

Positive Impact of Tobacco Cultivation: Encouraging of Tobacco Farmers

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Introduction

Tobacco (*Nicotiana tabacum*) is a major commercial crop in India. Flue-cured Virginia (FCV) tobacco, Country Tobacco, Burley Tobacco, Leaf wrapped (Bidi) Tobacco, Rustica Tobacco and Chewing Tobacco are the most important types grown on Indian farms. Tobacco cultivation was thought to have begun as early as 6000 BC. It has a long history in India of more than 400 years. Initially, tobacco was grown Kaira and Mehsana districts in Gujarat and later it spread into other regions of the country. Tobacco production is majorly in the states of Andhra Pradesh, Karnataka, Gujarat, Bihar, Uttar Pradesh, West Bengal and Tamil Nadu.

If you listen to Tobacco words in normal discussion immediately come to mind; cigarettes, drugs, gutaka, rajakhain, beedies, etc. For example, if you have a knife; you can cut vegetables as well as cut the throats of human beings. Here knife uses two things one is a positive and a negative, but it all depends upon how the human mind thinks about it. While tobacco cultivation has been associated with numerous health risks and negative environmental impacts, it's important to acknowledge that there are some positive aspects to tobacco cultivation as well. However, it's crucial to weigh these potential benefits against the well-documented health and environmental concerns associated with tobacco production and use. Here are a few potential positive aspects of tobacco cultivation:

Economic Contribution:

Tobacco is also called a “Golden leaf” because it is vital to the world economy. Tobacco cultivation can be a source of income for farmers and economies in tobacco-producing regions. India ranks third in production and fourth in exports of unmanufactured tobacco in the world. It is a significant export commodity for many countries, contributing to international trade and foreign exchange earnings. It can help improve a country's trade balance and strengthen its economic ties with other nations. Exports of tobacco and tobacco products contributed about

INR 63,000 million [~US \$790 million] in foreign exchange during 2020-21 (Tobacco Board Annual Report, 2020-21).

Employment generation:

The government of India constituted the Indian Central Tobacco Committee (ICTC) in 1945 keeping in view the important role played by tobacco in the national economy and employment generation. Tobacco farming provides employment opportunities for individuals in rural areas, supporting livelihoods and local economies. About 45.7 million people in India depend on the tobacco sector for their livelihoods. It comprises 6 million farmers, 20 million farm labours, 4 million leaf harvesters, 8.5 million workers in processing, and 7.2 million workers in manufacturing and exports, retailing, and trading (Source: The Economic Times June 5, 2019).

Research and Development:

The Central Tobacco Research Institute was established in 1947 at Rajahmundry under the aegis of ICTC, Madras. The function of CTRI was taken over by the Indian Council of Agricultural Research (ICAR) in 1965. CTRI has six regional Research Stations located at Guntur, Kandukur, Jeelugumilli, Hunsur, Vedsandur, Dinhata and two Krishi Vigyan Kendras (KVK) located at Kalavacharla and Kandukur in Andhra Pradesh. All India network project on tobacco was sanctioned in 1971 and has 3 main centers, 7 sub-centers, and 4 voluntary centers to carry out multi-locational trials on various types of tobacco. The above institutes and regional centers associated with tobacco cultivation research and development have led to advancements in agricultural techniques, pest management, and crop breeding. These innovations can sometimes be applied to other crops, benefiting overall agricultural practices.

Biotechnological Applications:

Some researchers explore the potential biotechnological applications of tobacco plants beyond smoking. For instance, tobacco has been genetically modified to produce pharmaceutical proteins for vaccines and medical treatments, potentially offering an alternative use for the crop (Tremblay et al., 2010).

Medicinal and Veterinary Product Development:

Tobacco has always been considered a medicinal plant and used as a traditional medicine for common illnesses (Berlowitz et al., 2020). It is claimed to be an antiseptic, sedative, emetic, purgative and useful in relieving pain. In recent years, nicotine has been recommended for hypodermic injections in tetanus and strychnine poisoning. The plant is also

used as a source of isoprene units required for the production of the cardiac drug UQ-10. For veterinary applications, tobacco was useful as an antiseptic for cleaning wounds. It is also suspected to have anti-coccidia properties in poultry.

