

Betel Cultivation - Realities and Potentials

Introduction to Betel Industry

Betel (family- Piperaceae) is an evergreen, perennial climber with a semi arid stem, and grows to a height of about 1 meter. The betel plant originated in South and South East Asia (India, Sri Lanka, Vietnam, and Malaysia). The plant is known by a series of different names such as *Bulath* (Sinhala), *Vettilai* (Tamil), *Tambula*, *Nagawalli* (Sanskrit), *Vettilakodi* (Malayalam), *Jamalapakku* (Telugu), *Veelyada* (Kannada), *Paan* (India / Pakistan), *Betel* (English) and *Piper betle Linn* (Science). It is trained on poles or trellis. The leaves of this plant are economically and medically important. Betel leaves have been traditionally used for chewing along with other condiments. Chewing combination is quid and types of ingredients used could vary from country to country.

The history of the betel leaf goes back to the times of the Buddha's and it is believed that it was brought from the "*Naga Lokaya*" to the earth by the "*Nagaraja*" known as "*Muchalinda*". Therefore, betel which is known as "*Bulath*" in Sinhala is said to be a derivative of "*Bhoo-Lath*", which means "received from the earth or "*Nagalokaya*". King "*Dutthagamini*" was stated to have offered them to the workers at the *Mahathupa* and the poor people with five kinds of ingredients. According to *Mahavamsa* chewing betel leaves with two ingredients: areconut and lime, was a common habit.

Except in Sri Lanka, betel is cultivated in India, Malaysia, Indonesia, Philippine Islands, East Africa and it is emerging in countries like Pakistan. More than 12 kinds of betel are reported in Sri Lanka, and the cultivar called "*Malabulath*", is not used for chewing. All the other cultivars constitute "commercial betel" of Sri Lanka. Some commonly cultivated betel vines are *Galdalu*, *Mahamaneru*, *Kudamaneru*, *Ratadalu*, and *Nagawalli*. The leaves of the plant have been used as a cultural symbol, and for chewing and medical purposes. It is administered to children having cough, and also for night blindness of adults. The juice of the leaves is used to cure catarrh and diphtheria. The leaves are also applied to purulent ulcers.

Betel is grown for the domestic and export markets largely in Mirigama, Divulpitiya and Dompe in the Gampaha District, Dedigama in the Kegalle District, and Kuliypitiya and Narammala in the Kurunegala District. The bulk of Sri Lanka's betel exports go to Pakistan under the Free Trade Agreement (FTA) accounting for 99% of the volume, accounting for 3000 tones. Sri Lanka meets 30% of the demand for betel in the Pakistan market.

Data Presentation and Analysis

This study is based on mainly the information published in the Technical Publication-2008, Intercropping and Betel Research Station, the Department of Export Agriculture and the Annual Report 2007, of the Central Bank of Sri Lanka.

Betel leaves are consumed in large quantities across the country. It is a typical Sri Lankan habit and they are chewed by many purely as an addiction whereas some chew it assuming that it helps the digestive system. Leaves of betel vine are chewed along with arecanut and lime as a masticatory. This habit is so widespread in Sri Lanka that betel leaves are an integral part of Sri Lankan traditions and are intimately connected with the cultural life of the Sri Lankan people. Apart from the domestic consumption, the major part of the betel production is exported to the global market. Thus, betel leave is a demanding export crop which generates a considerable annual export income to the national economy. According to the information of the Department of Commerce, from 1997 both the value and volume of betel exports have increased; in 2007 both boosted tremendously. The following table shows the situation furthermore.





Table 1: Betel Exports Volume and Value

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Volume (MT)	1,729	1,320	1,687	1,588	1,333	1,945	2,786	2,857	2,659	2,621	5,429
Value (Rs Mn)	52.1	48.9	104.1	126.6	118.2	187.9	276.4	301.1	257.1	301.2	450

Source Customs Reports and Department of Commerce

During the period of 2003 to 2007, the demand for betel from the main importer Pakistan has favorably influenced the domestic suppliers. The price they received encouraged them to supply more and more fresh and healthy leaves to the market. In the Pakistan market, Sri Lankan betel leaves have a good demand than that of other countries like India, Bangladesh, Malaysia, Indonesia, Philippine Islands, and East Africa.

