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Government of India
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Tel : 0484-2333610-616, 2347965
Fax : 0484-2331429-2334429
E-mail : spicesboard@vsnl.com
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SPICE INDIA

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INDIAN SPICE INDUSTRY

IN MARCH ISSUE

FIRST SPICE PARK IN CHHINDWARA COMMISSIONED

Shri.V.J.Kurian IAS, Chairman, Spices Board delivering the welcome address. Also seen in the picture are… (from left) Shri.Vishvanath Okte, Member, Spices Board, Shri. Deepak Saxena, MLA, Chhindwara, Shri.Balkaran Patel, Member, Spices Board, Shri.Kamal Nath, Union Minister for Commerce & Industry, Shri. N.K. Mathur, Chairman, STCL, Shri. Prakash Uttamchand Wadhwani, Member, Spices Board, Shri. K.C. Ponnana , Managing Director, STCL.

Shri Kamal Nath, Hon'ble Union Minister of Commerce & Industry inaugurated the first Spice Park in Chinndwara in Madhya Pradesh on 17 February, 2009. The Spice Park has come up in an area of 18 acres in Laas village, Umranala, near Chhindwara. The park consist of a Garlic Dehydration Plant set up by the Spices Board and a Steam Sterilization Plant set up by STCL Ltd., another Government of India undertaking.

In his inaugural address the Minister said that the Park will be an asset to the spices growers. The establishment of regional crop-specific Spices Parks elsewhere in the country is a major initiative of the Government as part of its commitment that any growth in the country should be more of agriculture-specific and pro-farmers. He recalled how he dreamt of a Spice Park like this in Chhindwara. Few years back, one night while he was walking on the roads of Umranala village he happened to watch vegetables like to-

Shri. Kamal Nath, Union Minister for Commerce & Industry addressing the gathering after inaugurating the Spice Park in Chhindwara.

Shri. Deepak Saxena, MLA, Chhindwara, speaking at the occasion.

Shri.Vishvanath Okte, Member, Spices Board, making the felicitation

Shri.Balkaran Patel, Member, Spices Board, felicitates

mato, cauliflower, etc. were lying on the road side for want of storing and marketing facilities. From that moment he felt the necessity to improve the sad plight of the farmers which resulted in the setting up of a Spice Park at Chhindwara.

The Minister requested the farmers to make use of the facilities available in the Park. He also informed the farmers that the machineries installed in the Park are imported from Germany and with the help of this, the vegetables and spices grown by the farmers could be processed and sold at high rates abroad. The steam sterilization facility will enable to boost the export of quality spices and spice products to the developed countries like Britain , Japan , USA , etc. which will pay a premium price to the farmers.

The foundation-stone for this Park was laid by Sri Kamal Nath himself on August 19, 2007.

Shri. V.J.Kurian IAS, Chairman, Spices Board in his welcome address, informed that the Board will help the farmers of this region by arranging training programmes on good agricultural practices, post harvest operations, advanced process-

ing practices and also educating them on global food safety and quality standards. He also stated that the Spices Board will assist the farmers in marketing and export promotion of garlic products. He called upon the farmers of this area to expand the area of cultivation and produce more of garlic.

Shri N.K.Mathur, Chairman, STCL said that all the spices including chillies being grown in the Chhindwara will be processed using the steam sterilization facility with more avenues of marketability.

Shri Vishwanath Okte, Shri Balkaran Patel, and Shri. Prakash Uttamchand Wadhwani, Members, Spices Board, Shri. Nikunj Srivastav, IAS, District Collector, Chhindwara, Chairmen, APMCs of Saunsar and Chhindwara, Mr. Rajababu Singh, Superintendent of Police, Chhindwara, industrialists, farmers and general public were present at the inaugural function of the Park. Shri Deepak Saxena, MLA, Chhindwara delivered felicitation speech. Sri V.J.Kurian. IAS, Chairman, Spices Board welcomed the gathering. Sri K.C.Ponnana, Managing Director, STCL Ltd. proposed a vote of thanks.

Shri. Prakash Uttamchand Wadhwani, Member, Spices Board, presenting a cardamom garland to the Minister.

Shri.Kamal Nath, Union Minister for Commerce & Industry switching on the dehydration Plant.

The process of Dehydration of garlic is being briefed to the Minister

A view of audience attending the function

GARLIC DEHYDRATION PLANT

The state-of-the-art Garlic Dehydration Plant in the Spice Park at Chhindwara has the capacity to process 30 tonnes of raw garlic and the finished products of Flakes and Powder will be six metric tonnes a day. It has the capacity to process 5,000 tonnes of raw garlic per season

The Garlic plant can function only for four months in a year depending upon the availability of raw garlic whose production is seasonal. Currently, there exists a mismatch between availability of raw garlic and the processing capacity of the plant. For the plant to sustain its operations throughout the year, the Spices Board is exploring the possibilities of processing vegetables, fruits and medicinal plants like Niger Seed, Onion, Potato, Cabbage, Carrot, Peas, Spinach, etc. which are grown abundantly in this area. At present, the Dehydration plant will be operated by M/s Flavourit Spices Trading Limited, a company promoted by the Spices Board.

STEAM STERILIZATION PLANT

The Steam Sterilization and grinding unit of the STCL, set up at a cost of Rs. 8.00 crores, has the capacity to process two tonnes of raw material. Steam Sterilization has been widely accepted as a technology to improve the quality and safety of the spices and herbal products. Steam sterilization unit stimulates the exports of safe and quality spices of small exporters who cannot afford to invest in costly technology by themselves. The proven state-of-the-art process technology designed by the overseas M/s SteamLab Systems ensure maximum debacterisation and preservation of the products' properties and sterilization at any temperature level of any product in small or large volume.

PARK FOCUS ON CHILLIES & GARLIC

The Chhindwara Spice Park focuses on garlic and chillies grown in Chhindwara and surrounding areas. As per the latest statistics, this region grows 33,228 metric tonnes of garlic in 2,769 hectares while 25,152 metric tonnes of chillies in 3,144 hectares.

Madhya Pradesh is the second largest producer of garlic in the country with 1,82,500 metric tonnes in 41,735 hectares. India exported 716 metric tonnes of garlic and garlic products valued at Rs. 741.00 lakhs during the year 2007-08.

Though Chhindwara is a large producer of garlic and chillies, Due to lack of scientific facilities like of cleaning, grading, processing, steam sterilization, warehousing and organized marketing facilities, the farmers of this region were not able to sell their produces at good prices. Now the Spice Park may be a good remedy for the problems of farmers of this area.. The Garlic Dehydration Plant and the Steam Sterilization Unit are the major

attractions of this Park. The Government of India has already spent Rs. 20.00 crores for this project. A Quality Testing Laboratory will also be set up in the Park shortly.

M/s KITCO, a Government of Kerala Consultancy organization was the Project Consultant for the execution of the Park. M/s ARCON Infrastructure, Nagpur were the contractors for the construction of the Spices Park . The services of other governmental agencies like APEDA and NAFED will also be available to the Spice Park .

☆

COVER PHOTOS

(FROM TOP LEFT CLOCKWISE)

1. **View of the Spice Park in Chhindwara**
2. **Shri.Kamal Nath, Union Minister for Commerce & Industry inaugurating the Spice Park in Chhindwara by cutting the ribbon**
3. **View of the dias: (seated from left are)**
   Shri.V.J.Kurian, IAS, Chairman, Spices Board, Shri.Vishvanath Okte, Member, Spices Board, Shri.Balkaran Patel, Member, Spices Board, Shri.Kamal Nath, Union Minister for Commerce & Industry, Shri.N.K.Mathur, Chairman, STCL, Shri.Frank Schiebschick, CEO, Steam Lab, Germany, Shri.K.C.Ponnana, Managing Director, STCL, and Shri.S. Kannan, Director (Marketing) Spices Board (standing)
4. **Steam Sterilization, Grinding & Packing Plant**
5. **Garlic Dehydration Plant**
6. **Administrative office of the Spice Park**
7. **The Minister, Chairman, Spices Board, Member, Spices Board, Chairman, STCL after unveiling the stone.**

IMPORTANCE OF NATURAL ENEMIES IN CARDAMOM PLANTATIONS

S.S. Chandrasekar,
S. Varadarasan,
M.A. Ansar Ali and
B. Gopakumar
Spices Board
Indian Cardamom Research Institute,
Mylaldumpara - 685 553,
Idukki District, KERALA

Our country is blessed with "Queen of spices", the cardamom and is being intensively cultivated by our efficient farmers with a gradual increase in the productivity. In the early years of cardamom cultivation

(i) the cardamom habitat was least disturbed,

(ii) the shade & soil condition were not much altered with a very low level of imposition of chemical fertilizers and insecticides, and so

(iii) a lot of natural enemies of pests and diseases were available; pest problem was also less.

