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SUSTAINABLE AGRICULTURE INITIATIVE : RAINFOREST ALLIANCE CERTIFICATION PROGRAMME

Rainforest Alliance (RFA) is an organization, which has two main objectives, namely:

- a) preservation of the world's ecosystems; and
- b) protecting the people and wildlife that depend on these ecosystems.

This is done by transforming the way food is grown, wood is harvested and travelers are hosted. Companies, cooperatives and landowners that participate in the programmes of the RFA have to meet rigorous standards that conserve biodiversity and provide sustainable livelihoods.

RFA and the Sustainable Agriculture Network (SAN) – a coalition of independent, non-profit conservation groups – created the RFA certification. RFA standards cover all aspects of agricultural production, while protecting the environment, the rights and welfare of workers and the interests of local communities. RFA certifies coffee, banana, cocoa, orange and fern farms that are conforming to standards that lead to sustainable development. Some smaller crops often grown in association with these commodities are also certified, including Macadamia nuts and Platano (a variety of banana in Latin America).

As of March 2007, RFA has certified 10,000 farms and cooperatives, and over 240,000 hectares (over 600,000 acres) in 14 countries (including Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, and the Philippines), benefiting more than a million farm workers and their families, as well as certifying more than 100 million acres (40 million hectares) of forestland.

Sales of RFA certified sustainable coffee, bananas and chocolate surpassed US \$ 1 billion in 2006, and it is projected that it would leverage more

than US \$ 2 billion sales of certified wood in 2007. RFA is working with thousands of producers from small cooperatives to Fortune 500 companies, such as Kraft (for coffee), Chiquita (for bananas) Expedia (for sustainable tourism), Goldman Sachs (for green building).

The certification standards guide the farmers towards sustainable farm management and give independent auditors a concrete measure by which they evaluate social and environmental improvements. Farms that meet the standards are awarded the RFA certification, a prestigious seal that can be used to market agricultural products.

RFA certification is a unique programme as it is managed by a coalition of local groups that understand the culture, ecology, farming traditions, and governments. Local certifiers undertake the certification process that leads to lower costs, more cultural sensitivity and readily accessible representatives to help farmers, extension agents, traders and exporters. A written contract governs and monitors the use of seal, the handling of certified products, and marketable promotion. All farms are inspected every year and must show continual progress.

The certification process increases efficiency on farms, reducing costly inputs and improving management. Workers benefit from a cleaner, safer, more dignified workplace where their rights are respected. Certified farmers have better access to specialty buyers, contract stability, favourable credit options, publicity, technical assistance and premium markets.

Reference:

- RFA



MARKET ACCESS REQUIREMENTS FOR FRESH FRUITS AND VEGETABLES IN EU

EU Market for Fresh Fruits and Vegetables:

The EU market for fresh fruits in 2005 is estimated to be 75 million tonnes in volume terms. From 2001 to 2005, consumption of fresh fruits and vegetables has increased by 3.6%. Italy is the largest consumer and the largest producer of fresh fruits in the EU, followed by Spain. The imports of these countries are therefore relatively small. Germany and the UK have high levels of consumption and a limited domestic production and therefore rely heavily on imports. Belgium and the Netherlands have average market sizes, but are important in the fruit trade.

The EU market for fresh vegetables in 2005 is estimated to be 62 million tonnes in volume terms. Since 2001, consumption has increased by 1.5% in the EU, and the consumption is almost equal to the production in EU. EU relies less on imported fresh vegetables than for fruits. Italy has the largest consumption of fresh vegetables in the EU, followed by France, Spain and Germany.

Developing countries play a very important role in fruit trade and a substantial, but smaller, role in vegetables. In 2005, 36% of EU's fruit imports in value terms were from developing countries, while the share that of vegetables was only 11%. An important reason for larger share of imports in fruits category is due to EU's dependence on developing countries for their banana requirements.

Trends in Consumption

The food market in the EU is highly competitive and since consumers are not likely to eat more, they can only switch to other products. Consumption patterns and eating behaviour in EU relate strongly to income and life-style. Increased prosperity leads to changes in the choice of food products, with consumption of more value-added products and exotics.

Market Access Requirements in EU:

There are legislative and non-legislative requirements for market entry of fresh fruits and vegetables into Europe.

Legislative Requirements:

- ❖ *The General Food Law*, Regulation (EC) 178/2002, establishes that all food marketed in the EU must be safe and further lays down requirements on transparency in the food supply chain.
- ❖ *Regulation (EC) 852/2004* on the hygiene of foodstuffs defines certain specific hygiene requirements for food imported into the EU. The most important aspect of

this Regulation is that hygiene requirements based on a HACCP system.

- ❖ *Regulation (EC) 1881/2006* sets maximum levels for contaminants in foodstuffs marketed in the EU.
- ❖ *Regulation (EC) 882/2004* establishes that feed and food business operators in EU to inform the respective Member States (designated points of entry where official controls take place) about the arrival of their imported feed and food products and allow for inspection / control.
- ❖ *Regulation (EC) 1935/2004* serves as a framework for setting out the common principles and rules for the composition of materials and articles intended to come into contact with foodstuffs.
- ❖ In the European Union (EU) various legislative requirements regulate the labelling of foodstuffs. On the one hand there is general (horizontal) legislation, applicable to all food products, which is laid down in *Directive 2000/13/EC*. On the other hand there are specific requirements for specific foodstuffs like sugar, quick frozen foodstuffs or foodstuffs in which genetically modified ingredients are used.
- ❖ *Packaging Directive*: European Union has issued a Packaging Directive on legislation that is implemented by the member states. All companies and industries are under the obligation to conform to the packaging laws.