Problems Encountered by Farmers

According to the data of Department of Commerce, there is a long-term positive trend in the export volumes and the values of betel. They show a favorable long-term trend in the recent past and it encourages the government to take appropriate policy decisions and necessary actions to improve the productivity of this export crop.

However, at present the betel industry is facing severe problems due to depressed prices, limited export markets, lack of commercial orientation amongst the majority of farmers, lack of specialization, wide spreading diseases, lower level productivity, lack of plant material and proper supportive sticks for cultivation etc. Because of these reasons, the betel farmers in rural areas are frustrated and there is a considerable drop in number of farmers engaged in betel cultivation today. The quality of the leaves is not up to the required standard and majority is rejected from exporting to the Pakistan market. This shortcoming is taken as an opportunity by our global competitors to penetrate into the one and only Pakistan export market. The analysis by Department of Export Agriculture shows that there is a probability of drop in the volume of export in future. This will result in a market crisis and the profitability of betel cultivation will diminish considerably. Further, the problems faced by the traders can be listed as follows.

- Even though the quota system has been removed, high air freight charges and limited space in the cargo flight have become the main issues faced by exporters.
- As betel is a highly perishable crop, it's impossible to export them by sea. The only solution is exporting them by air. But the space allocation for betel is limited and only one flight goes to Pakistan every day. Even though the demand in Pakistan is high, due to this reason, the supply is restricted.
- Unlike in the past, now the number of Pakistan buyers are limited. This can be a threat in the near future. In the past, Pakistan entirely imported betel (paan) from other countries, there was no local production due to the unsuitable weather condition prevails in the country. But now Pakistan people have started cultivation of betel. In Pakistan local betel is cheaper than imported, even though the taste is not acceptable.
- Sri Lankan betel export market is captured by some Pakistan based trading companies and exporters. Recent information shows that some BOI approved Pakistan based exporters engage in exporting betel to their own country. Here, they get betel at lower prices and export them to Pakistan at cheaper prices than other exporters do. It might be possible that all the Pakistan orders come through them. Thus, in future, the export trade may be activated, run by only the Pakistan traders.
- Lower supply of high quality betel domestically. Due to the poor and traditional practices and lack of commercial orientation of betel cultivators, the productivity and quality are at a decreased level. It has created a vacuum to the other international competitors to penetrate

into the Pakistan betel market. Especially the expansion of Indian betel cultivation will be a threat to Sri Lanka. Once the conflict between Pakistan and India is over, very soon Indian betel may capture the market, because of the cheap price of Indian betel due to lower transportation cost from India to Pakistan.

- There is less governmental support to this export crop and it's urgent for state to get involved in promoting the betel exports.
- Credit system of Pakistan buyers may discourage the local exports and there is no sufficient guarantee of paying back the value to the exporter. As a result of this, newly engaged local exporters will not survive in the trade for a long period.

To overcome the negative impact on the industry, there is a necessity of research and development work on betel cultivation and governmental support for it. Therefore, as we export betel, we need to find some other alternative ways to protect the domestic growers; otherwise the country will be in a trouble. It's important to find some other industries (value added products) related to betel leaves to safeguard the industry from these kinds of future uncertainties. Hence, conducting researches in these areas is a national requirement.

Policy Implications

The vast economic potentiality of the crop can be adequately exploited by the fact that about 1-2 million people consume betel leaves in Sri Lanka on a regular basis. Besides, those in other countries of the world may include over 2 billion consumers.