But, what is the trend now?

With the intensive cultivation of cardamom,

(i) the shade level and soil tillage are being reduced,

(ii) pest damage intensity increased,

(iii) many minor pests reached major pest status

(iv) build-up of newer pest problem.

To overcome the pest problem, planters resort to excessive use of insecticides, which lead to elimination of natural enemies and outbreak of minor pests.

What should be our approach?

A lot of natural enemies are available in our cardamom plantations. But, they are in a very low profile due to excessive and indiscriminate use of chemical insecticides and fertilizers; in other words, all operations are not being followed on need-basis. So, our approach must be in such a way that natural enemy population must be conserved and augmented. If this is achieved, the natural enemies themselves will take care of the pest problem to a large extent; the remaining population of pests can be managed by need-based ICRI's IPM package, i.e., cultural, mechanical, behavioural and chemical methods.

Role of Natural Enemies

All cardamom plantations are naturally gifted with a lot of natural enemies to have a check on pests and diseases by predating, parasitizing and infecting on pests and

pathogens of cardamom. In the name of intensive cultivation, planters resort to excessive and indiscriminate use of chemical insecticides, i.e. with

Higher dose of insecticides

- Higher frequency of insecticides
- repeated use of same insecticides without rotating
- mixing of different insecticides
- mixing of insecticides and fungicides
- mixing of insecticides and fertilizers,
- mixing of insecticides and biocontrol agents.

This leads to complete elimination (killing) of pests and natural enemies. Under this condition, if any other living organisms (minor pests) colonize on cardamom plantation, where THERE IS NO PESTS AND NATURAL ENEMIES, they multiply very fast and reach the status of major pest in a short time. This is just like entering-in a vacant railway compartment. At the same time, if the plantation is managed with need-based application of insecticides and fertilizers,

- the population of natural enemies might have retained / not eliminated.
- pest population might have managed, in such a way that the pest damage is negligible.
- minor pest outbreak and thrips resurgence problem would not have occurred.

ICRI's study:

At the Indian Cardamom Research Institute (ICRI) a study on "Comparison of natural enemy population with different methods of plant protection measures" was made.

The results showed that

(i) in the less insecticide applied plots, where four to five insecticide sprays per year were used, natural enemy population was more (7.2 per cent),

(ii) in the plots, where ICRI's Integrated Pest Management (IPM) package was followed (seven rounds of insecticides) the pest population was under check and the natural enemy population was higher(6.8 per cent). There was also no report of whitefly or red spider mite outbreak. Thrips resurgence was also not noticed.

(iii) In the high-insecticide usage plots, where insecticide application was done at 21-days interval, thrips resurgence was noticed along with whitefly problem. Natural enemies were eliminated (0 per cent).

This comparative study clearly indicates the importance of natural enemies in reducing / managing pest population in the cardamom plantation. If the ICRI's IPM schedule is followed for the management of pests of cardamom, the pest problem could be managed (not controlled), the population of natural enemies could be conserved, which in turn prevent minor pests to invade cardamom. So, the natural enemies are really to be conserved and multiplied in cardamom plantations by adopting Integrated Pest Management package for getting sustainable yield. ☆

TRANSFER OF TECHNOLOGY ACTIVITIES - AT A GLANCE

K.M.Kuruvilla, K.Reji and J. Thomas
Spices Board
Indian Cardamom Research Institute,
Myladumpara

The transfer of technology activities aimed to bridge a gap between the current yield levels realised in the plantations and the potential yield of the spice crops observed in the research stations / elite farmers' field. The technologies evolved in various research institutions with respect to production, protection and scientific post harvest practices on crops are to be transferred for field implementations. Under the conventional network programme, it may take considerable delay in extending the proven technologies to farmer's field. In order to overcome the delay and speedy implementation of the improved technologies attained for achieving enhanced productivity with respect to yield and quality of spice crops ICRI of the Spices Board has diversified its extension activities.

The primary mandate of the institute is to develop suitable production and post-harvest technologies small and large cardamoms, vanilla. The institute also undertakes the adaptive research on other spice crops like black pepper, ginger, turmeric and herbal spices which are the companion crops cultivated in the cardamom eco system. The performance of the cardamom clones are location specific and by virtue of its performance the cardamom tract is categorised into various zones earlier (A, B and C zones). With the adoption of intensive cultivation practices has increased the yield levels significantly in the plantations accompanied with environmental problems. A sustainable production under the field adoption of Good Agricultural Practices is the only option to answer the challenges encountered in the plantations.

The institute is implementing the transfer of technology programmes through training, conducting seminars, scientists – farmers interface, mobile agri – clinics and residential training on *Good Agricultural Practices* (GAP) to unemployed youths for quality spice production. Supply of organic inputs and bioagents like *Trichoderma sps, Pseudomonas sps,* EPN (Entomopathogenic Nematodes) in cadaver form for the management of various diseases and pest (Root grub) to farmers is being undertaken. Soil analysis for major nutrients is being carried out for fertiliser recommendation in the cardamom plantations. Need based advisory field visits to cardamom plantations are also un-

dertaken on request of the farmers. Technology dissemination through All India Radio / Dooradarshan and establishing demonstration plots in the cardamom tract is practiced.

Training : The training programmes are organised for farmers, SHOs (Self help Groups) women entrepreneurs, officials of the state and central governments on *Good Agricultural Practices* (GAP) for quality spice production , organic farming and production technology of bioagents , vermicompost and other organic inputs like Panchagavya, egg amino extract, fish amino extract etc... at the Research Institute, Myladumpara and in various spice crops grown areas. Scientists – farmers interface is another extension programme in which scientists and farmers participates in the open house interaction to sort out the field problems encountered in the plantations.

Bio-agents : Various bioagents are employed for the management of diseases of spice crops. The technology for the production and use of bioagents like *Trichoderma* and *Pseudomonas* has been standardised. These bioagents are supplied to farmers on request. EPN (Entomo Pathogenic Nematode) in cadaver form is also distributed to farmers for the management root grub problem in the plantations on trial basis.

Good Agricultural Practices (GAP) for Quality Spices production : The Spices Board has initiated a residential training programme of three months duration on Good Agricultural Practices (GAP) for quality spices production to unemployed youths of India. The major objectives of the training programme are to create a parallel extension system in rural areas where Spices Board operates its development activities. The training programme was designed for youths who are interested in taking up agriculture as a profession in rural areas aimed at ecologically sound and sustainable spices production. It is intended that the better–equipped agriculturist will contribute to production of quality spices for the domestic / international markets as well as earn a better livelihood with professional farming. The trainees can also get involved in self-employment opportunities such as nursery production, bio-agent production, consultancy services etc. Moreover other interested entrepreneurs / NGOs could utilize the service of the trainees for improving their own farms.

So far seven programmes were conducted and a total of one hundred fifty two unemployed youths from Kerala, Tamil Nadu, Andra Pradesh and North Easten states (Assam, Tripura, Manipur, Nagaland, Meghalaya, Sikkim) were trained. Emphasis was given on practical training on various aspects of spices production covering the following aspects.

1. Method of Soil analysis for major nutrients, identification of nutrient deficiency based on plant symptoms and fertilizer recommendations.
2. Nursery management for production of quality planting materials of cardamom, vanilla and other spices.
3. Good agricultural practices of all the major spices.
4. Post harvest technology of major spices, vanilla and herbal spices
5. Identification of pests and diseases on major spices, and their management practices.
6. Safe use of agrochemicals and fertilizers.
7. Production of bio-control agents such *Trichoderma, Pseudomonas, Beauveria, Metarhizium* etc.

Adequate exposure is given on traditional farming / organic inputs preparation such as Good Panchagavya, Fermented slurry, Fish amino extract, Egg amino extract, use of plant extracts as manure and for plant protection etc. The trainees also get involved in the programme on organic agriculture system such as Biodynamic faming, and Effective Microorganism (EM) technology. The trainees are given an initial intensive training on English and computer application to cope up with the latest trends, in modern agriculture.

During the course of the training programme, the trainees were given exposure visits to Indian Institute of Spices Research. Kozhikode, CWDRM, Calicut and Agricultural Universities for obtaining practical training on spices like pepper, ginger, turmeric, tree spices and on water management. Resources persons from agricultural universities, national institutions and award winning farmers imparted training on Good Agricultural practices for quality spice production and on rural based extension activities.