Non-Legislative Requirements:

Social, environmental and quality-related market requirements are of growing importance in international trade and are often specified by European buyers through labels, codes of conduct and management systems. These are discussed in brief below:

- ❖ **Social Issues:**
 - o The *Business Social Compliance Initiative* has been developed by the Foreign Trade Association (FTA), which is a branch organisation for European retailers. The FTA began in 2002 to establish a common platform for the various European Codes of Conduct and monitoring systems on improving social conditions in those countries where from European retailers are sourcing.
 - o *Occupational Health and Safety Issues*: Market access requirements from the private sector in the EU very often include certain minimum requirements to safeguard occupational health and safety (OHS). Especially for suppliers in developing countries,

where labour conditions are not always better, European buyers will focus on OHS.

❖ Environmental Issues

- o *Sustainable Agricultural Initiative (SAI)*, is a platform which was founded by three large food companies Danone, Nestle and Unilever. The initiative aims to enhance sustainable agriculture and help the industry to better cope with quality and safety problems in the field. SAI platform is currently focusing on a number of products including fruits and vegetables.

❖ Quality Issues

- o ISO 22000 is an international standard and defines the requirements of a food safety management system covering the entire food chain from “farm to fork” including: a) primary food producers through to food manufacturers / processors; b) retail and food service outlets; c) feed producers; d) transport and storage operators; e) producers of equipment and packaging material; f) producers of cleaning agents, additives and ingredients.
- o In 1998, the *British Retail Consortium (BRC)*, developed a standard on food safety, hygiene and quality. The standard is mainly applicable to the food processing industry, which is a major part of the food chain. Retailers are using this standard to gain transparency over their suppliers and their products – an issue which has become increasingly important in recent years.
- o The *Global Food Safety Initiative (GFSI)* was launched in 2000 by a retail-driven food business forum, International Committee for Food Retail Chains (CIES), which has more than 200 retailers and their suppliers worldwide as its members. The system benchmarks existing food standards against food safety criteria, and also looks to develop mechanisms to exchange information in the supply chain, to raise consumer awareness and to review existing good retail practices. The aims of the GFSI are to enhance food safety, ensure consumer protection; strengthen consumer confidence; benchmark requirements of food safety schemes; improve cost efficiency throughout the food supply chain.

Importers Requirements:

European importers also have a set of requirements from suppliers. Many of them have developed a policy for implementation of Corporate Social Responsibility, where social issues are highlighted. Adoption of principle of Good

Agricultural Practices (GAP) is another requirement by the retailers.

- ❖ A *consortium of European retailers (EUREP)* was founded in 1997, which now has a membership of over 500 companies (members include retailers, producers / farmers and associate members from the input and service side of agriculture). EUREP is committed to creating international standards for agriculture amongst others and aims to develop widely acceptable standards and procedures for the global certification of Good Agricultural Practices (GAP). EUREPGAP's standard for fresh fruits and vegetables is internationally recognised by European retailers.
- ❖ *Ethical Trading Initiative (ETI)* is an alliance of companies, non-governmental organisations (NGOs) and trade unions. ETI tries to promote and improve the implementation of corporate codes of practice, which cover supply chain working conditions. ETI primarily focuses on the UK market and aims to ensure that the working conditions of workers producing for the UK market must meet or exceed international labour standards.

Market Channels and Supply Chain Management

There is a strong tendency towards concentration in the supply of fresh fruits and vegetables in the EU. Direct trading contacts between producers or exporters and multiple retail chains are becoming less common, especially where this process is most advanced. Specialised importers or buyer groups are the direct business partners of producers or exporters. Some of these importers have also become providers of logistical service, quality controllers and coordinators of the supply chain of fresh produce.

Cross Cultural Issues

Cultural diversity has as much impact on product development as much it has on product promotion. Since EU is a region with multiple countries and diverse culture, it is important to modify the product promotion / product development strategies to suit the requirements of final consumer. The different cultural clusters in Europe could be broadly classified into:

- ❖ Anglo-American – UK;
- ❖ Scandinavian – The Netherlands, Denmark, Sweden and Finland;
- ❖ Pyramid / Paternalistic – France Belgium, Spain, Italy, Portugal, Greece;
- ❖ German – Germany, Austria, Poland, Hungary, Czech Republic

Reference:

- CBI, The Netherlands

OUTLOOK : SUGAR

The global production of sugar is expected to increase and exceed the estimated consumption in 2007-08, a trend similar to the previous year. High sugar prices during 2005-06 resulted in a substantial increase in global sugar production in 2006-07. With the growth in consumption lower as compared to production, the sugar stocks rose by 13.6 percent in 2006-07. Most significant increase in world sugar production is expected from Brazil. However, major importing and exporting countries such as India, Thailand, China and the Russian Federation are also expected to increase their production over the next five years.

