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FARMERS FACING PROBLEMS AND COMMERCIAL OPPORTUNITIES OF TINNEVELLY SENNA IN INDIA

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ABSTRACT

Senna or Nila avarai or avuri (*Cassia angustifolia (Vahl.) belongs to the* family fabaceae, Senna is a largest genus of flowering and important medicinal plants in india and it is drought tolerant. Hence it is cultivated under rainfed condition in rich clay rise fields of drained soils by smll and marginal farmers in tamilnadu, south india. Senna is a small, perennial, branched under-shrub grown for its medicinal value of leaves and pods which contain sennisides A,B,C,D, rhein, aloe-emodin, khempferi and iso-rhein in free and glycosides forms.it is one of the most useful purgatives, especially in case of habitual constipation. Besides being a laxative, senna is in splenic enlargements, anemia, thypoid enlargements, anaemia, typhoid, cholera, jaundice, rheumatism, tumours, foul breath and bronchitis, and probably in leprosy. The ease of cultivation and high price for the leaves is attracting farmers for large scale cultivation. The future is excellent for extending its cultivation and production of numerous value-added products from it's leaves and pods. The challenges for Senna cultivation and business are: Market exploitation of farmers by middlemen, price fluctuations of leaves, demand-supply fluctuations of leaves, limited exports, the indian domestic market is not support to the senna based herbal products.

KEYWORDS: Cultivation, Senna, farmers, facing challenges, south india.

INTRODUCTION

In India, Tinnevelly Senna *(C. angustifolia)* Andhra Pradesh and Karnataka, Pune (Maharashtra), Gujarat (Anand and Mehsana), Rajastan (Kodhpur), Delhi and dry coastal districts of Tamil Nadu in Thoothukudi, Tirunelveli, Ramanathpuram and Madurai are the major states are concentrating on the cultivation of Senna. The total annual production of senna herbage is estimated to be around 8600 tonnes. The leaves and pods of a few other species of Cassia also possess laxative properties similar to those of C. angustifolin. Alexandrian senna is found growing in the wild in North African countries, including Ethiopia and Sudan. The international market receives leaves and pods of Alexandrian senna obtained from the North African countries in substantial quantities, accounting for about 25% of the international trade.[1,2]

Tirunelveli is a place in south India where senna was introduced in India for the first time in the mid-eighteenth century and it is extensively cultivated, processed, and exported to various countries trough trational port tuticorin under the brand name "Tirunelveli senna" hence the name. The drug senna is widely used as a purgative, laxative, expectorant, wound dresser, antidysentric, and carminative. Senna leaves are commonly used as natural laxative both in modern as well as in traditional systems of medicine.

The calcium sennoside is a popular form of dispensation useful in habitual constipation in modern medicine.[3] However, leaves are having international demand and preferred as ingredient of herbal tea in Europe.[4]

Chemical constituents

The principal active constituents of senna are dimeric glycosides called Sennosides A, B, C, and D. The aglycones are composed of aloe-emodin + rhein for A and B and rhein + rhein for C and D. Other Phytochemicals sennoside C, sennoside D, rhein, chrysophanol, aloe-emodin, kaempferol, myricyl alcohol, salicylic acid, palmitic acid, stearic acid.

Medicinal uses

Senna is a powerful cathartic used in the treatment of constipation, working through a stimulation of intestinal peristalsis. Senna also used as an expectorant, a wound dressing, an antidysenteric, and a carminative agent. It is useful in the treatment of gonorrhea, skin diseases, dyspepsia, fevers and hemorrhoids. The herb is used in

the form of crude plant material or powder as oral infusion or extracts (liquid or solid). It is always advised to use the drug under the supervision of Physician, because the excess use of senna may have adverse effect leading to sudden and intense stomach pains and colic or abdominal pains.[2]

