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Nepalese Banana Fibre Yarn and Clothing

University of Guelph
Prof. Raizada

Cynthia Kerezsi

Brief History of Banana Domestication

The complex domestication of wild bananas in the genus *Musa* occurred over thousands of years (Edmond De Langhe, 2009). Today, bananas are the result of intentional and unintentional changes with subsistence farming undertaken in the Americas, Africa, Asia, Melanesia and the Pacific. Bananas are still currently undergoing further domestication, however the extensive exploitation and genetic modification practices undertaken up to date have allowed farmers to find various uses of the crop (Ray, Bhaduri, Nayak, Ammayappan, Manna, & Das, 2012). The primary use of bananas is for food; another use is the production of natural fibre, which is a less health-hazardous and less costly alternative to synthetic fibres (Ray, Bhaduri, Nayak, Ammayappan, Manna, & Das, 2012). Nepal is an active host for banana crops and has high potential for exportation and contribution to the banana fibre market. Before recent years, Nepalese subsistence farmers grew their banana crops in kitchen gardens and homestead land (Samid Ahamad, 2008). Nowadays, banana cultivation in Nepal has become more prominent, though it still has a long way to go when considering productivity.

Methods of Extraction and Production of Banana Fibre

The stripping of banana fibre from the banana plant can be done manually or by mechanical decorticator (Edmond De Langhe, 2009). The manual process, also known as "tuxying" branches off into two methods: the Bacnis method and the Loenit method. The Bacnis method is the act of pulling the trunks of the banana plant apart and separating the sheath. Next off, they are flattened and the stems are stripped of banana fibre or "tuxy". The Loenit method includes pulling the fibre off the stalk of the banana plant one sheath at a time. After either method of stripping is carried out, fibre is collected into bundles, which are air-dried. Banana fibre stripping done by mechanical decorticator is more laborsaving and effective. It is a machine that extracts the fibre from banana pseudostems, leaf stalk and flower stalks using blades on a rotating roller powered by an electric motor. Sections are cut in the trunks of the banana plant and then are crushed in order to separate the pulpy tissues. After, the sheaths are scrapped using two large revolving drums equipped with blades to allows this (Edmond De Langhe, 2009).

Banana Fibre as a Growing Commodity

The use of banana fibre expanded from ropes, mats and paper to more sophisticated uses such as apparel and home furnishings (Ray, Bhaduri, Nayak, Ammayappan, Manna, & Das, 2012). This natural fibre is agreeable to warm temperatures due to its flexibility, thinness and its light weight, thus preferred by people residing in warm climatic regions. It is also very ideal for the making of eco-friendly, chemical-free paper, which already

has a good market in 25 international countries (Ray, Bhaduri, Nayak, Ammayappan, Manna, & Das, 2012).

Limitations to Growth in Banana Farming for Nepal

Nepal can achieve the cultivation of vigorous banana crops for the production of banana fibre. However there are certain limitations that need refinement in Nepalese agriculture in regards to some management practices. For one, Nepal is restrained when considering the plant and soil protection and preservation. The commercial banana is a triploid sterile plant; hence advancement of the crop cannot be done through sexual hybridization (Samid Ahamad, 2008). Since Nepal has a limited variety of banana crops, it suggests more difficulty to turn to the solution of selecting certain alleles to increase the yield of specific traits. It is still possible however, that these crops have undergone productive modification but they are still in need of financial aid to better local scientific research and experiments (Samid Ahamad, 2008). Also, aid is needed in the sophistication in the technology used to extract the banana fibre from the plants in order to minimize extensive and tedious labour work.

Possible Solutions for Nepalese Banana Crop Growth and Efficient Fibre Extraction

An issue seen in lesser developed countries such as Nepal is there is not enough input in regards to maintaining soil fertility, nor are there proper plant protection

methods(Samid Ahamad, 2008). Also funding is limited for advanced machinery such as the mechanical decorticator method for fibre extraction. The introduction of advanced agricultural practices to banana crops in Nepal can put them in the niche of eminent banana fibre producers and exporters, since Nepal's climate is an ideal host for the crop. What is needed to increase yield and productivity is through germplasm characterization as a basis for crop improvement (Samid Ahamad, 2008). In the article *Physico-morphological Evaluation of Banana (Mussa sp.) Genotypes at Nepalgunj*, a study was conducted on diverse banana varieties to test their yield potential. This study showed that certain varieties gave higher yields than others (Samid Ahamad, 2008).

Export Potential

Banana fibre has already proven to be a desired commodity for its flexible usage. It can be suggested that people can express their ethical values through the consumption of banana fibre, since it is an environmentally friendly alternative to synthetic fibres. Not only is it an ethical purchase, it is also durable and the fibres have high carrying capacity (Ray, Bhaduri, Nayak, Ammayappan, Manna, & Das, 2012). There are, however, obstacles to overcome to export this commodity from Nepal to countries such as Canada. Certain permits have to be obtained in order to render it possible. For example, the Government of Canada first needs an application for an import permit. Regarding issue and permit, the Trade Controls and the Technical Barriers Bureau is responsible. There is also a possible requirement of an International Import Certificate (Canada, 2013). In terms of launching Nepal into a more successful state in banana farming, Canada can aid

in funding. Canada Fund for Local Initiatives (CFLI) is a program that funds projects in developing countries. Organizations in Nepal specifically require registration under the Social Welfare Council Act in order to receive their benefits. However, communities in Nepal are in need of financial aid for the growth of banana fibre production, and the basis of CFLI is to address identified needs of local communities, stimulating sustainable economic growth, increasing food security, creating opportunities for children and youth, advancing democracy and ensuring security and stability (Canada, 2013).

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