In 2007-08, Brazilian sugar production is forecast to increase by 5 percent to around 35 million tonnes. In 2007-08, sugar production in China is forecast to increase by 3 percent to over 12 million tonnes. Despite a recent drop in domestic prices, incentives for increased sugar production are expected to remain strong in China, as prices are still 50 percent higher than that were prevailing three years ago. As a result, sugar production in China is projected to increase by 8 percent to nearly 14 million tonnes over the period to 2011-12, reducing the requirement for imports by 300,000 tonnes. Sugar production in India is forecast to rise by 5 percent to 26 million tonnes in 2007-08. As a result, exports are expected to rise significantly to around 4 million tonnes in this year. After declining for three years due to weather conditions, Thailand's sugar production recovered and increased by 29.3% in 2006-07. Thailand is projected to remain as one of the world's largest sugar exporters, exporting over 4.5 million tonnes of sugar per annum by 2011-12.

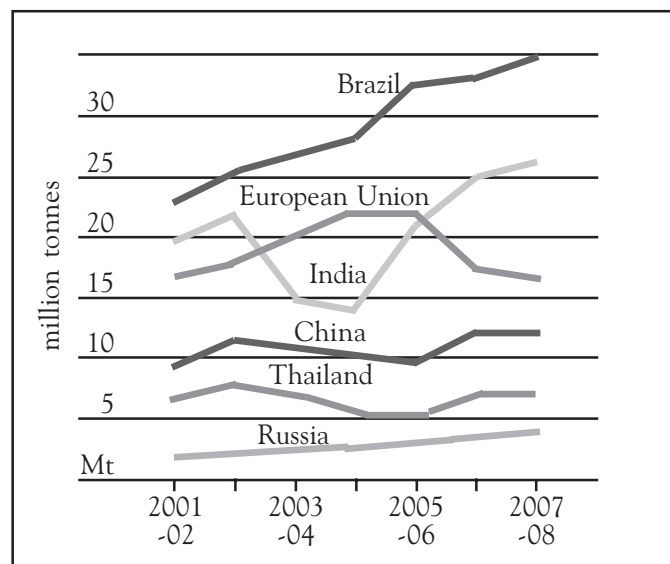
The implementation of the EU sugar reforms has resulted in a significant reduction in EU sugar production. In 2006-07, around 1.5 million tonnes of production quota was surrendered in the EU as a part of quota buyback arrangements. In 2007-08, similar buyback rate applies and the European Commission aims to reduce production quotas by a further 2 million tonnes. However, till the deadline of January 2007, only 650,000 tonnes of quota were sold. As a result, EU sugar production is forecast to fall by only 4 percent to 16.5 million tonnes in 2007-08. With the success of further buyback arrangements and resulting reduction in sugar production, EU is projected to undergo a trade reversal from a major sugar exporter to a large net importer of sugar, importing upto 4 million tonnes by 2011-12.

Australian sugar production declined by 6.6% in 2006-07. However, after a steady recovery, the Australian sugar production is forecast to increase by 10 percent to 5.1 million tonnes in 2007-08, resulting in a projected increase in volume of exports by 9 percent to around 4 million tonnes in

2007-08. With further increase in production, Australian sugar exports are projected to rise to around 4.1 million tonnes by 2011-12.

Russia and Ukraine are projected to lower their combined sugar imports by 2011-12. Sugar production in the Russian Federation, the world's largest importer, is forecast to increase by 9 percent to 3.8 million tonnes in 2007-08, which is further projected to increase to around 5 million tonnes by 2011-12. As a result, imports are projected to fall by around 1.5 million tonnes.

Raw Sugar Production



Source: ABARE

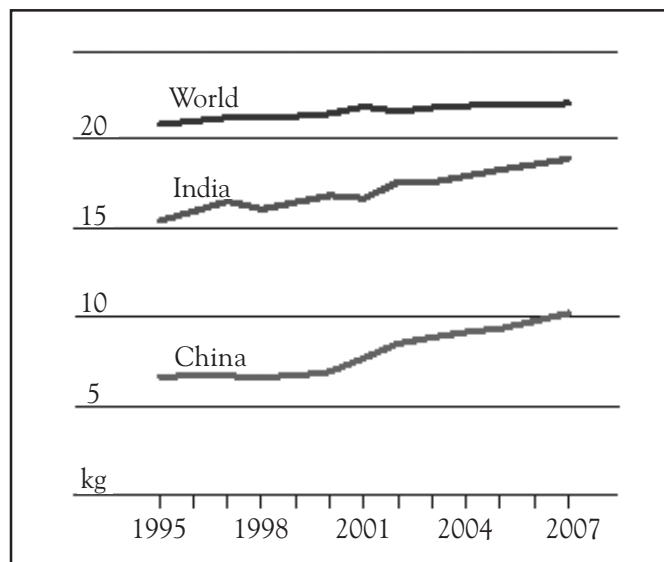
Prices

The world indicator price for raw sugar has estimatedly fallen by 27 percent in 2006-07. Despite rising ethanol demand and production and export limiting reforms in the EU sugar sector, the sugar prices are projected to decline by 2011-12. However, sugar prices are expected to recover slightly after 2009-10 as consumption surpasses production and stocks begin to fall.

By 2011-12, the area planted to sugar cane in Brazil is projected to increase by 50 percent. In Brazil, which is an efficient low cost producer of cane sugar, falling prices are expected to have a limited effect on sugar production over the period 2011-12. Besides, growing demand for ethanol generated by flex-fuel vehicles and blending of ethanol in petrol, and growing export demand for fuel alcohol is expected to provide cane producers with some security against decreasing sugar prices.

