable consumption is China. In China, over 35% of per capita food intake is comprised of vegetables, which is a substantially greater percentage than the norm throughout the world (Gale, 2002). In addition to India, other nations in southern Asia such as Bangladesh, Cambodia, North and South Vietnam, Laos, and the Philippines are also significant producers and consumers of vegetables. These nations are located in the same region as India. For instance, veggies make up forty percent of the daily diet in Bangladesh (Rich, 2008). A great number of vegetables are often consumed close to the locations where they are grown, particularly in China, India, and other Asian nations. Between 1975 and 2003, the average annual intake of vegetables per person in Asia rose from 41 to

141 kilogrammes, according to the Food and Agriculture Organization of the United Nations (FAO, 2009). This rise was particularly notable in China, where annual consumption rose from 43 kg (1975) to 154 kg (2003).

Consumers in developed countries experienced rapid growth in their mean per capita incomes throughout the decade of the 1990s, which enabled them to purchase a wider variety of relatively expensive vegetable commodities, such as produce that is not in season, vegetables that are relatively new or renewed, and organic produce. The increased purchasing power of customers in industrialised nations has led to an increase in demand for a wider range of goods and services, including higher-quality veggies and greater culinary variety on a regular basis. An burgeoning educated middle class with rising earnings is contributing to the expansion of consumption as well as home vegetable markets in developing countries. Countries with the highest populations, such as China, India, and Indonesia, are home to sizable middle classes that are only starting to emerge, which drives up the demand for expensive veggies (Senauer and Goetz, 2003). In the marketplaces of Hanoi, for instance, a higher and rising proportion of urban customers are seeking safe veggies. This trend is expected to continue.

SocialValue

The cultivation of commercial vegetables is a labor-intensive activity that necessitates the use of a big work force throughout the whole production process, from planting through packing. In addition, many types of vegetable crops call for vigilant attention to be paid to the plant health as well as to the weed management, watering, fertilisation, harvest time, and handling of the produce. It is possible that there are extremely limited opportunities for economies of scale in the production of crops that demand large labour inputs due to the fact that many of these operations cannot be automated.

As a result of the higher labour requirements compared to those of the production of field crops, the cultivation of vegetables presents prospects for the alleviation of poverty and for the management of food insecurity through the generation and provision of employment. The cultivation of vegetables often needs two to four times the amount of effort that is necessary for cereal crop cultivation. The production of snow peas and French beans in Kenya, which are the two crops that are cultivated for export more than any other, need a total of 600 and 500 work days per hectare, respectively (Dolan, 2002). More than twenty percent of all working hours in the agricultural sector are put in by people employed in the vegetable industry in Mexico. Changing from cereal production to vegetable cultivation results in the creation of extra job possibilities, which in turn results in increased earnings for low-income households. According to research conducted by Lumpkin et al. (2005), the average farm revenue per person generated by vegetable growers in Asia was up to five times greater than that of grain farmers.

VegetableMarketing

Producing countries have a more difficult time storing vegetables because of their high rate of spoilage; this makes it more difficult for them to respond quickly to shifts in market demand. They often have a very specific high value, and as a result, they are only offered through very specialised marketplaces. At the moment, more than sixty percent of the vegetables that are grown on a global scale are sold by vegetable producers to wholesale dealers or to enormous retail chains. Only a small percentage of farmers actually sell their produce directly to customers at retail rates in farm markets. The global markets for horticulture products are still

controlled by a significant number of wholesalers or middlemen, which not only results in a lower profit for the producers but also means that consumers frequently do not have access to veggies with reduced prices. Growers across the world only earn thirty percent or less of the product's selling price. Growers are facing a significant challenge as a result of this predicament.

The domestic and international markets for vegetables are shifting quickly all around the world. One factor that is contributing to these shifts is the proliferation of supermarkets. Large convenience stores, such as supermarkets and hypermarkets, are becoming increasingly popular shopping destinations for grocery shopping, including produce and other food items. The growth of supermarkets in industrialised as well as emerging nations generates obstacles as well as possibilities for the producers of vegetables in such countries. In point of fact, supermarkets may contribute to an increased demand for horticulture products and raise consumers' expectations regarding quality, safety, and presentation, while at the same time preventing smaller farmers from taking part in procurement and contracting processes. The significance of supermarkets is rapidly expanding all throughout South-East Asia, particularly at a rapid pace. In China, the number of supermarkets is growing at a rate of 30–40% annually, which is two to three times faster than in other emerging nations. The USDA estimates that China has the potential to accommodate at least 9,100 hypermarkets (Bi et al., 2004). The early boom areas of contemporary retailing marketplaces in China—Guangzhou, Shanghai, and Beijing—are giving way to the expansion of these markets into the interior western parts of the country.