Challenges faced by the farmers

The major problem faced by the farmer in marketing of Senna was the high cost of transportation. Though the exporters are in and around, the farmers face the problem of high cost of transportation. The next problem is the monopoly of buyers. The market was dominated with a few exporters and the farmers are forced to sell their produce to the fewbuyers. The next problem is the farmers are priced less for their produce due to quality issues in their produce (usage of pesticides).[6]

There are many policy challenges for Indian agriculture. Both price and non-price factors are important for higher agricultural growth. The challenges for 'second green revolution' as compared to green revolution of 1960s and 1970s are:

(a) globalization challenges, volitility in prices,
(b) shrinking farm size than before,
(c) dryland farming challenges,
(d) environmental stress.

Small farmers are certainly going to remain in India the next decade or more. The main challenges are improving productivity and moving towards high-value agriculture and promote rural non-farm sector by maintaining food security for reducing poverty and hunge.[7]

Reason for cultivation of senna

1. Good source of income
2. Profitable crop
3. Low cost of cultivation
4. Drought tolerant crop
5. Less maintenance
6. Generation wise farming

Problems in production of Senna

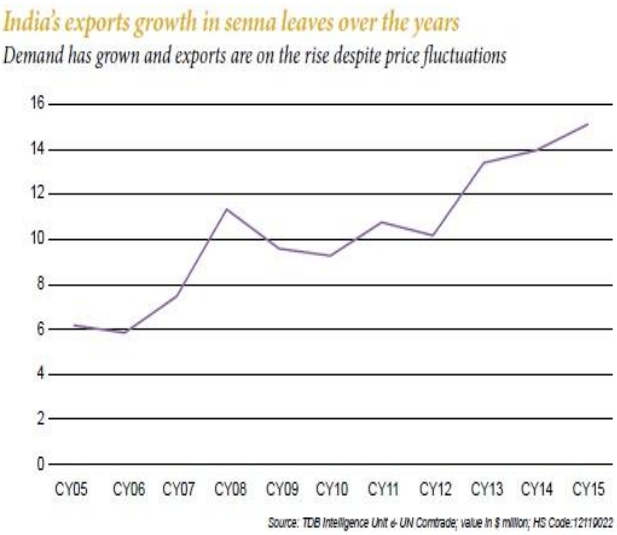
1. Shortage of labour
2. Pest Incidence
3. High labour charges
4. Over drying of leaves
5. Drying problem if rain persist for prolonged period.

Problems in marketing of senna

1. High cost of transportation
2. Monopoly of buyers
3. Less price due to quality as well as grading issue

Opportunities for cultivation

The global interest in this plant and the high demand for its leaves provide ample scope to cultivate this plant on commercial scale. Other opportunities for cultivation include: Present price for leaves is attractive, crop gives economically remunerative returns in comparison to traditional crops, ease of cultivation under rainfed condition, the crop can be integrated with traditional crops through crop sequencing, opportunities for marketing leaf and seed exist, bye-products can be profitably be utilized, value addition can increase profits, however, current exports are limited and large scale exports of leaves and value added products need to be explored.[2]



Reliablity Personified

In CY2015, India exported senna leaves worth $15.07 million with a majority of shipments directed to Vietnam (15.81%), China (12%), Japan (11.26%), Germany

(8.28%), and US (5.35%). And the good thing is that India's exports of this product has almost tripled over the last decade to $15.07 million in CY2015.[8]

Processing of the leaves and value addition

The leaves are stripped from the branches and dried in shade for 10-15 days to a moisture content of 8-10 percentages. The leaves are collected by local traders and transported to wholesale dealers and exporters in Tuticorin of Tamilnadu state. The leaves are processed manually or mechanically depending upon the quantum of the trade. They are winnowed to remove dust and stones and then passed through sieves of different sizes to sort them into different grades.[9]

Table 1: Different Grades of Senna Leaves.