World Indicator Price for Raw Sugar


Source: ABARE

Sugar Consumption per Person per Year


Source: ABARE

Consumption

The consumption of sugar is projected to grow by around 2 percent a year by 2011-12 largely due to rising incomes and lower sugar prices. Significant growth in consumption is projected in Asia, where per person consumption of sugar remains low relative to the world average. As a result of population growth and rising incomes, sugar consumption is also forecast to grow strongly in North Africa and the Middle East.

Sugar Outlook

	Unit	2004-05	2005-06	2006-07 f	2007-08 z	2008-09 z	2009-10 z	2010-11 z	2011-12 z
World /a									
Production	Million Tonnes	144.4	149.7	159.8	162.0	165.0	166.0	164.0	160.0
Consumption	Million Tonnes	147.6	150.6	153.1	156.2	159.3	162.5	165.7	169.0
Stocks /b	Million Tonnes	61.4	60.5	67.2	73.1	78.8	82.3	80.6	71.6
Price									
- nominal	USc/lb	10.5	15.8	11.5	9.5	8.0	7.5	9.0	10.0
- real /c	USc/lb	11.2	16.3	11.5	9.3	7.6	7.0	8.2	8.9

/a October-September years. /b Historical estimates of closing stocks are based on individual country estimates of production, consumption, trade and stocks. Given possible under / over reporting of statistics in individual countries, changes in world closing stocks from year to year may not necessarily equal the difference in world production and world consumption. /c In 2006-07 US dollars. f ABARE forecast. z ABARE projection.

Source: International Sugar Organization; ABARE

Reference:

- ABARE
- FAS, USDA
- International Sugar Organization

EXPORT POTENTIAL OF TUNA FISH FROM INDIA

Tunas are one of the most important fish commodities in the world. Tuna fish is the second largest product in the international seafood trade with about 9 per cent of the total trade in value terms and 15 per cent in terms of quantity. World tuna landings touched a record high of 4.3 million tonnes in 2005. Growing demand for tuna products has been stimulating increases in the global catches.

Tuna resources in Indian Exclusive Economic Zone (EEZ) are estimated at 213,000 MT. The Indian tuna fishery comprises two distinct segments, the coastal fishery and the oceanic fishery. India's production of tunas and tuna like fishes during 2005 was about 39,948 MT. The principal components of tuna catch in India comprises of skipjack, mackerel tuna, frigate and bullet tuna, long tail tuna, big eye tuna and yellow fin tuna, little tunny, mackerels and seer fishes.

Production of Tuna in India during the year 2005

Types of Tuna	Production (MT)
Euthynnus affinis (little tunny)	22189
Auxis. spp (frigate / bullet tuna)	5804
Katsuwonus pelamis (skipjack tuna)	1614
Thunnus tonggol (longtail tuna)	4515
Other varieties (yellowfin tuna, bigeye tuna, mackerels, seer fishes)	5826

Source: Central Marine Fisheries Research Institute, Kochi

The gears and fishing techniques currently used for fishing tuna in the country are long lining, purse seine, pole and line and troll line fishing.

Tuna Fish Trade

Tuna, a relatively underutilized species in India, has been recently added to the export basket. During 2005-06 total exports of tuna fish from India stood at 16, 627 MT at a value of US \$ 15.68 million. During the year 2006-07 India has exported 17, 382 MT of tuna worth around US \$ 20.0 million, which included 333 MT of chilled tuna, fetching around US \$ 2 million. Tuna exported from India are mostly in frozen form.

In 2005-06, Japan imported 524 MT of fresh and chilled yellow fin tuna from India at a value of US \$ 3.22 million and 28 MT frozen yellow fin tuna. Exports of air-flown (fresh and chilled) yellow fin tuna from India to the US market also increased

from 4 MT, valued at US \$ 15, 442 in 2005 to 26 MT valued at US \$ 132, 326 in 2006. The higher Indian grades such as sashimi tuna realize as much as US \$ 17 per kg, while the medium grades sashimi tuna realizes US \$ 7-8 per kg. India also exports canned tuna to Middle East.

India's current export markets for tuna comprise of Tunisia, Thailand, Japan, Spain, Libya, Oman, Muscat, Sri Lanka, Netherlands, Vietnam, Iran, Turkey, USA, Mexico, Algeria, Singapore, and Lebanon.

Export of tuna products from India (2006-07)

Item	Quantity (MT)	Value (Rs. Lakh)
Chilled Tuna	332.73	627.28
Frozen Tuna (Yellow Fin)	8,393.39	4,140.32
Frozen Tuna (Skip Jack)	4,156.06	1,637.22
Frozen Tuna (Big Eye)	123.41	48.28
Frozen Tuna (Long Tail)	385.49	170.33
Frozen Tuna (Whole)	741.37	437.95
Frozen Tuna (Tonggol)	56.02	25.03
Frozen Tuna (Loins)	134.74	183.75
Frozen Yellow Fin Tuna Whole Round IQF	2,409.59	1,210.42
IQF Fish Steak (Tuna)	41.89	43.31
Frozen Tuna (Cubes)	0.50	0.58
IQF Tuna (Skip Jack)	452.56	183.58
Canned Tuna	154.51	152.51
Dried Tuna Flakes	0.02	0.02
Total	17,382.29	8,860.59

Source: Marine Products Export Development Authority (MPEDA)

Global Tuna Trade

Tuna captures and trade is affected by a wide variety of factors; both human and non-human induced. Human-induced factors include: trends in the demand of tuna commodities; operating costs of tuna fishing; developments in fishing capacity and technology; regulations governing tuna fisheries; and availability and cost of transport of tuna products.