Mobile Agri – clinic : Spices productivity is the reflection of soil health, conducive environment and good agricultural practices for maximizing production in spice crops like cardamom. Intensive farming practices have resulted in realizing high yield levels in the plantations. Indiscriminate use of chemical fertilizers, pesticides and other agro-chemicals became a common practice in the cardamom plantations under intensive management. This has led to various problems including the occurrence of new diseases, incidence of pest resurgence, environmental pollution, health hazards and rise in soil and ambient temperature in the forest eco system. More over, the high cost of production associated with increased production and productivity became very often unsustainable. Considering the seriousness of the problems in the plantations Spices Board has initiated a Mobile Agri – Clinic with the financial support of the National Horticulture Mission, Kerala to create awareness on environmental safety and need to achieve sustainable production through adoption of scientific Package of Practices. Mobile agri-clinic is implemented through regular scientific interventions at the farm level in various locations of the cardamom tract to highlight the proven technologies developed at the research institutes. It is aimed to bring about a close interaction between the scientists and farmers at farm gate level. Both research and development department of the Board involved in the conduct of the programme.

The activities involved in the mobile agri clinic are envisaged to make on the spot assessment of soil health and fertility status in the cardamom tract in Idukki district initially and thereafter will be extended to other parts of the cardamom tract in the Western Ghats. During the plantation visit and the interface, technologies will be transferred to farmers for the efficient management of nutrient, pest and disease problems in the plantations. A team of scientists representing each research department participate in the programme and provide awareness on the innovative technologies developed in the research institutes for field adoption at various selected locations of the cardamom tract.

The Board has already conducted 21 mobile agri clinics covering Idukki and Palakkad districts of Kerala out of which 17 are conducted in Idukki district. Problems encountered in the plantations were critically analysed and suggested suitable measures for increasing the production and productivity of cardamom and other spice crops in the respective areas. ☆

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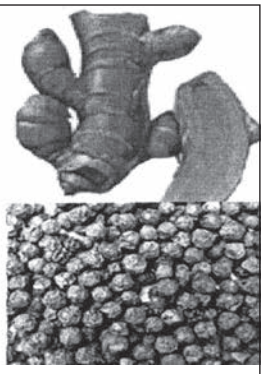

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E-mail: greencoveroverseas@yahoo.com
info@greencover.org
Website: www.greencover.org

INDIAN CARDAMOM RESEARCH INSTITUTE

REGIONAL RESEARCH STATION, SAKLESPUR

Profile and Prospects

K. Dhanapal , Sreekrishna Bhat, I.R.Noolvi and J. Thomas
ICRI, Regional Research Station,
Saklespur, Karnataka-573 134

Karnataka shares major contribution next to Kerala in the cultivation of cardamom in the country, specifically in Mudigeri, Sakalespur, Madikeri, Uttara Kannada and Dhaksina Kannada. Most of the areas are categorized as high rainfall areas, exhibiting a totally different agro climatic condition from other cardamom producing states. To cater to the regional specific needs of the cardamom growers of Karnataka the regional research station was established at Donigal, which is located almost 45 km from Hassan and 130 km from Mangalore. The Regional Research Station started functioning from1978 in 20 hectares.

Salient findings of this station

Even with the limited facilities available, the station has contributed substantially not only to the cardamom development in the region, but also to the spices growers of Karnataka. The institute has released a variety of cardamom –ICRI-3, to suit the high rainfall area of Karnataka. The station conserves the genetic diversity of cardamom of the region, maintaining at present 283 accessions and 12 allied genera, which are being used for different plant breeding programmes. A number of hybrids produced at this station are under various stage of evaluation. Identified two genotypes (SKP-169 and SKP-170) for release. Katte virus tolerant lines have also been developed.

Field trials proved that application of 125:125:250 kg NPK / ha / year along with foliar feeding of 0.25 per cent Zinc sulphate and 0.3 per cent Boran increases the yield under irrigated condition. Application of 20 kg of sulphur with normal dose of fertilizer increases the cardamom yield and oil content (20- 25 per cent). In organic cultivation of cardamom, Imposition of 50 grams of Phasphobacterium with 5 to 10 kg FYM increases the production

The efficiency of biocontrol agents such as *Trichoderma harzianum, Pseudomonas fluorescens* were studied against rot diseases of cardamom, pepper and vanilla. The bioagents are effectively controlling the rot diseases of these spices. These bio-control agents supplied by this station has been giving best results in the field and the planters are well aware of superior quality of the bio-control agents supplied by this station. These quality bio-control agents are supplied at very nominal rate keeping an eye on promoting organic farming in this station.

The causal organisms of chenthal and capsule tip rot of cardamom was identified as

Collectrotricum gleosporoides and *Rhizoctonia solani* respectively. Chenthal can be controlled through three round spray of Mangozeb(0.20 per cent) at 30 days interval followed by proper shade regulation. Spraying of 0.2 per cent of Carbendazim or copper oxychloride significantly reduces the capsule tip rot of cardamom. Drenching and spraying of copper oxychloride(0.2 per cent) in the pre-mansoon season (May or June) is found to be reduced the rhizome rot disease of cardamom

The lifecycle of the major pests of cardamom was studied. Suitably incorporating these principles, effective integrated pest management (IPM) strategy has been developed. The usage of pesticides has been brought down to minimum level and standardized.

The station has been at the forefront in augmenting vanilla cultivation in Karnataka region by providing technical support on cultivation, disease management and post harvest aspects and also supplying quality planting materials.

ICRI, RRS, Farm

This station is having research farm in 19.27 hectares. The research farm is bifurcated in 20 blocks. Most of the blocks are under cardamom cultivation for research purpose and maintenance of cardamom germplasm. Cardamom plants in most of the areas (Block no.6, 10, 16, 18,19and 20) have been replanted with elite planting materials during this year. The production of cardamom has been increased compared to previous year due to massive application of compost. Other important crops such as pepper, vanilla, tree spices, ginger, turmeric and herbal spices are also cultivated as intercrop and monocrop as well.

Demonstration trial plots (2007- 2012)

Location specific demonstration trial plot was initiated in sixteen planter's field at Hongadahalla, Somwarpet and Bhagamandla areas through adopting location specific Low Cost production Technology with the following objectives.

1. Evaluation of suitable variety for these areas
2. Evaluation of Katte escapes in hot spot region
3. Creating awareness to the planters on cardamom cultivation through low cost production technology.

In the selected plantations, the high yielding and Katte Escape plants, need based fertilizers and pesticides were supplied in free of cost from this Regional Reaserch Station, Saklespur. The scientists of this station are frequently visiting these plots and recording the establishment, causalities, pest and disease occurrence.

Extension activities

The station is doing service for analysis of soil samples from planter's field and help in judicious application of fertilizers not only for cardamom and other important spice crops also. This station provides training cum seminar on various cultivation, harvest, and post harvest aspects of spices, composting and production of bio-control agents enlightening and refreshing their knowledge on these aspects. On an average this station conducts 20 training programmes and many location specific planter group meetings. Group of Scientists is used to visit the plantations. After that and Scientist-planters interfaces will be arranged at village level meeting for solving specific field problems. Training given on value addition in spices improves the skill and promotes new entrepreneurs towards production of value added produces, which gives better returns for their produce. Recently Mobile Agri. clinic is initiated by this station. A team of Scientist and Development officials will be visiting different spices growing areas. During this season, cardamom seeds acid treatment and training on improved agro technique for cardamom cultivation were conducted during this campaign. Planters from Athihalli, Hongadahalla, Kaganeri, Vanagoor, Mudigere, Somwarpet,Virajpet,Madikeri and Bhagmandala are highly benefited. ☆

CROP IMPROVEMENT PROGRAMMES ON CARDAMOM AT ICRI

ICRI - 5

V.V. Radhakrishnan,
K.J. Madhusoodanan,
K.M. Kuruvilla and J. Thomas
Spices Board
Indian Cardamom Research Institute,
Myladumpara – 685 553, Idukki Dt.

Introduction

Use of genetically superior planting materials and cultivation adopting improved agrotechniques are the most accepted means to enhance crop productivity. Blessed with the twin advantages of vegetative propagation and viable sexual reproduction, cardamom offers immense scope for exploitation in the crop improvement programmes. Clonal selection and hybridization have been used for evolving new varieties of cardamom. The thrust areas in the improvement programmes identified for cardamom include isolation of elite clones / varieties suited to different agro ecological conditions and development of hybrids / lines having higher yield, superior quality capsules and resistance / tolerance towards abiotic / biotic stresses. Cardamom being a cross pollinated species, studies are taken up in germplasm enrichment, selection, hybridization, polyploid breeding, mutation breeding and tissue culture.

Germplasm

The crop improvement programme in cardamom began with the exploration for genetic variability which is

available in the Western Ghat region, the centre of origin of the crop. Genetic variability is the essence of any plant breeding programme. An assembly of diverse genetic stocks of any crop is the raw material from which new variety can be moulded to suit the requirement of farmers and end users.