This is already having a significant impact on the agricultural practises that are used across the country to cultivate veggies. Supermarkets make up around 33 percent of the market in Indonesia, Malaysia, and Thailand; however, this percentage is closer to 63 percent in Taiwan and the Philippines (Weinberger and Lumpkin, 2005). The local retail grocery chain in Indonesia known as Ramayana is expanding at a rate of 25% per year. In some nations and metropolitan regions of Asia, such as Malaysia, Bangkok (Thailand), Manila (Philippines), South Korea, and China, the percentage of fresh vegetables sold through supermarkets is, respectively, 35%, 30%, 11%, and 10%. These figures refer to the sales of fresh vegetables (Shepherd, 2005). In Vietnam, where the modernization of food retailing is only about ten years old and where wet markets are still the primary source of food shopping, the share of vegetable products sold in supermarkets increased from approximately 0.5% in the year 2000 to approximately 40% in the year 2007, despite the fact that wet markets remain the primary source of food shopping. The supermarket chain Metro has stated that it would be providing support and consulting services to 4,000 farmers and suppliers in order to aid them in improving the quality, marketability, and competitiveness of their products. Outside of South-East Asia, Kenya is experiencing the fastest annual growth in supermarket sales at 18%. By 2011, it is anticipated that they would have established themselves as the most important food sellers in metropolitan areas.

SafetyIssues

The laws governing food safety in the United States and the European Union are becoming increasingly stringent as time goes on. It is anticipated that the confirmation of the "safety" of vegetable products would become more crucial not just in these nations, but all around the world. The following are the primary sources of the human and environmental health concerns that are associated with the incorrect production techniques of vegetables: I improper handling of pesticides by growers; ii) crop selection or location without due regard to environmental pollution in the air, soil, or water; iii) application of unsorted or insufficiently treated solid and liquid organic wastes to vulnerable crops; and iv) poor and unsanitary handling during marketing and

distribution. All of these factors can contribute to the spread of plant diseases.

Producing vegetables often need for a higher overall quantity of plant protection treatments per hectare. Because of the intensive nature of their cultivation, vegetables are susceptible to a wide variety of biological challenges, such as weeds, diseases, and pests. When compared to field crops, ornamental plants have much more diverse and complicated insect burdens due to the high levels of genetic variability both within and between plant groups. When compared to field crops like rice, wheat, and maize, far fewer resources have been focused on boosting their output as well as the choices for managing pests and diseases. Because vegetables are high-value commodities that are held to stringent "cosmetic" standards, the use of pesticides has been the primary strategy that has been used to manage infections, pests, and weeds. Because of the frequency with which fresh vegetables are consumed, there is a considerable concern over the presence of pesticide residue and biological contamination in them. The largest portion of the worldwide market for pesticides is comprised of vegetable crops. In the cultivation of vegetables in the European Union, the average amount of active pesticide chemicals used per hectare is close to 25 kg (OECD, 1997). Producing vegetables takes up less than one percent of all cropland in the United States, but fourteen percent of the country's total pesticide use (Osteen, 2003). When it comes to pesticides, about twenty percent of the roughly eight billion United States dollars that are spent annually on insecticide products are spent on their application to vegetables.

NutritionalBenefitsandDiversification

Consuming a diet that is high in vegetables is essential to maintaining human health. The World Health Organization (WHO) has acknowledged the significance of vegetables and fruits in the human diet. As a result, the WHO encourages and recommends the consumption of at least 400 g of vegetables and fruits per day. This quantity will supply the necessary nutrients that are absent in other food groups (WHO, 2003a, b). Consuming insufficient amounts of vegetables and fruits is one of the top ten risk factors that might lead to a deficiency in certain micronutrients. This factor is also linked to an increased risk of developing chronic illnesses (Ezzati et al., 2002; WHO, 2003b). Fruits and vegetables both include a wide variety of macro- and micronutrients, such as provitamin A, iron, and zinc, all of which contribute to the reduction of the risk of nutritional diseases. Vegetables and fruits both contain a wealth of bioactive phytochemicals, which have been shown to lower the likelihood of developing chronic illnesses such as cancer. Even though the nutritional value of vegetables has been acknowledged for quite some time within the nutrition and medical professions, there is a growing awareness among the general population of the positive effects that greater consumption of veggies may have on one's health. Both the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) have food and nutrition divisions that have published a number of papers discussing the nutritional benefits of eating vegetables, and both organisations promoted a vegetable and fruit consumption initiative for health in 2004.

