Nepal's Potential Exports of Peanuts to Canada

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Introduction

The peanut, or also commonly known as the groundnut, is a popular snack consumed worldwide. Although they are commonly thought to be part of the "nut" family with almonds, walnuts and many more, they are actually part of the legume family. They provide a wide range of benefits in nutrition and agriculture, hence making them a valuable crop and important part of peoples' diets in developing countries.

The peanuts' scientific and Latin name is *Arachis hypogaea* and it is part of the family *Fabaceae*, which includes peas and legumes (ITIS Standard Report, 2015) They also belong in the class *Magnoliopsida*, which means that peanuts are dicots (ITIS Standard Report, 2015).

Ideal Growing Conditions

Climate

Over 29 million metric tons of peanuts are produced annually with the leading cultivars being China, India, and the United States (Soyatech, 2015). What these regions all have in common is a dry hot climate. Peanut growth thrives in the tropics and subtropics because of the hot and dry weather, and the occasional rainfall (National Peanut Board, 2015). Ideally temperatures should be 30°C to 34°C, but the minimum temperature they can grow in is 15°C (National Peanut Board, 2015). Acidity of soil should be slightly acidic, ranging from a pH of 5.5 to 7.0, but the best conditions call for a pH of 6 to 6.5 (Putman, et al., 2013). Soil types that are sandy are better for peanuts rather than clay soils, because they have good drainage and it is easier for their deep roots to penetrate through the earth (Ministry of Agriculture, Food and Rural Affairs, 2013). Peanuts unique asset is that they are a flowering plant that blossoms on the surface of the earth but the fruit (the peanut) grows underground (National Peanut Board, 2015). Water is an important factor for any growing crop, but peanuts tend to benefit more from it in the early

flowering process and then only moderate doses of water throughout the long season (National Peanut Board, 2015). One reason why peanuts are a desirable crop in developing countries is because they are drought-resistant, and therefore can survive without long periods of rainfall (Virgina Polytechnic Institute and State University, 2012). They can also be planted in hills and on ridges for improved drainage, which is a benefit for many hillside farmers (National Peanut Board, 2015).

Cultivation

Peanuts can take between three to five months to reach maturity, making them a long-season crop (National Peanut Board, 2015). They require attention and labour but are thought to be a relatively easy crop to grow. The most popular method of cultivation for peanuts is strip tillage, which has both advantages and disadvantages for farmers (Tubbs and Beasley, 2009). One of the peanuts' most important properties for cultivars is its ability to undergo Nitrogen fixation. It is able to take Nitrogen from the air and convert it so it is bioavailable in the soil (Putman, et al., 2013). This makes it a great rotation crop to be included in a intercropping system as it can rejuvenate the soil quality, increase yields, and prevent pests and diseases.

Pests and Diseases

Just like all crops, peanuts are susceptible to pests, diseases, and weeds, but with good management and care of the crop can these unwanted nuisances be avoided. Some common diseases of peanuts include southern stem rot, rust, fungal leaf spots, root knot nematode, tomato spotted wilted virus, and many more (Plant Village, 2015). These diseases are often caused by bacteria, viruses, or fungus and usually show physical systems of discolouration and wilting. They can help be avoided by appropriately preparing the land, frequently checking the quality of crop, herbicides, crop rotation, and irrigation (Plant Village, 2015). Insects can also impose a

threat to the health of peanut crops by either feeding off of them or spreading disease. Some common pests include wire worms, lesser corn stalk borers, potato leaf hoppers, and two-spotted spider mites (Plant Village, 2015). Management of pests can be controlled by irrigation, spacing, crop rotations, and pesticides (Plant Village, 2015). Aflatoxin is a dangerous chemical which can infect peanuts due to poor storage condition (Wellness, 2012). Ideally raw peanuts should be stored in a dry area, and anything too hot or too moist can raise the risk of aflatoxins (Wellness, 2012)

Weeds

During cultivation do weeds pose the threat of decreasing yield and decreasing the nutrition of the crop (Pudman, et al., 2013). They compete for the same essentials which is why they must be kept under control all season. Tillage may help control the growth of weeds since they are spaced out and easier to see (Tubbs and Beasley, 2009).

Nutritional Facts

Peanuts are a great source of protein, fat, fibre, and many minerals and vitamins. It is an important crop for poor peoples and developing countries as it is a cheap source of essential nutrients. Per 100 grams of raw peanuts it contains 585 calories, 50g of fat, 22g of carbohydrates, 8g of dietary fibre, and 24g of protein (SELFnutritiondata, 2014). Peanuts also contain all nine essential amino acids which must be obtained through one's diet. Some have higher quantities than others like leucine (1672g per 100g), phenylalanine (1337g per 100g), and valine (1082g per 100g) (Botanical-Online, 2015).

Minerals and Vitamins

Peanuts are also rich in many minerals and vitamins including three out of the five most globally deficient. Peanuts contain the minerals zinc and iron, two very important factors for health and

growth (Botanical-Online, 2015). It also contains the vitamin folate, which is important especially for pregnant women (Botanical-Online, 2015).

Nepal

Sustainability

Nepal's climate in certain regions is able to sustain the growth of peanuts as it offers the hot and dry weather, and sandy soil. The regions of Hills and Tarai have smallholders growing peanuts, but it is not common in the Mountain region (Shambhu, et al., 2002). Peanuts are a good crop to grow especially for poor farmers as it has a rich nutritional value and benefits agriculture through Nitrogen fixation.

Cultural

For many years has peanuts been incorporated in the Nepali culture in cultivation, consumption, and trading. Many subsistence farmers grow peanuts to feed their families and as cash crops to sell locally (Shambhu, et al., 2002). People of all ethnic groups produce peanuts but it has not been apart of the agriculture in mountainous areas (Shambhu, et al., 2002). The labour is divided amongst men, women, and children, where the men will prepare the lands for the crop and the women will look over weeding (Shambhu, et al., 2002). When it is time to harvest the peanuts, the children will join to help the males and females (Shambhu, et al., 2002).

Economic

Choosing peanuts as a crop can help farmers financially with it's unique characteristics. Since legumes can undergo Nitrogen fixation, there's no need to buy nitrogen fertilizer. The quality of soil gets rejuvenated so other crops which rotate with the peanut crop will have bioavailable Nitrogen. Peanuts are also drought tolerant so a lack of rainfall for a long period of time will not completely devastate the yields.

Nepal's Potential Exports of Peanuts to Canada

Canada has a high demand for imports of peanuts since the climate is not ideal for their growth. In 2014, Canada shipped in 110.84 thousand metric tons of peanuts (Statista, 2015). With the potential production of peanuts in Nepal there could be a business opportunity of a trade agreement between Nepal and Canada. Nepal would be able to cultivate quality peanuts as a raw material then have it shipped to Canada to be processed. Peanuts are able to be manufactured into other value-added products like peanut flour, peanut oil, roasted and flavoured peanuts, and peanut butter (Soyatech, 2015). Canada has a national industry known as Roasted Nut And Peanut Butter Manufacturing, and establish dedicated solely to the processing of raw peanuts into snack productions (Government of Canada, 2015). If both countries were to agree on a free and fair trade agreement then both ends of the parties could benefit. There are no restrictions on importing peanuts from Nepal and the set up would be easy considering that it would a similar process to importing peanuts from China and India. The storage and shipment of peanuts should not create too much difficulty as long as they are kept in a dry space. Peanuts have very little medicinal benefits but its nutritional value and taste is what is in high demand. In conclusion, with all of the benefits entailed with peanut production and Canada's high demand, peanuts could be a great potential export to Canada without exploiting the agriculture industry of Nepal.

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