Currently the clonal repository attached to the Indian cardamom Research Institute (ICRI) has over 800 accessions. ICRI has been recognized as the National Centre for cardamom genetic resources by the Indian Council of Agricultural Research (ICAR). Some of the variants that are conserved in the repository are accessions having six panicles per tiller, pink tiller, compound panicles, terminal panicles, branched racemes, narrow leaves, clones characterized with asexuality, female sterility and cleistogamy.

Selection

The major objectives for selection of cardamom clones have been high productivity, superior capsule quality and adaptability to various agroclimatic zones. Over 300 accessions from the germplasm collection have undergone preliminary evaluation trials; out of which promising ones were taken to comparative yield trials and multilocational evaluation. Among them five selections have already been released for large scale cultivation in Kerala (ICRI-1, ICRI-2, ICRI-6), Karnataka (ICRI-3) and Tamilnadu (ICRI-4). Accessions namely MCC-21, MCC-246, MCC-309 and MCC-346 are in pipeline for selection as high yielders and they are superior in one or other quality characters also.

Hybridization

Hybridization, the most important conventional breeding method, involves artificial pollination between selected male and female clones. Evaluation of the F_1 hybrids for vigour and selection of promising recombinants are processes involved subsequently to spot out elite genotypes. Cardamom is highly heterozygous and due to its perennial nature, conventional method for evolving homozygous lines is time consuming. Attempts for production of haploids through anther culture are yet to succeed. In cardamom, both intergeneric and intervarietal hybridizations were carried out. The former one was tried with an intention of transferring the alien gene responsible for desirable resistant characters. However such attempts were futile.

Intervarietal hybridization was successfully carried out using different varieties/ cultivars of cardamom. This has resulted in the cross combination of over fifty F_1 hybrids. On preliminary evaluation of these hybrids, eight of them such as MHC-10, MHC-13, MHC-18, MHC-22, MHC-23, MHC-24, MHC-26 and MHC-27 have been found to be promising with regard to yield and yield contributing characters. These eight hybrids have been subjected to performance evaluation alongwith the released varieties and found that MHC-26 produced a yield of over two tones per hectare and subsequently the hybrid has been released as ICRI-5 by the Kerala State Variety Release Committee for large scale cultivation. ICRI-5, a cross combination of MCC-260 and ICRI-1 is the first man made hybrid in cardamom. Demonstration and evaluation trials of ICRI-5 have been laid out at 200 locations during last year across the cardamom tract to understand its field performance at various locations and also to popularize the hybrid among cardamom growers.

In addition to selection and hybridization, special techniques like polyploid breeding, mutation breeding and *in vitro* culture techniques have also been attempted for creation of genetic variability in cardamom.

Breeding for resistance

Drought

Major area under the crop is in rainfed condition. Hence, efforts to incorporate higher level of drought tolerance into cardamom need no justification. The development of new varieties / cultivars with great tolerance to water stress conditions and potential to increase and stabilize yields is of great concern in cardamom. ICRI has made some progress in this direction by collecting over sixty drought 'escapes' from the low rainfall areas like Kolli and Yercaud hills in Tamilnadu and from the Kannielam tract of Kerala. These collections are presently under evaluation for various growth, yield and biochemical characters. In addition, the germplasm accessions available in the clonal repository of the institute are being subjected to biochemical drought tolerance studies.

Pests and diseases

Pests and diseases pose a great threat to the cardamom production in the country. It is estimated that diseases and pests can cause over 80 per cent crop loss during the years of severe incidence. Chemical control of these pests and diseases not only causes pollution problem but also eliminates beneficial microorganisms. It also results in the occurrence of pesticide residue in the produce. Collection of 'escapes' from hot spots seems to be an initial step in resistance breeding of plantation crops including cardamom. Germplasm surveys taken up by the institute to problem pockets enabled to isolate a number of 'escapes' of 'thrips' attack and 'azhukal' disease infection. A preliminary screening of cardamom varieties and improved genotypes was carried out to test the relative tolerance to 'azhukal' disease infection. Varieties such as *Malabar* and *Vazhukka* were found to be more susceptible to 'azhukal' as compared to *Mysore*. The selections such as ICRI-2, MCC-12 and MCC-40 showed moderate tolerance to the disease.

In addition to the efforts undertaken by ICRI, enterprising farmers have developed a few promising landraces like Njallani, Palakkudi, Panikulangara, Elarani, Vander cardamom, PNS Vaigai, Vali green bold etc. Detailed studies to assess the extent of variability in these landraces are being undertaken for utilizing them in the future breeding programmes. Considering the rich genetic base as well as high location specificity of landraces, they have been incorporated in the hybridization programmes initiated last year as parents to produce location specific, high yielding and high quality hybrids for the various zones of the cardamom tract. Production of location specific hybrids is one of the priority areas in the breeding programmes of the institute. Field trials for isolating suitable hybrids / selections for the traditional cardamom tract of Wayanad are nearing conclusion. The hybrid MHC-18 which is showing superiority over other clones has been put for demonstration in planters' field at ten locations in Wayanad.

Crop improvement works in cardamom involving both traditional and biotechnological methods are in progress at ICRI. These works will be leading to the synthesis of novel varieties possessing the desired characteristics.

☆

CARDAMOM CLONES FOR WYNAD IN PIPELINE

V.V. Radhakrishnan and K.J. Madhusoodanan
Spices Board
Indian Cardamom Research Institute,
Myladumpara
Idukki Dt., Kerala – 685 553

Introduction

Wynad, one of the richest agro biodiversity centres of Western Ghats is a traditional cardamom growing area. A sizeable extent of about 4,000 hectares in Wynad is under cardamom cultivation. However, production and productivity of the crop in Wynad is very low compared to that of other areas of the cardamom tract in the country especially the Idukki tract. One of the reasons for this situation could be the non availability of clones suited to the agroclimatic conditions of Wynad. In this background, an evaluation trial incorporating nine improved cardamom clones evolved by the Indian Cardamom Research Institute (Spices Board) was conducted in a planter's field in Kalpetta and compared with a released clone and a popular local variety with a view to isolate suitable clones for Wynad.

Experiment details

The study was initiated during 2002-03 crop season and the field trial was laid out in randomized block design (RBD) with three replications and twelve plants per plot adopting 2.7 m X 2.7 m spacing. Nine improved clones including selections, hybrids and landraces namely MHC-10, MHC-13, MHC-18, MCC-21, MCC-40, MCC-73, MCC-200, MCC-260 and MCC-346 were incorporated in the trial alongwith the released variety ICRI-2 as standard check and the locally available variety Clone-37 as local check. Package of practices recommendations of the Spices Board was followed for cultivation.

Observations on growth and yield parameters such as total tillers, tiller height, number of leaves on the tallest tiller, number of bearing tillers, number of panicles, number of racemes per panicle, number of capsules per raceme and number of seeds per capsule were recorded and analyzed statistically. The plants in the

trial plot started yielding after two years of planting and stabilized yield for two crop seasons has been recorded so far.

Findings

The performance of cardamom clones varied with regard to growth and yield attributes. Cardamom being a commercial crop, more attention was paid for yield evaluation. The yield differed significantly among the clones and the hybrid MHC-18 performed the best consecutively with a yield of 1415 kg/hectare followed by selections MCC-73 (1164 kg/hectare) and MCC-21 (1129 kg/hectare). Based on the yield performance MHC-18, MCC-73 and MCC-21 are considered to be high yielders suited to the agroclimatic conditions of Wayanad area of the cardamom tract. Performance of the released clone ICRI-2 and the local check Clone-37 was on par and differed significantly from MHC-18, MCC-73 and MCC-21. All other clones were found to be on par. The field trial will be continued for one more crop season to confirm the findings.

Meanwhile, considering the best performance of MHC-18, demonstration plots of the clone have been established at ten locations in Wayanad for popularizing it among cardamom growers. Since cardamom is a highly cross pollinated crop, vegetative propagation by sucker multiplication is recommended to produce uniform planting materials. Large scale cultivation of the identified improved clones by adopting high production technology would substantially enhance the production and productivity of cardamom in Wayanad. ☆

GLOBAL WARMING: DIVERSION TOWARDS SPICES IN KULLU VALLEY

A view of the Kiwi orchard and vegetable fields in Kullu valley **Photo : Author**

Raj Pal Meena and P R Kumar
DWR, Regional Station, Katrain,
Kullu-Valley, H. P. 175129
IARI, Regional Station, Katrain,
Kullu-Valley, H. P. 175129

There is no doubt about it that climate is changing. It goes without saying that the climate would continue to change, which is a threat to agriculture and ecology. Even if the concentration of all green house gases and aerosols were kept constant at year 2000 levels, a further warming of about 0.1°C per decade would be expected. Afterwards temperature projections increasingly depend on specific emission scenario (Anonymous, 2007). This article presents a vision of how the climatic problems in agriculture can be addressed. It is based on experience in Kullu valley region of Himachal Pradesh of India. The principles, which it looks at, though, are valid in any system and any climatic zone. The title of the article refers to the conviction that sustainable farming needs to change in order to ecological processes.