A small betel plot of about three decimal areas can generate employment opportunity for an agricultural worker throughout the year helping him to maintain his family. Further, as far as the national employment generation is concerned, it is estimated that about 1 million people derive their livelihood directly or indirectly, from production, processing, handling, transportation and marketing of betel leaves in the country. The rural sector development can be focused on betel cultivation where resources can be optimally utilized for the developmental purpose.

Establishing a proper linkage between backward and forward industries with the betel industry emphasizes the sustainability of it. For that, the government support should be given with clear national policies. The existing institutional network is sufficient, but the necessary resources, especially human resources and infrastructure facilities should be given to enhance the capacity and at the same time a proper coordination should be established among these institutions. Unfortunately what happens today? The Betel Research Institute, Export Agriculture Department and EDB are unknown to farmers, ITI's inventions of value added products are known only by a few people. Farmers know nothing about new developments, as mentioned above, the betel industry is isolated now. Therefore prompt actions should be taken by the responsible authorities of the government.

The government can get the private sector involvement but it should not be controlled by the private sector alone. If so, the vulnerable farmers and small scale traders will suffer a lot. An active government involvement should be there to protect this national resource.

The betel leaves are also at a great demand in several other countries of the world where it is either not grown at all or the demand exceeds the local supply. Consequently, leaves worth about Rs 30-40 million are exported to countries like Pakistan, Malaysia, Canada, Great Britain, Lebanon, Hong Kong, Italy, France, Switzerland, Kuwait, Saudi Arab and many other European countries (Rathnasoma, 2008). This clearly indicates the foreign exchange earning potential of the crop, which is required to be strengthened in the interest of the nation. This may be achieved through proper research on export systems and modulation of export-policy-decisions for boosting up export of betel leaves.

Further, if it's possible to arrange a few Sri Lankan flights directly or via Pakistan weekly, the





traders can export more volume to Pakistan, so the space problem is settled. At the same time, rather than transferring money to other airlines, Sri Lankan Airways can earn a considerable income through betel exports.

Further, the government's attention of introducing a concessional package of air freight would be another stimulant for betel exporters. According to the Pakistan-Sri Lanka Free Trade Agreement (FTA), there is no quota for exports, but now the main issue faced by the Sri Lankan exporters is the monopoly of Pakistan buyers. A limited number of buyers controls the entire betel import market and it's difficult for new buyers to enter the market. If the Sri Lankan government can discuss the matter with the Pakistan government officially or come into any sort of a bilateral agreement, it's really beneficial for the betel industry. At the same time, if the EDB or Export Agriculture Department can provide training sessions to newly entered local exporters on tactics and behavioral patterns of foreign buyers, it would be highly important for them to sustain in the industry.

Recommendations

The main problems faced by the cultivators were identified above. Possible solutions could be given as follows.

- Low productivity and lack of commercial orientation of betel farmers could be identified as main issues of betel farmers. According to the survey data, the farmers basically have the resources with them, but they don't have the knowledge and skill to utilize these resources efficiently. Therefore, farmers should be trained for betel cultivation. It should be done by crop specialists with sound practical knowledge because training elderly farmers may not be simple. Hence, the trainer should be confident to face the challenges. Further, farmers should be informed about the effort needed to get maximum harvest and they should be encouraged to look at most of the things with a commercial interest. A better understanding must be given on how to utilize limited resources efficiently, and on how to find new methods of betel cultivation, harvesting or fertilizing. Most of these practices are traditional and low productive. The Divisional Secretariat Office and other regional level institutions can involve in enhancing the productivity.
- The next nagging problem is the difficulty of getting quality planting material for cultivation. Rathnasoma (2008) reported that the Betel Research Institution has started a new project of breeding high yielding variety betel vines from *malabulath* with other betel types like *Mahameru* or *Ratadalu*. In the past they used to give planting material for cultivators, but due to the limitation of resources, it was stopped. Thus, if this project is successful, the Betel Research Station is planning to give high variety betel vines which produce large leaves and high yieldings for cultivators.
- The other common limitation of betel cultivation is lack of suitable supportive sticks for cultivation. Traditionally, the farmers use long sticks of wild trees like *varaniya*, *korakaha*, *mal kera*, *kabella*, *mora*, *andara* and *godapora*, (Rathnasoma, 2008), since they are very suitable. Presently, it is difficult to get these sticks and the trend is getting cross branches of *mahogany*, *tekka*, and *kithul* trees. Some farmers tend to use mature sticks of *kuratiya* wild bush in Kurunegala and Anuradhapura districts, and it is in limited supply due to the high transport cost. As alternatives, the Betel Research Institution is elevating single stick method (*Kohl Method*), concrete pole method, pipes painted with enamel and wrapped with ropes and fiber ropes method. Still these methods are under research level. Even though, some alternative methods are available, farmers do not use them. It's difficult to change the attitudes of the traditional village farmers, as they do not like to produce new methods.
- The next important issue related to the betel cultivation is fungal and bacterial diseases. They are common in any country and no chemical method could completely destroy the fungal diseases related to betel. Out of them, the "*campestris betlicola*" bacterial disease is