Tunas are highly mobile, frequently moving between the EEZs of different countries and areas beyond the EEZs of any country. Bilateral agreements between Distant-Water Fishing Nations (DWFNs) and coastal states are implemented through the sale of fishing licenses to vessels, registered under DWFNs. The high mobility of the tunas and the vessels fishing them make it impossible to institute universal regulations to conserve them unless all the countries that have vessels participating significantly in the fishery agree to abide by the regulations. Thus, to prevent full exploitation or overexploitation of the tuna stocks Regional Fishery Bodies and Arrangements (RFBAs) has been established, aimed at the management of tunas in various ocean regions. The tuna RFBAs include:

- The Commission for the Conservation of Southern Bluefin Tuna (CCSBT), aimed at the sustainable management of southern bluefin tuna through measures such as quotas and import and re-export certificates under the Trade Information Scheme (TIS);
- The Inter-American Tropical Tuna Commission (IATTC), responsible for the conservation and management of the fisheries of tunas and related species in the Eastern Pacific Ocean (EPO);
- The International Commission for the Conservation of Atlantic Tunas (ICCAT), responsible for the conservation of tuna and tuna-like species in the Atlantic Ocean and adjacent seas;
- The Indian Ocean Tuna Commission (IOTC), aimed at the management of tunas and tuna-like species in the Indian Ocean and adjacent areas;
- Recently-established Western and Central Pacific Fisheries Commission.

According to the Fisheries and Aquaculture Department of FAO, total catches of tunas increased from 402,350 tonnes in 1950 to 3,782,379 tonnes in 1999; thereafter it decreased to 3,672,202 tonnes in 2000 and then increased to 3,692,701 tonnes in 2001. The catches of tunas in 2001 represented 63 percent of world catch of tunas, bonitos and billfishes. Skipjack is the principal species caught, followed by yellowfin, bigeye, albacore and three species of bluefin.

The main internationally traded tuna forms are:

- Raw material for canning
- Pre-cooked loins for canning, frozen
- Tuna for direct consumption (*sashimi* and other non-canning uses):
- Canned tuna
- Smoked and dried
- Oil and meal, pet food or animal feed

Growing demand for tuna products and continuous high exploitation of stock has kept tuna prices at higher levels. In recent years, the general price tendency of tuna is for a strong increase since 2005, after years of steady decline. During March 2007, the prices of tuna reached a peak of US \$ 2200/ MT. Despite the recent increases, the price of tuna, currently, have been relatively stable at around US \$ 1500/MT. Yellowfin from the Indian Ocean or from the Atlantic Ocean commands a higher price than yellowfin tuna from the Pacific Ocean. Demand for canned tuna is stronger in the EU than in the USA, which commands a better price in Europe in recent years.

Outlook

Low resources and limited catches in all major global fishing areas, and vessels laying idle due to high fuel prices, are likely to continue to increase global tuna raw material prices in future.

Though India has vast tuna resources, its exploitation to optimum level has not made much headway owing to lack of awareness about the resources and non-availability of appropriate technology and infrastructure for tuna fishing. However, recently India has been prioritizing the tuna fisheries development through capacity building and encouraging the coastal fishermen in harvesting the tuna and allied resources. According to the Seafood Exporters' Association of India (SEAI), tuna exports from the country are poised to touch 300 tonnes in 2007 and realise an average price of US \$ 5 per kg.

The Fishery Survey of India has initiated diversification in the exploratory surveys and research towards big eye tuna and tuna like fishes. Besides, the Marine Products Export Development Authority (MPEDA) has implemented schemes for conversion of the existing mechanized vessels to tuna liners. MPEDA, in its Vision Document has also prioritized popularization of the monofilament long lining system to enable even smaller vessel to target species like tuna. In addition, MPEDA has proposed development of Andaman and Nicobar Islands as a major tuna fishing base by providing basic infrastructure facilities like deep sea fishing berth, freezing facility and facility for chartered flights to airlift sashimi grade tuna, and improvements in tuna fishing techniques and on board handling through technical know-how.

Reference:

- MPEDA
- Central Marine Fisheries Research Institute Kochi
- Fisheries Survey of India

SOILLESS PRODUCTION OF CUT FLOWERS

Soilless systems for cultivation of cut flowers has been expanding steadily world over with higher crop yields and better quality produce, overcoming its associated challenges and higher investments.

Soilless system of cultivation or hydroponics is popularly known as growing plants in a soilless environment using artificial substrates under controlled conditions. Growers worldwide have been shifting to this alternative system of cultivation of cut flowers largely due to the need to avoid soil-borne pests and diseases, particularly when soil fumigants such as methyl bromide are being phased out due to environmental concerns. Further, management of poor soils that are low in nutrients compacted and with deficient structure is becoming increasingly difficult due to the associated cost and less success. By using the system, growers are not only able to grow susceptible varieties that are difficult to grow in infested soil but are also obtaining higher yields and better quality.

There are about 125 varieties of flowers in the global market that is grown hydroponically. Presently, roses are the most commonly grown cut flowers in substrates or soilless systems. Other popular varieties include gerbera, chrysanthemum, tulips, lily, carnation, African daisy and freesia.