VegetableTrading

As a result of the recent large growth in the worldwide commerce of fresh and lightly processed vegetable products, globalisation has also now become an increasingly important factor among vegetable growers. This is evidenced by the fact that. As a consequence of an increase in the number of people who traverse the world, there is now a significantly wider range of vegetable crops accessible in many different local marketplaces all over the world. Between 1965 and 2005, the total amount of vegetables that were traded on a global scale

grew by a factor of five (FAO, 2007). The most significant regions for the import of fresh vegetables throughout the world are the European Union (EU), North America, and Japan, in that order. A significant portion of this comes from China, Latin America and the Caribbean, Africa, and other regions, with each of these regions contributing around one tenth to the total value of vegetable exports. Although Asia and Oceania are responsible for more than 75% of the world's vegetable output, these areas only account for around 12% of the overall value of horticulture goods exported. This is despite the fact that Asia and Oceania are home to the majority of the world's vegetable farmers (FAO, 2007). Because Asia and Oceania have such a substantial proportion of the world's population, the region's local markets and the requirements of those markets are expected to continue to be of greater significance in the near future than the allure of international markets. China, Thailand, and the Philippines are the three countries in Asia that export the most vegetables on a net basis, while Singapore, the Republic of Korea, and Malaysia are the three countries that buy the most vegetables on a net basis (FAO, 2007). Ivory Coast and Kenya are the two most significant countries in sub-Saharan Africa in terms of the quantity of vegetables that they produce for export.

Despite the fact that prices for many other agricultural commodities have plateaued or even fallen throughout the world, vegetable exports have seen significant growth. The export of fresh vegetables has become a bright light in many African countries, which otherwise have a somewhat bleak agricultural environment (Dolan et al., 1999; Dolan and Humphrey, 2000). Over the course of the last ten years, there has been a significant boom in the international commerce of vegetables for a number of different reasons. During the 1990s, a number of nations, notably those located in Africa and Latin America, shifted away from protectionist trade policies and toward ones that were more open, economically liberalised, and export-diversified. This paved the door for the formation of a number of new trade agreements, which made it easier to engage in commerce involving agricultural items of high value, such as vegetables. For instance, the North American Free Trade Agreement (NAFTA) liberalisation was a driving force behind the significant increase in agricultural goods imported into the United States from Canada and Mexico.

Outlook

Because of the high potential for financial gain associated with cultivating vegetables, the industry is exploding in a large number of locations and nations that have temperate temperatures that are suitable for such endeavours. The cultivation of vegetables typically results in higher profits than that of field crops. The production of vegetables is a viable alternative because of their great potential for added value and high potential for revenue creation, as well as their smaller size in comparison to the production of grains and cattle.

The production of vegetable crops typically requires more specialised knowledge and a greater investment of capital than the production of cereal crops. Furthermore, the production of vegetable crops is frequently associated with a higher level of risk due to the fact that these crops are significantly more expensive to produce per hectare than conventional crops, and because yields and prices are more variable than those of field crops. The vegetable business throughout the world is currently going through a time of transition, in which the focus is shifting from growing quantity to improving quality and efficiency. This is being accomplished through the implementation of cutting-edge manufacturing technologies and the enhancement of the company's competitiveness in the market. The vegetable grower needs to have more knowledge regarding the production of vegetable crops, and is adopting more convenient management techniques and cultural practises such as irrigation and fertigation, protected cultivation and transplant technology, as well as

the use of better hybrid vegetable cultivars. In addition, the use of improved hybrid vegetable cultivars is becoming more common. Farmers who are both poor and small need to be supported by an institutional structure that is conducive to their success, such as access to finance and money, and they also need to be given access to knowledge about market prices.

CONCLUSION

It is commonly believed that India is the world's largest producer of fruit and vegetables. Its status as the birthplace of a huge range of fruits and vegetables gives it a special place in the rankings of all the countries' output numbers. It is the second greatest producer of fruits in the world after China, with an annual production of 88.98 million tonnes of fruit harvested from an area of 7.21 million hectares. China is the largest producer of fruits in the world. In addition to this, it is the second greatest producer of vegetables in the world, behind only China, with an annual output of 162.89 million tonnes produced from an area of 9.39 million hectares (Anonymous, 2014). This is made feasible by a variety of agroclimatic conditions, a huge amount of biodiversity, fertile soil, and a vast area that may be cultivated. The amount of production of diverse crops in Indian agriculture has reached its maximum level, yet the country's ability to provide its citizens' nutritional security remains a significant challenge for policymakers and experts. India is responsible for 16% of the total global output of veggies and 11% of the total global production of fruits. It is the leading producer of mangoes, bananas, papayas, sapotas, chilli peppers, ginger, okra, and many other types of fruits and vegetables. Because of the investments made via the National Horticulture Mission (NHM) and a number of other programmes, the horticulture industry has experienced an extraordinary amount of expansion in recent years (Singh and Toppo, 2010). The agricultural sector and the industrial economy both benefit significantly from fruits and vegetables' contributions.

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