Among all fruits, apple is the main crop of Himachal Pradesh occupying the place of pride in economy. Kullu in Northern Himachal Pradesh, also known as the apple basket of India, is steadily moving towards other options. The rise in temperature due to global

warming has affected apple cultivation forcing farmers to shift to other cash crops. The global warming has taken a toll on many varieties of traditional fruits grown in the state, both in terms of quality and quantity. The mean productivity of apple in 1980-81 was 7.06 tonnes/ hectare as compared to 4.65 tonnes/hectare in 2004-05 (Singh, 2008). In Kullu district farmers have shifted from apple to spices and vegetables. This is just an example of impending impacts of global warming and climate change.

It was recorded that the average maximum temperature of the Kullu valley rose by 0.58°C from the year of 1963 to 2007, whereas the average minimum temperature rose by 2.75°C. Chilling affects the flowering and subsequent fruit setting since inadequate chilling leads to poor flowering and setting. Over the last 50 years the average minimum temperature for all the 12 months has gone up. The average minimum temperature during December, January and February, which is the chilling sensitive period, has gone up by 2.27, 2.68 and 3.63°C respectively. There is no surprise that the orchards below 1300 meters above MSL have been rendered unproductive. Frequent cases of extreme weather phenomenon have been seen in recent years which are unfavourable for agriculture. The bee population in natural fauna has also dwindled decades owing to destruction of natural habitats and indiscriminate use of pesticides. The changed temperature has affected the activity of remaining population adversely.

Twenty years ago snowfall was a regular phenomenon in Kullu town but in last 20 years only two-three instances of snowfall have occurred. Apple and plum cultivation has been adversely affected in lower areas of Kullu and Mandi districts. Consequently, the farmers have shifted to cultivation of pomegranate, kiwi, vegetables and spice crops (garlic, ginger, lettuce, parsley, celery, capsicum, pepper, turmeric etc.) i.e. diversion from cultivation of traditional crops. Among several factors many suspects global warming to be the main culprit. The miserable situation created by changing temperature regime is compounded by inappropriate and indiscriminate use of pesticides. Alarming increase in number of colonies of red spider mites due to faulty use of insecticides is an example. A survey revealed that about 69 per cent apple orchards in Shimla, Mandi and Kullu districts were infested with mites. Prolonged hot and dry spells during summers has aggravated the problem further.

In early years of felt effects of climate change in Kullu some farsighted farmers started spices crop cultivation to fight this threat of climate change and took it as a challenge. This saves the livelihood of farmers of this region and now these farmers heading towards prosperity through these new crop adventures in the valley. These days spice crops are cultivated on large scale in Kullu district in which mostly garlic, ginger, capsicum, pepper, turmeric lettuce, parsley, celery are grown. Garlic was cultivated on area of 800 hectares and production was 7200 metric tonnes during 2007-08. In the district ginger was grown on 50 hectares of land and production was 75 metric tonnes, whereas Lettuce, Parsley and Celery were covered an area of 30 hectares with combined production of 450 metric tonnes. In the state under technology mission for integrated development additional area

under different spices crop were covered during the year of 2006-07 as crop diversification. In 2006-07 the area of Capsicum was increased 385 hectares, whereas the area under ginger, garlic and turmeric has increased 700 hectares. Medicinal and aromatic plants covered 50 more hectares and adoption of organic farming in the area was rose to 365 hectares during the year of 2006-07. Under the same mission 3646 vermicompost units were made during the year. In order to save the livelihood, a group of farmers in Kullu have started cultivation of pomegranates as cash crop. The yield has been good and many farmers have benefited from the cultivation of this crop. Since 2002 people started planting pomegranate. These days pomegranate is cultivated on almost **435** hectares of land in Kullu district in which mostly Kandhari, Hansi, Mridula and Sindhuri varieties are grown. The pomegranate cultivation has ushered the farmers to a new socio-economic life style. "Of late, the pomegranate cultivation has proved to be a boon for this area. In all, we produce almost pomegranate worth about rupees one lakh from one *bigha* (0.625 acre) of land. This year, my target is to earn Rs. 1.5 lakh from one *bigha*" said Jai Kishan, a pomegranate cultivator.

The orchardists are also switching to strategy of organic cultivation and minimum use of costly external inputs. Instead of using pesticides to control leaf fall disease in apple crop, farmers have adopted practice of *havans* (*Agnihotra*) with definite success. After a survey by joint team of Indian and Swiss experts it was found that heavy use of chemical fertilizers and pesticides has degraded the soils and ecosystem. During their awareness campaign they were surprised to find that 80 farmers were practicing organic farming with good results. Although this is only a microscopic minority with spreading awareness this may take form of a revolution in due course.

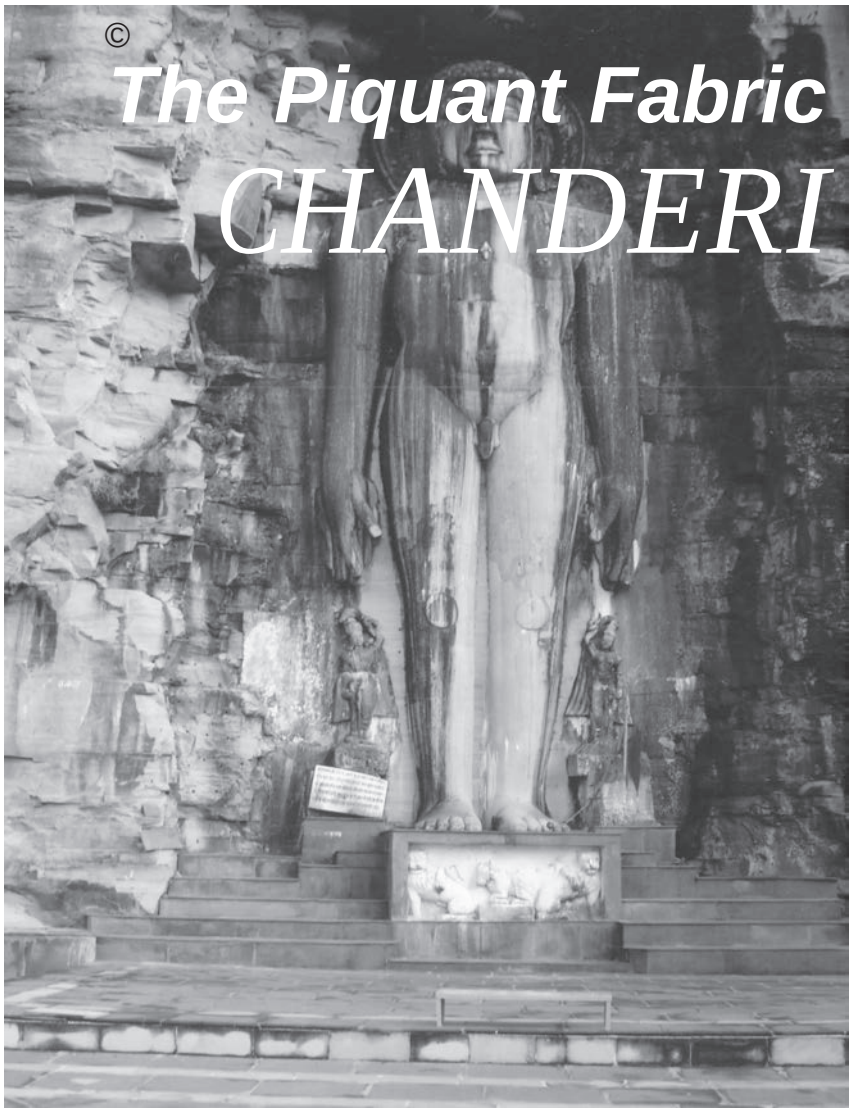
Conclusion

Changing climate in North Western *Himalyas* have brought forth myriad new problems and new questions, the solutions to which will be generated by combining farmers' ingenuity, new technologies and several trial-and-error efforts. The farmers who tried new crops in early years with eventual success have presented a nice example of quick and discretionary adaptation to changing scenarios. In fast globalizing world establishing backward-forward linkages did not prove a big challenge. On the one hand it may appear that global warming is posing a threat to establish systems, on the other hand it also brought us face-to-face with new opportunities. The innovative farmers of Kullu and Lahaul valley have shown the way by converting threat into opportunity. And beautifully so, only with local resources and without use of costly inputs. Their response to this situation has been exemplary and they were able to reduce the prophesy of crisis in a rumour. Accepting the change and getting in tune with nature is the key to survival and prosperity.