Holland and Israel are the pioneers in hydroponic cultivation of roses. To enhance production, artificial substrates together with greenhouse environment control were introduced in 1980s in Holland. Presently, all roses grown in the country are in greenhouses using substrates and water is reused after purification to avoid chemical contamination. Year-round production of roses using highly efficient, sophisticated and computerized system has become a practice due to high investments involved. According to the industry sources, in Holland, on about 600 ha (approx 400 farms), substrates are reportedly used. Preferred materials for rose production include rock wool, perlite and vermiculite.

All the roses grown in Israel are presently, grown in soilless systems. Preferred substrates are generally those that are sourced locally and are cheaper, such as tuff or pumice stone. Coconut coir as a substrate is also becoming popular in the

country. After its success with rose, Israel is currently, adopting soilless systems for other cut flowers such as gerbera, lily, anemone and carnation.

Rose growers in Africa and Latin America have been increasingly shifting to substrates for rose cultivation. Growers in Kenya, Brazil, Colombia, Ecuador and Uganda are increasingly producing cut roses in soil-less systems. An estimated 50% (around 500 ha) of all carnations presently produced in Colombia are using substrates. However, in these countries the technology is not restricted to cut flower production alone but has also revolutionized propagation. Breeders and propagators in these countries reveal that they are able to produce about 30 million rootstocks or 8 million grafted miniplants per hectare in shorter time periods and are of prime quality.

Gerberas are another flower increasingly grown in substrates, which is very susceptible to soil fungi and nematodes. Good results have been obtained with soilless cultivation of gerberas in Italy, the Netherlands, France and in developing countries such as Colombia, Costa Rica, Brazil and Uganda. A large variety of bulbs such as tulips and lilies are also now being grown in substrates in Australia, Holland, Brazil, Colombia and Costa Rica, and soilless iris, ranunculus, and daffodils in France and the Netherlands. Flowers previously considered as not fit for soilless production such as alstroemerias, lisianthus (eustoma), and gypsophyla are also being grown successfully in Spain, Mexico, Belgium, Brazil and Greece, to name a few.

Substrates used for soilless production of cut flowers are of large varieties, ranging from sand and pumice stone in Uganda to pine bark in Zimbabwe, coconut fibre in Brazil, rice hulls in Colombia, and coffee husks in Costa Rica. There are a number of different active commercial systems available for soilless production. These are:

- Nutrient Film Technique (NFT)
- Ebb & Flow (also referred to as Flood & Drain)
- Drip Fed Media Based Culture
- Aeroponics
- Raft Type Systems

Most suited systems for cut flower production are NFT and Flood and Drain systems. In NFT system, plants are grown in equally spaced holes in plastic gullies and the roots of the plants are bathed in a thin nutrient rich film of solution that is ideally balanced in terms of nutrition, oxygen, pH and strength. As this is an enclosed re-circulating active system, it ensures maximum production combined with resource conservation. Absence of growing media in NFT systems reduces costs but ensures the need to use high quality pumps and reliable power supply.

In Flood and Drain system, a tray or bed of plants are alternatively flooded and then drained with the required nutrient solution. The flooding of the media or plants acts to purge the media of stale oxygen depleted air and then draws in fresh oxygen rich air to the root-zone when the system drains back into the nutrient tank.

Advantages of soilless production of cut flowers

- Soilless production can reduce irrigation water usage of cut flowers by 70% to 90% by recycling the run-off water;
- Fungal diseases can be significantly reduced through controlled humidity as soilless systems reduce the amount of exposed moisture in the growing environment and effectively prevent wetting the leaf surfaces, which provides the fungal spores with the perfect medium to proliferate;
- Labour and resource inputs associated with soil management, such as digging, weeding, fumigating and steaming are substantially reduced with soilless systems;

- Integrated Pest Management (IPM) can be effectively used in the system and can virtually eliminate the need to use toxic and expensive chemical insecticides;
- The system allows nutrients to be reclaimed, re-balanced and re-used;
- The system enables growers to take full advantage of the varieties' genetic potential and produce outstanding crops by using optimum nutrient formulations;
- Soilless production in greenhouses protects plants from unpredictable weather patterns; and
- The system enables growers to produce cut flowers at times when the market prices are highest.

The greatest challenge in soilless production of cut flowers is with regard to the high investments. According to industry sources, initial costs increase by about 35% compared to traditional production in ground beds (where soil is fumigated and steamed). However, this is well compensated by an increase in planting density by almost 40%, giving an equal percentage of yield increase, with higher percentage of premium grade produce. In addition to higher yields and quality, the system provides scope for round the year production of all varieties by shortening the production cycle. Other challenges faced by the system are with regard to recirculating the nutrient solutions and associated disease management with use of contaminated nutrient solution, and disposal or recycling of substrates once the production period is over.

Reference:

- Flora Culture International

AGRICULTURE IN TRADE POLICY REVIEW: INDIA

During the last five years, Indian economy has been experiencing a growth rate of nearly 7%. However, the contribution of agriculture sector, the biggest employer of the economy, to the GDP has been declining continuously, from almost 24% in 2001-02 to 18% in 2005-06, raising concerns about poverty and living standards in the rural areas of the country.