S.N0	GRADE	LENGTH (cm)
1.	Prime 1	>3.5
2.	Prime 2	2.5 – 3.5
3.	Prime 3	1.5 – 2.5
4.	Prime 4	0.5 – 1.5
5.	Prime 5	< 1.5

The leaves of Prime 1, 2 and 3 grades are exported and grades 4 and 5 are traded in the internal market. Prime 5 is known as the pharma grade and is used for extraction of sennosides and production of calcium sennosides within the country 20% etc. The left-over stem is sold as senna stem and the left-over leaf is powdered and sold as senna leaf powder. The exporters employ more than 1000 women every day for processing thereby creating an employment generation of 3, 12000 man-days. This can become a flourishing rural industry with the village women processing the leaf cultivated in their villages.[9]

Over 80% of the leaf produced in the country is exported without any value addition except grading. The importing countries are doing value addition. Value addition should be India's main objective to compete globally since the raw material is produced within the country. Some value-added products from senna are presented in Table 2.

Table 2: Value added products from senna leavel

S.no	Value Added Product from Senna Leaves
1.	Flavoured senna
2.	Senna tea
3.	Sennosides
4.	Senna tablets and other drugs
5.	Senna based hair oils

There will be lot of opportunities are there for cultivation of senna In India about 6000-7500 tonnes of senna leaves and pods are produced and about 80% of the production is exported. The export earnings range from Rs. 35.0-36.0 crores.[10, 11]

(a). Since Indian senna has to compete with Alexandrian senna for cost effectiveness, leaf size and sennosides content, there is an urgent need to develop a variety with long leaves (> 5.00 cm) having higher sennosides content (> 5.0%). There is a need to find ways and means to reduce cost of production.[3]

b) As synthetic sennosides are not available in the market, the demand for natural sennosides will continue to increase and provide an excellent opportunity for India to earning forighn exchange.

c) Because of the simple cultivation practices and grading techniques, rural industries can be setup based on senna leaves and pods.

d) There is an urgent need to develop cost-effective processes for value-added products in order to export them instead of exporting crude drugs (leaves and pods).

CONCLUSION

Among the sample farmers, 30 per cent of the sample farmers had 21-30 years of experience in Senna cultivation followed by all other categories (23.33 %). This indicates that Senna is a traditional crop and has been cultivated since many years and the farmers have a better experience in cultivating it. It is a short term crop of 90-100 days with the sowing in January and harvesting extends from March to May. As the crop is cultivated as a rainfed crop in the study area and the crop is a drought tolerant one, it can withstand drought conditions upto a certain extent.

The challenges for Senna cultivation and business are: Market exploitation of farmers by middlemen, price fluctuations of leaves, demand-supply fluctuations of leaves, limited exports, patenting by foreign companies, changing climatic conditions, long duration of the crop, low leaves yields, pests and diseases infections labour problems (high cost, non availability during peak season, unreasonable demands by labourers), lack of knowledge about post-harvest technology and problems associated with long term storage of leaves.

Senna is an important medicinal crop grown for the extraction of Sennosides which is having laxative property and senna is drought tolerant crop thrive well in less water and require less management practices as compared to other crops and suited well to waste and low rainfall area. As synthetic sennosides are not available in the market, the demand for natural sennosides will continue to increase and provide an excellent opportunity for India to earning foreign exchange. As synthetic sennosides are not available in the market.

In our India domestic pharma market is not encouraging the sennoside based laxative drugs, but now available laxative drugs are mostly belongs to synthetic compounds. If more indian pharma companies involved in the production of senna based formulations, it will increase and encourage the domestic senna market in india and also the products will be available to the poor patients at affordable cost. The farmer community cultivating senna particularly in drought affected areas will also be benefited economically.

The demand for natural sennosides will continue to increase and provide an excellent opportunity for India to earning foreign exchange and also because of the simple cultivation practices and grading techniques, rural industries can be setup based on senna leaves and pods and also there is an urgent need is required to develop cost-effective processes for value-added products in order to export them instead of exporting crude drugs (leaves and pods).

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