By-Products and Waste Utilization:

The stalks, top leaves, stems, scraps and dusts are tobacco wastes that can be utilized as sources of nicotine and nutrients. Being biodegradable, they are particularly appealing alternatives to synthetic pesticides and fertilizers, especially during these times of high-level consciousness for "environment-friendly" technologies, and the fact that synthetic fertilizers and pesticides are costly.

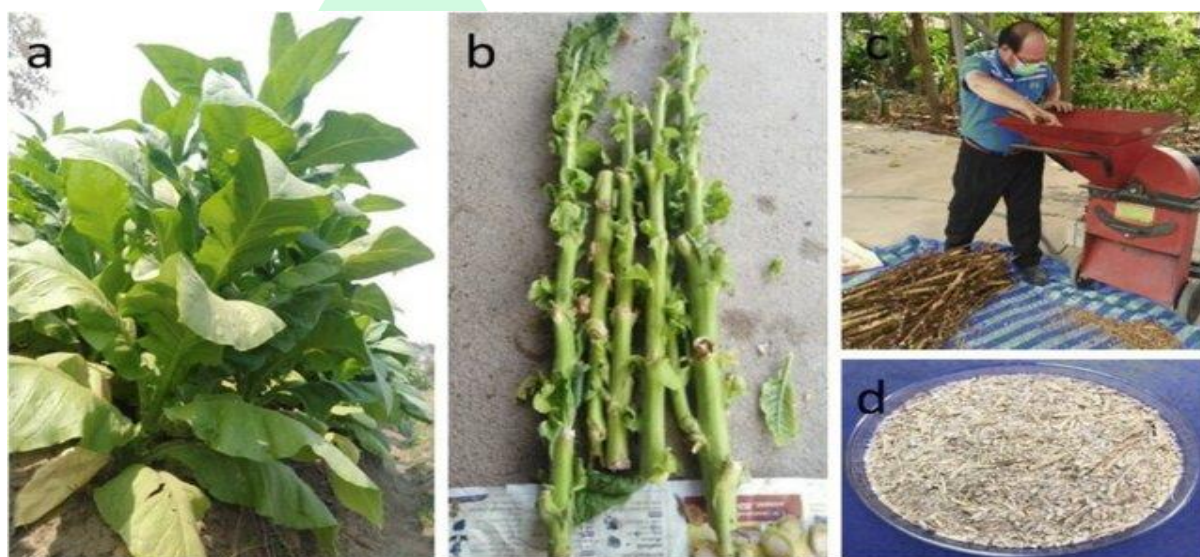


Figure:1 (a) Tobacco plant (b) leftover biomass stalks (c-d) dried stalks crushed into small particles by machine

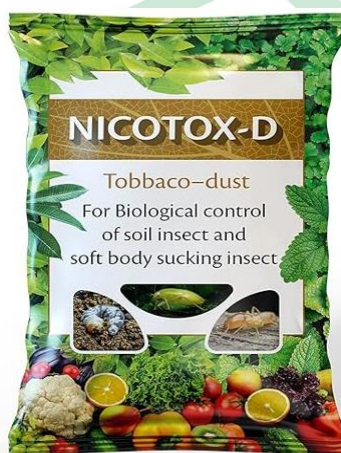


Figure: 2 Divine Tree Nicotox-D Tobacco Dust Powder Natural Insecticides for Agriculture

Food and Feed Products Development:

Tobacco can be a source of food and feed. A very high-quality protein (called fraction-1 protein) can be extracted from its leaves for human consumption. The seeds are free from nicotine and are rich in protein (25%) and oil (35%). As such, they are good sources of edible and industrial-type oils. The seed cake obtained after the extraction of the oil serves as protein-rich feed for cattle and horses.

Wood, Pulp and Fiber Product Development:

The development of wood, pulp and fiber products from tobacco is very timely both from the viewpoints of environmental conservation and promoting tobacco as a cheap and readily available supply of raw material for industrialization. Tobacco stalks are woody and pliable while the midribs are pulpy. As such, they are suitable for the manufacture of particleboard, paper, handicraft, and pulp. Being able to produce matured stalks within six months, tobacco also has a distinct advantage over the traditionally used tree species, which require about five years to become economically important. Other products that we developed include handmade paper and paper products from stalks and leaf midribs (in cooperation with the Duntog Foundation) and different kinds of handicrafts such as wall dividers, baskets, handfans, wall decors, etc. The handicrafts rival the beauty of bamboo or rattan.

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