References

Anonymous (2007). *Fourth assessment report of IPCC-Climate Change 2007*: Synthesis Report WGI 10.3, 10.7; WGIII 3.2

Singh, H.P.(2008). Mitigating global warming… Development in horticultural crop production with climate change. Indian Horticulture sep-oct. 2008.pp39-45.



The Piquant Fabric of Folklore
CHANDERI

One of the Jain Monoliths of Chanderi

Hugh & Colleen Gantzer

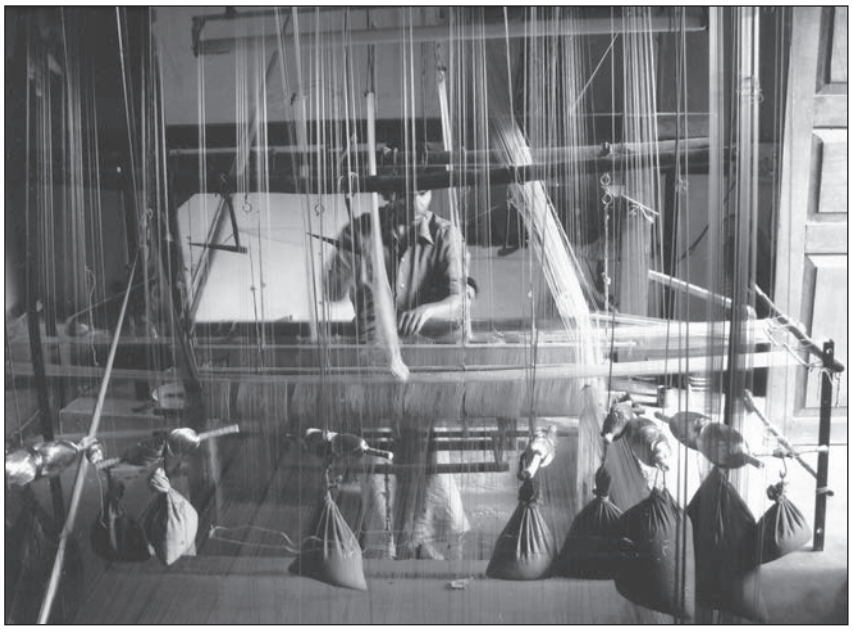
In winter, the landscapes of northern and central India are patched with gold.

Mustard fields blaze in glory, mustard flavours tingle the tongue with sharp pungency. Here, mustard is not just a spice, it is ingested warmth, fortifying the body against the chill morning and evening mists; hot mustard oil is an ideal unguent banishing aches and pains; mustard leaves are relished as greens to stir a winter-sluggish digestion.

Mustard works in many ways to armour weavers as they sit in dank rooms, *clackettyy-clacking* gold threads, silver threads, silk threads and cotton into creations of gossamer splendour

We were in Madhya Pradesh's historic valley of Chanderi: home of the famous Chanderi weave, and where the warp of history is shot through with the bright weft of legends.

"We don't know who brought us here" a weaver said. "Perhaps we were here when the Rajputs came; or, maybe, they brought us in from a distant place to weave their scintillating turbans and handkerchiefs. Our *buzurgs,* our respected elders, say that once Chanderi was on the caravan route linking the north to the Imperial capitals of Agra and Delhi. That is why the rich Jain traders built their temples and monasteries on the cliffs above, and that is why Babar attacked the Rajputs in Kirti Pal's great fort and established his own governors here. "



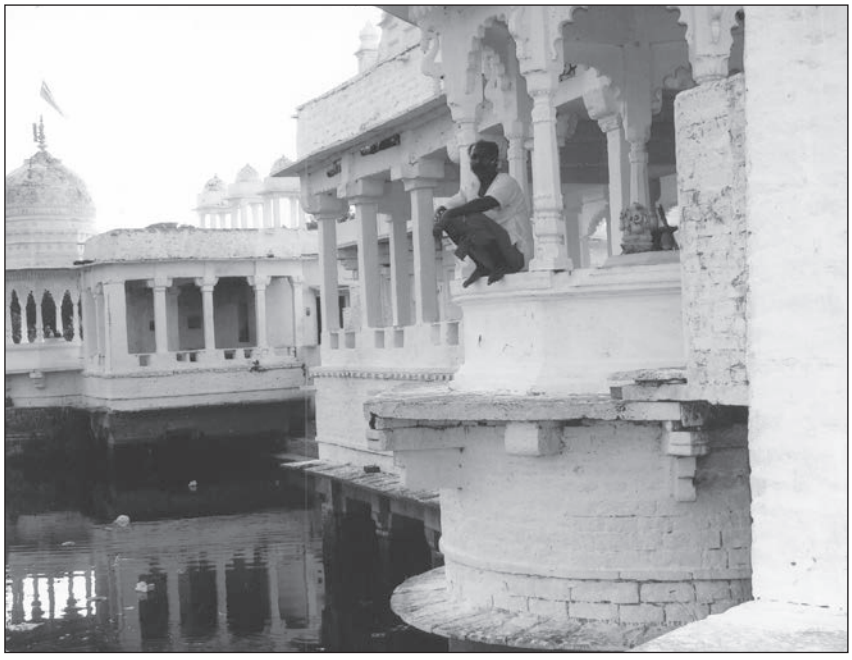
A Chanderi weaver at his loom

"Do you still have trade with other places?" we asked.

"No," said one man, and there was a heated discussion among them in a fast Hindi-based dialect that we could not understand. Then another added: "The British rail line weakened the caravan route to its extinction. But, yes, we still trade with the rest of India. The cotton of our warp comes from Coimbatore, the gold of our *zari*-thread is brought in from Gujarat, the silk of our weft is imported from Varanasi but, in truth, we understand that it is made in China because they spin the best silk. And foreigners, tourists, buy our weaves for curtains and table cloths and dresses. We have formed Self-help groups, like co-operatives, and we are happy..."

We did our *adab* farewells to them and stepped out, nodding to the wispy-bearded Basik Mohammed Mazawar, keeper of a revered tomb and traditional warp stretcher. He was supervising the laying of cotton threads down the straight, narrow lanes designed to hold the warp-trestles of the weavers. Filmy music filtered out of the courtyard houses, punctuated by the steady, wooden clacking of the looms.

Down the broader, but crowded, main roads. history was a constant subliminal refrain breaking into the assertive chorales of the monuments. The *Badal Mahal* was no mansion, no *mahal*, but



The lakshman temple reflected in Raja Sishupal's tank

The Kati gate pierced through a rock wall links Bundelkhand to Malwa

a lancet-shaped gateway that led from nowhere to nowhere. The *Tombs of the Nizamuddins* had intricately carved stone grilles but no one could tell us if these Nizam-ud-dins were related to the sufi seer of Delhi. The great, grey, stone walls that had once encompassed this city still stood, but many of them had been encroached upon to erect shops and houses. A pujari in a red lungi sat on the balcony of the white marble *Lakshman Temple,* reflected in the still surface of *Raja Sishupal's Tank.* A goddess had created its healing waters to cure the king of a skin disease but he had broken his promise not to unveil her idol prematurely, and so only her head is now worshipped in the *Jageshwari Mandir.*

Another unfinished tale wreathes *Koshak Mahal,* the impressive double-storeyed palace commissioned by Mahmood Khilji II in 1445 as a seven-storey building. The five upper floors collapsed due to faulty construction and were never rebuilt.

A more tragic tale wreathed a lone monument called the *Shahzadi ka Rauza* standing atop a high plinth. A princess fell in love with a handsome cavalryman in her father's bodyguard. She wanted to marry him but her father was outraged. "How dare he court you: he a commoner and you of the highest royal blood!" he thundered and ordered that the presumptuous suitor be killed. On hearing his sentence, the condemned man galloped away, but his steed was no match for those of his incensed assassins. They caught up with him and slaughtered him. When the princess learnt of this she raced to her beloved's corpse, threw herself on it, and died of a broken heart. Now her father had a problem. As his daughter, she was entitled to a

mausoleum; but as his fallen daughter she should not become an object of veneration. So he had her cenotaph placed atop a high plinth in the centre of a marshy tract of low-lying land. But then, our generation, enchanted by this *Romeo and Juliet* tale, built a causeway accessing the lonely cenotaph.

Great loves and great tragedies make great legends.