dangerous and it spreads in the entire land immediately. In such instances the entire cultivation should be destroyed and the land rested for one year. It is very dominant and it is the main limitation why people are reluctant to invest in betel cultivation. According to the Betel Research Institute, they have introduced an integrated method to mitigate the disease. Where, the cultivator has a greater responsibility in protecting his cultivation from this disease. For that his dedication on the cultivation, the proper knowledge with experience and knowing the correct way of fertilizing are very crucial.

According to Dr. Rathnasoma,

“Some careless farmers overuse fertilizers to get more harvest, but the immediate result is it gets the disease. Who did the mistake... mostly the people who engage in betel industry without any sense will be soon in trouble”

Betel grown by farmers with less experience and cultivated by newcomers are highly vulnerable to this disease. According to the survey data, only plots of two cultivators got the disease and they successfully mitigated it. The other precaution is controlling the speed of disease by water, air, pests, the equipment used, laborers and betel vines. These six possible ways of spreading the disease should be controlled by the cultivator. Further, the correct usage of fertilizer and chemical would help to mitigate the disease. Once affected betel vines are identified remove and burn them. A fungicidal mixture could also be used to destroy the affected parts. Normally fungicides are used to control bacterial infections. According to Dr. Rathnasoma, the following mixture should be mixed with 5 liters of water at once, and then you can use to spray the underneath of the betel leaves.

Lead fungicide	28 grams
Mancozeb	28 grams
Captan fungicide	28 grams

Conclusions

As discussed above the economic aspects of the crop prove that betel leaf is one of the most promising commercial crops which is capable of attracting substantial amount of foreign exchange to the country. This adequately justifies its classification as the “Green Gold”. It is further envisaged that if merely transportation and marketing facilities including the export channels are developed adequately the revenue generated by this leafy crop would be easily increased even with the present level of traditional agronomic practices. In fact, the revenue generated by the crop may be further magnified by many folds if the agronomic practices are scientifically practised.

In spite of such a tremendous economic potentiality of the crop, it remains neglected particularly by the scientists, technologists, administrators and the policy makers as well. Consequently, statistical data of betel leaf is still scattered and disorganized while its agronomy remains to be a matter of personal experience gained through traditional farming practiced generation after generation.

In addition, the post-harvest handling, processing and storage of the crop also have not been scientifically explored. Consequently, betel leaves worth millions of rupees are sold at a throw away price and sometimes remain even unsold and get wasted. This again indicates that the present level of revenue generated by the crop may be increased by many folds if appropriate post-harvest technologies are made available to the betel leaf growers and traders.

Therefore, a well-coordinated effort by the farmers, traders, scientists, technologists,



extension workers, administrators and policy makers is required to be initiated to boost up the national economy as well as the national employment generation through proper exploitation of this green gold.

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