Key agricultural crops in India are rice, wheat, sugarcane, cotton and oilseeds. Horticulture crops, fisheries and animal husbandry are some promising segments contributing 54% of total agriculture output. Demand for horticulture products is expected to increase after the opening up of the retail sector to foreign investment. The Tenth Five Year Plan has aimed for 8-9% growth of the agriculture sector per year giving a boost to the food processing sector, which is currently, generating around 250,000 jobs per year. In order to promote the growth of the food processing sector, the Government has included the sector under the priority sector, for which commercial banks are required to set aside a part of their lending. Other incentives for the sector include zero excise duty, tax holiday and other concessions.

In terms of value, agriculture exports from India has increased from US\$ 6.4 billion in 2000-01 to US\$ 10.8 billion in 2005-06. However, share of agriculture product in the total merchandise exports declined from 14.1% to 10.4% during the same period. Import of agriculture products has remained minimal and accounted for 4.9% of total merchandise import in 2005-06. The largest share is accounted by edible vegetable oil.

The slowdown of the agriculture sector can be mainly attributed to declining public sector investment. Though private sector investment has increased, it has been confined to niche areas such as food processing. Regulation of agriculture market and movement of major crops has dissuaded the private sector in investing further in this sector. Besides, land ownership pattern of the country has resulted in increasing fragmentation of the land, thus, preventing the development of scale economies and mechanization. The sector is also characterized by low level of R&D.

Nevertheless, some initiatives have been taken by the Government, particularly to improve processing and marketing of agricultural products. For example, foreign direct investment has been permitted in tea plantation since 2002 and in horticulture, animal husbandry and food processing and retailing since 2006. The National

Horticulture Mission aims to increase output to 300 million tonnes by 2011-12 and to enhance export of these products. Investment in a tea fund is also expected to be used for re-plantation of tea gardens in the country. Contract farming have been encouraged to establish linkages between farmers and processors. The central government has circulated a model law to allow for direct marketing and contract farming arrangements for adoption by the states.

Agriculture Policies

Agriculture policy in India is guided by a number of goals: food self-sufficiency, ensuring remunerative prices for farmers and stable price for consumers. Number of measures have been taken to achieve these goals including provisions of direct subsidies, input subsidies, and price control.

The first National Agriculture Policy, announced in July 2000, aims to raise annual growth in agriculture over the next two decades to over 4%, based on efficient use of resources, while conserving India's soil, water and biodiversity and equity across regions. Accordingly, a number of programmes have been introduced like Bharat Nirman, the Horticulture Mission, and initiatives to improve agriculture credit, micro irrigation and agriculture market reforms.

Import Policy:

Although protection against import of agriculture products has declined considerably, India has continued using trade policy to support its overall goal of self-sufficiency and price stability. Tariff is still adjusted from time to time to ensure domestic supply of key products. The applied tariff rates on agriculture products ranges from 0% to 182%. The highest rates are for beverages, spirits and vinegar, miscellaneous edible preparations, coffee and tea, animal or vegetable fats and cereals. For the majority of products, there remains a considerable gap between the applied and bound rates, ranging from 10% to 300% enabling the Government to raise its standard rate of tariff on some agriculture products. Imports of tallow, fat and oils of animal origin, animal rennet, wild animals and their parts beef and its products, natural sponges, fish wastes, domestic and wild birds and poultry from countries reporting outbreak of avian influenza, are prohibited for reasons of public health and safety and on moral/religious grounds. India, however, provides preferential access to agriculture under free trade agreements.

Export Policy:

Majority of agriculture exports are unrestricted except some items, which are regarded as essential and sensitive. For example, export of pulses and sugar (excluding sugar that are subject to a tariff rate quota in the United States and the EC) were prohibited, to maintain domestic supplies of these products in order to keep the price at a reasonable level. In order to boost agriculture exports government has set up agri-export zones. These zones receive assistance from central and state governments to improve efficiencies in supply chains of the identified products. Currently, there are over 60 agri-export zones sanctioned by the Central Government and monitored by the Agriculture and Processed Food Products Export Development Authority (APEDA). However, of the total investment of Rs. 17.18 billion envisaged over 2002-07, just around 50% has been realized. Moreover, exports from these zones during 2005-06, were around 43% of expected exports. In 2004, Vishesh Krishi Upaj Yojana (Special Vegetable Products Scheme) was introduced to promote exports of fruits, vegetables, flowers, minor forest produce, dairy, poultry and their value added products.

Internal Policies:

The internal policies are driven largely by food nutrition and livelihood security considerations. The internal measures include direct subsidies for input and indirect assistance through price support. Some direct support is also provided in the form of grants for infrastructure and research. Public investment in agriculture and allied activities has been declining since the mid 1980s but has shown an increase since 2002-03. During 2002-04, public investment in the agriculture sector was around Rs. 105 billion, while private investment was Rs. 352 billion. Though private sector investment has increased but it has not been able to fully compensate for the loss of public sector investment up to 2002-03. Spending on subsidies has however been rising, which was estimated at over Rs. 350 billion in 2002-03. Spending on fertilizer subsidy has increased from Rs. 138 billion in 2000-01 to Rs. 182.99 billion in 2006-07. The subsidy provided by the state Governments in the form of low or zero tariffs for electricity used in agriculture amounted to Rs. 73.5 billion in 2002-03. The total subsidy for water for irrigation grew from Rs. 137.6 billion in 2000-01 to Rs. 154 billion in 2002-03. It has been suggested that such spending has crowded out public sector investment in infrastructure and other activities.