We drove to the highest point in Chanderi and into the once-formidable fort of Raja Kirti Pal. In the distance, a bullock-cart plodded through the *Kati Gate* carved through a rock wall separating Bundelkhand from Malwa. On the far edge of Chanderi's bowl spread the graceful religious complex of the Jains, the low sun of evening plating a monolith with gold.

Our guide turned our attention back into the fort. "At that spot" he said, pointing to a low monument near a small ravine, "the Rajput warriors, realizing that they were outnumbered by the besieging forces of Babur, prayed and bathed. And then they killed their women and children. After which, they stripped themselves of all their garments and jewellery, and with only their swords in their hands, ran out to meet their enemies, and certain death, in the heroic tradition of *jauhar:* embracing the jewel of self-sacrifice rather than the dishonour of surrender." He gazed at the red soil of the ravine, touched by the crimson of sunset. "To this day.." he said, "the soil is stained with their chivalrous blood!"

There can, clearly, be a lot of embellishment on the enchanting fabric of folklore. Especially when you have mustard to stimulate the palate of the mind!. ☆

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TOWARDS ESTABLISHING BLACK PEPPER PLANTATION IN GUYANA

B. SASIKUMAR
ITEC Expert (Spice Technology)
National Agricultural Research Institute
Mon Repos,ECD,Guyana
Email:Sasikumarsooranadu@gmail.com

Guyana,one of the less developed nations in the Caribbeans is blessed with ideal climate for spices and fertile land. Spices, though has good potential as a commercial crop in Guyana,any spice crop except ginger is yet to establish in the country as a major spice. However,very few isolated plants of blackpepper,turmeric and some nutmeg trees are seen in the homesteads. Realising the scope of spices in boosting the National Exchequer, Government of Guyana has embarked upon a program of spices development in the country,especially blackpepper, ginger,turmeric and nutmeg.

The blackpepper plants available in the country are probably early unorganized introductions from Brazil.These plants are seen trailed on a variety of live or even dead standards in the backyards without any proper care. Lack of awareness of nursery practices,varieties,plantation establishment,plant protection and post harvest practices are the major constraints of blackpeper at preset in Guyana.

To lay a good foundation for blackpepper development in the country, scientific approaches are now initiated as below:

Germplasm collection

Surveys were conducted at different regions of the country to collect the available variability. Apparently it appears that the cultivar diversity is rather limited in the country. Seven accessions are collected and are being multiplied. Though uncared the vines are found to be moderately good yielders.

Nursery techniques

Nursery practices of blackpepper including rooting of runner shoots through 'Pit method', 'Bamboo method ' of multiplication and plant protection at the nursery are being demonstrated .

Open pollinated Progeny Selection

In order to evolve a variety of blackpepper for the country, open pollinated seeds from good mother vines are collected and the seedling variability is being studied. Good vigorous seedlings are noted among the seedling population raised. Selected seedlings will be multiplied and evaluated for yield,quality and disease reaction.

A good mother vine in a farmer's backyard

BOARD IN BIOFACH 2009:
WHERE WORLD'S ORGANIC PEOPLE MET

Mr K.K. Anandan [third from left] and Dr J Thomas [extreme right] at the stand with exhibitors.

A view of the Spices Board stand at the Biofach 2009, Nurernberg

The 20th Anniversary of Biofach- the world organic trade fair at Nurenberg Messe, Germany was held from 19th – 22nd February 2009. There were around 2900 exhibitors arranged systematically in ten large halls. Concurrently seminars on various topics pertaining to organic and fair trade were added attractions for the intelligentsia.

The Indian Organic pavilion was conspicuously present in hall No.4 under APEDA banner and the heart of the pavilion was the Indian Spices. Under the umbrella of Spices Board, Six organic spice exporters exhibited their certified products ranging from clean spices, spice powder, masala mixes, spice oils and oleoresins, dehydrated spices, green pepper, white pepper to a variety of value added spices. The Indian Organic Spice exporters participated in the Spices Board Pavilion were M/s. Jeevagram, Kalady, Kochi [Email: jeevagram@vsnl.com], Represented by Mr Johny Vadakkumchery; Manarcadu Social Service Society, Kottayam 686 019, Kerala [Email: exports@plantrich.com] Represented by Mr Bijumon Kurian; Vantage Organic Foods Pvt. Ltd Rajasthan. Email: info @ vantagetradeservices. com reepresented by Mr Vipul Gupta; Viral International [Email: info@viralspices.com] Represented by Mr.Rameshbhai Viral Patel and Waynad Social Service Society, Manathavady [Email: wssindia@dataone.in, wsss@sify. com] represented by Rev. Fr .John Joseph. The spices Board with its flavouit brand of organic spices was represented by Dr. J. Thomas, Director Research and Mr. K. K. Anandan, Engineer.

Kancor Ingredients, Kochi and Peerumedu Development Society, Kerala also exhibited their spice products in the Board's Pavillion.

The spice exporters got the opportunity to meet and interact with various individual / participants, who were interested in sourcing Indian organic spices and products. The Counsulate General of India , Germany Mr.Anup Kumar Mudgil visited the Indian pavilion on 20th and appreciated the arrangements in the Spices Board pavilion, especially the literature on Indian Organic Spices in German. Under the APEDA pavilion there was demonstration on Indian cooking, where the aroma and taste of Indian spices attracted a crowd every time the lid of the cooking vessel was opened or frying pan became hot.

Europe, at large and Germany , in particular is witnessing a sustained growth in "BIO" products and organics is one of the very few sectors, which shows a positive growth even in the adversity of the global financial melt down.

If you have an organic mind, get yourself prepared to be at Nurnberg, Germany from 17-20th February 2010, where Spices Board would be spreading a red carpet for you. ☆

SAKLESPUR

The Board's Field Office in Saklespur has organised quality improvement training programmes in Aluvally, Ussarmane, Kyanahally, and Byakaravally villages in Karnataka. Smt.Sreeja Rajendran and ShriT.Ramu, Extention Assistant, Spices Board, Saklespur organised the meetings.

A view of cardamom planters attending one of those programmes.

VANAGUR

Spices Board's field office Vanagur, in Karnataka has organized 10 quality improvement programmes on cardamom from 12 to 22 January 2009. The programmes were conducted in the following places: Thambiligiri, Uchangi, Mageri, Bisle, Hadlahally, Bachahally, Yargally, Yedekumri, Kagineri and Yethalla.

Shri.Biju, Field Officer, Vanagur explaining a symptom of disease in a cardamom plant to the farmers.

BODINAYAKANUR

Shri. R.Sundararaman a well known organic farmer in Tamil Nadu is seen taking class on organic cultivation of cardamom to the Tamil Nadu Cardamom Plantes Association, Periyakulam at a seminar held on 12th February 2009 at the Board's office in Bodinayakanur.

DIMAPUR

Shri.A.N.Nagaraj, Senior Field Office, Spices Board, Dimapur taking class to the Large Cardamom Planters of Mon in Nagaland on 16th February 2009

A Large Cardamom Planters is seen interacting at the seminar.

CONSTRUCTION OF POLY HOUSE AT AIGOOR & BILIGERI

Construction of polyhouse with grant assistance of National Horticulture Mission has been set up at Board's departmental nursery in Aigoor and Biligiri in Karnataka. This project was implemented through the Department of Horticulture, Government of Karnataka. Spices Board has taken up this programme to produce 1,10,040 cardamom seedlings, 1,54,623 pepper rooted cuttings and 7,620 pepper nucleus materials of high yielding varieties cuttings. This is supplied to the farmers/NGO's/Government Departments in Karnataka on no loss no profit basis. The spices planting materials raised under polyhouse have been noticed vigorous growth in the field condition.

Shri.R.Chandrasekhar, Director (Development) inaugurating the Poly House at Aigoor nursery of the Board in Karnataka

An inside view of the Polyhouse

CALENDAR OF OPERATIONS FOR IMPORTANT SPICES - APRIL 2009

Timely planning and execution of farm operations based on agroclimatic conditions of the area is important for successful farming for higher productivity and sustainability. To facilitate this a calendar of operations in respect of important spice crops for April is given below.