Indirect subsidies are provided through access to credit and insurance policies. Agriculture credit has increased from Rs. 869.8 billion in 2003-04 to Rs. 1253 billion in 2004-05 and almost 84% of the target of Rs. 1410 billion for 2005-06. However, in spite of various schemes initiated by the government, share of small and marginal farmers in total credit to the agriculture sector is falling. Though declining, the share of non-institutional sources in total credit still constitutes a significant portion. To assist the small farmers who are mostly dependent on such credit, the Government has recently announced a 7% limit on interest rates charged for loans up to Rs. 300,000.

Support to Agriculture Crops:

In order to help the farmers to get remunerative prices, under the Price Support Scheme (PSS), Minimum Support Prices (MSPs) are issued for major crops. For products not covered by the MSPs, but for which prices may decline significantly as a result of bumper crop and a glut in the market, the Government undertakes 'market intervention' support (MIS) upon specific request from the states. The loss incurred is shared by the central and the state Governments. Actual losses under MIS were Rs. 429 million in 2002-03 and Rs. 56 million in 2005-06.

Government introduced Targeted Public Distribution System (TPDS) in 1997. Beneficiaries under the scheme in the Above Poverty Line (APL) and Below Poverty Line (BPL) are currently 115.2 million and 65.2 million, respectively, as per the caloric requirement laid down by the Planning Commission. Besides, the Government also provides an emergency-feeding programme, a village Gramin Bank Scheme to ensure supply of grains to food-scarce villages or areas as notified by the state Governments. Between 1996-97 and 2006-07, the Government has sanctioned the establishment of over 13,000 such grain banks in different states.

The cost of maintaining buffer stock by the Government and thus the overall food subsidy rose substantially to Rs. 241.8 billion by 2006-07. The Policy Review raises concerns that because the costs of Food Corporation of India (FCI) are covered by the central Government, it has little incentives to improve efficiency, while the targeting of the TPDS could be improved significantly. Nevertheless, efforts are being made to improve the operational efficiency of the FCI, and it has resulted in saving of Rs. 1.83 billion up to 2006.

Reference:

➤ WTO

NEWS FOCUS
FDA posts melamine safety/ risk assessment in food

The US FDA has posted an interim melamine and analogues safety/risk assessment that describes the risk to human health associated with eating pork, chicken, fish and eggs from animals that had been inadvertently fed with animal-feed that may have been adulterated with melamine and its analogues.

FDA developed the safety/risk assessment in response to their ongoing investigation of contaminated vegetable protein products imported from China that were mislabeled as "wheat gluten" and "rice protein concentrate." Based on currently available data and information, the results of the safety/risk assessment indicate that the consumption of pork, chicken, domestic fish, and eggs from animals inadvertently fed with animal-feed contaminated with melamine and its analogues is very unlikely to pose a human health risk.

Source: Institute of Food Technologists (www.ift.org), June 2, 2007

Pakistan chilli exports fall 60% due to low yields and fungus attacks

Pakistan's red chilli exports have declined by 60% during July 2006 to May 2007 over the same period of the previous year due to low yield and fungus attacks on the crop in the province of Sindh.

Sindh produces 85% of Pakistan's chillies. From July to May 2006-07, the province has produced around 84,200 tonnes of chillies. Pakistan's chilli exports have also declined due to high levels of aflatoxins in recent years.

In order to overcome this crisis, the Sindh Chamber of Agriculture, Pakistan has urged the government to provide storage and mechanical drying facilities in Kunri, a major chilli market center and send a delegation to India for exploring the procurement of storage technology.

Source: The Public Ledger, June 6, 2007

Low cardamom output in Guatemala lifts crop prices

According to the European spices traders, there has been a sustained rise in the price of Guatemalan mixed yellow quality (MYQ) cardamom over the course of the 2006-07 season due to smaller output. The traders also report possibility of further increases in prices in future. The prices of MYQ has been reported as high as US\$ 3,900 a tonne (cif Europe), compared to around US\$ 3,100 a tonne in the previous season. Traders have been attributing this rise largely to small crops in Guatemala and Guatemala not having any competition from any other sourcing country.

Trade estimates have pegged the 2006-07 cardamom output in Guatemala at 20,000 to 21,000 tonnes compared with 25,000 tonnes in 2005-06 and 32,000 tonnes in 2004-05.

Source: World Commodities Weekly May 21, 2007

Slow demand keeps Indian turmeric prices low

Slack demand, plentiful carryover stocks and a good monsoon have been keeping Indian turmeric prices low, with traders expecting further price decreases. Stocks are reportedly building up in major centres such as Sangli, Erode and Nizamabad.

The rate in the Sangli spot market has fallen by around Rs. 100 a quintal, as demand in the local market is negligible. According to market sources, the market is likely to remain weak as the off-season has set in and there is no export demand at present. The average monsoon predicted this year is likely to add further bearishness to the turmeric market.

However, demand from Middle Eastern countries are expected to pick up around August, firming the growth in demand. Market sources reveal that it would take a 50% to 60% increase in demand to strengthen prices.

Source: The Public Ledger, June 5, 2007

The news items and information published herein have been collected from various sources, which are considered to be reliable. While every care has been taken for authenticity of the material published, Exim Bank accepts no responsibility for authenticity or accuracy of such items.

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