Name of the crop/ Type of operation	Details of the operations
CARDAMOM I Agronomic measures 	NURSERY ➢ Regular watering may be given to bed / polybag / sucker nursery based on necessity. ➢ To control damping off / seedling rot diseases in nursery, soil drenching with 0.2 per cent copper oxychloride or 0.2 per cent mancozeb may be taken up. ➢ As bio-control measure, trichoderma or Pseudomonas or Bacillus species may be applied in the soil. ➢ For controlling leaf rot disease, spray 0.3 per cent mancozeb and for controlling leaf spots, spray 0.25 per cent difoltalan or 0.2 per cent bavistin after noticing early symptoms. MAIN FIELD ➢ Continue irrigation based on necessity wherever irrigation facility is available. ➢ Light pruning may be done by way of removing only the hanging dry leaves and sheath. This will facilitate better pest control even at low spray volume of pesticide
II Pest management 	➢ For Integrated Pest Management prune dry leaves without removing green leaf sheath. ➢ Apply chlorpyriphos @ 200 ml per 100 liters of water (spray may coincide shoot borer moth emergence).
III Disease management 	➢ Keep constant vigil for any katte virus / kokke kandu affected plants to uproot and destroy, if found. ➢ For controlling leaf rust and chenthal & leaf spots, if found, spray 0.25 per cent Mancozeb or Companion (two to three rounds – 30 days interval).

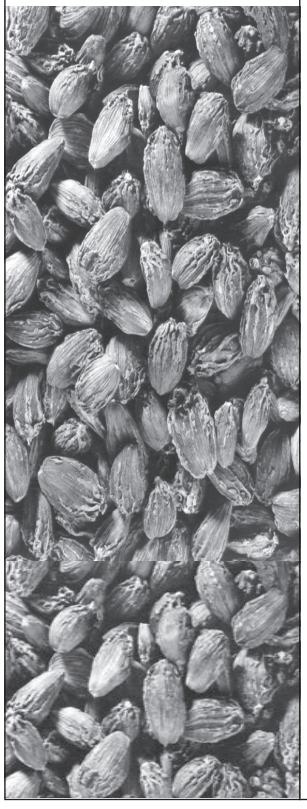
- If symptoms of stem lodging are noticed, spray 0.2 per cent Bavistin on pseudo stem.
- Root rot and leaf yellowing can be controlled by foliar spray and soil drenching with 0.2 per cent Bavistin or Carbendazim + Mancozeb.
- If symptoms of capsule brown spot (Anthracnose) is noticed, spray with 0.2 per cent Bavistin.

IV Harvest and post harvest operations

- Continue harvesting with a gap of 25-30 days depending upon the maturity of the capsules in irrigated plantations..
- Harvest only the matured capsules for getting better out turn.
- Always store the cured cardamom capsules at 10 per cent moisture in 300 gauge black polythene lined gunny bags inside wooden box to retain green colour and quality.

LARGE CARDAMOM

I Agronomic measurers

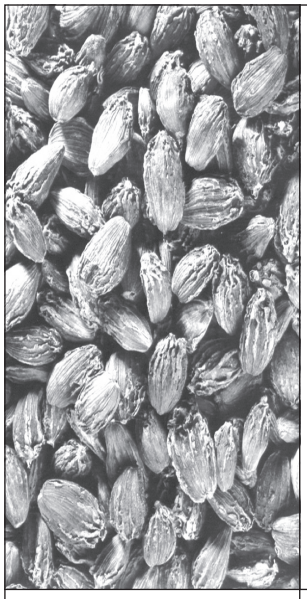


Nursery

- Regular watering may be done in the sucker nursery with available water resources depending on moisture status in the soil.
- Dried or powdered cattle manure / organic manure / topsoil may be applied in the nurseries for healthy growth of suckers if not applied so far.
- Diseases / pests infested suckers may be removed and destroyed.
- It is desirable for every large cardamom farmer to have their own large cardamom high yielding sucker nursery, for which selection of sites, collection of cattle manure, jungle soil, bamboo materials may be started.

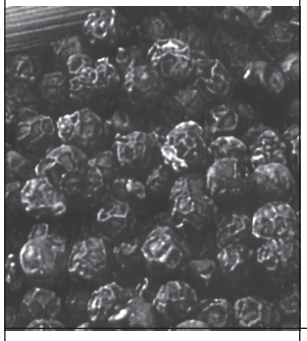
Plantations

- Large cardamom plants may be irrigated at regular intervals with available water resources, depending on rainfall and moisture status in the soil.
- Chirke and foorkey infected plants may be destroyed by uprooting / burial at regular intervals in the pits.
- Regular inspections may be carried out to observe caterpillar / shoot borer / shoot fly incidence if any and may be hand picked and destroyed mechanically.



- Application of cattle manure / compost / organic manures will help in getting sustained production, improving productivity and quality of the crop.
- One round weeding followed by mulching may be carried out to conserve soil moisture if it is not done earlier.
- All the aged / diseased / unproductive cardamom plants may be uprooted and destroyed and the cardamom field may be kept ready for marking lines, opening pits, so that the timely replantation / gap filling operation can be taken soon after getting rains.
- Soon after the receipt of rains, weeding may be attended for easy movement of pollinators & for getting higher yield.
- Arrangements may be made for getting good shade tree saplings for planting in the open / poor shaded areas.

PEPPER
I Agronomic measurers



Nursery

- Watering to be continued regularly to the pepper cuttings in polybags.
- After summer showers, due to warm humid situation, there are chances for occurrence of leaf rot disease. If it appears spray the cuttings with 0.2 per cent Carbendazim or one per cent Bordeaux mixture and also remove the disease affected cuttings and destroy them.

Main field:

- If liming was not done in the past two years, lime @ 500 grams per vine may be applied after getting first summer rain.

VANILLA

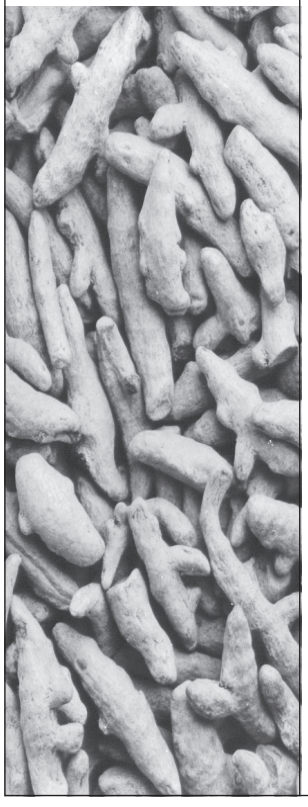
- Irrigation to be continued based on weather condition and necessity.
- Tying of vines with the standard to be continued based on necessity.
- Continue pollinating the flowers manually with the help of skilled labourers between 6.00 a.m. to 1.00 p.m. on the day of flower opening.
- If mist or micro sprinkler irrigation facility is available it may be operated daily to ensure required humidity and supply of water to vines.
- If any virus affected vines found in the vanillary, uproot them and destroy.

GINGER

- Prepare the mainfield after getting summer showers and plough the field into fine tilth and form beds of one meter width, convenient length and 25 cm height.

- Provide proper drainage channels to avoid water logging during the rainy season.
- Apply 30 tonnes of well powdered farm yard manure or compost alongwith 310 kg of super phosphate and 40 kg of muriate of potash / hectare as basal dose and mix well with soil surface of the beds which were already prepared.
- Planting of ginger may be done in first fortnight of April on receipt of summer showers with rhizome bits of about 20-25 g in weight.
- Before planting soak the rhizomes in 0.1 per cent quinalphos (400 ml / 100 liters of water) and 0.3 per cent dithane M 45 (300 grams / 100 liters of water) solution separately for half an hour each.
- Plant at a distance of 25x30 or 25x25 cm at not more than five cm depth with a hand hoe and then close it with powdered farm yard manure.
- Then mulch the whole bed with about 15 tonnes of green leaves / hectare.

TURMERIC



- Prepare the main field after getting summer showers and plough the field into fine tilth and form beds of one meter . width, convenient length and 25 cm height.
- Provide proper drainage channels to avoid water logging during the rainy season.
- Apply 40 tonnes of well powdered farm yard manure or compost along with 185 kg of super phosphate and 50 kg of muriate of potash / hectare as basal dose and mix well with soil surface of the beds which were already prepared.
- Planting of turmeric may be done in second fortnight of April on receipt of summer showers with rhizome bits of about 20-25 grams in weight.
- Before planting soak the rhizomes in 0.1 per cent quinalphos (400 ml / 100 liters of water) and 0.3 per cent dithane M45 (300 gram / 100 liters of water) solution separately for half an hour each.
- Plant at a distance of 20x25 or 25x25 cm. at not more than five cm. depth with a hand hoe and then close it with powered farm yard manure.

	➢ Then mulch the whole bed with about 15 tonnes of green leaves / hectare.
CHILLI  	➢ Avoid application of pesticides just before picking. ➢ Do not allow the pods to over ripe / dry on the plant itself. Periodical picking improve the yield and quality. ➢ Dry the harvested chillies on clean polythene sheets or cement floors to avoid aflatoxin contamination. ➢ Dry the produce till the moisture content reaches 10-11 per cent. ➢ Prevent contamination with dust and other foreign material. While drying keep the dogs, cats and poultry away from the drying floor. ➢ Store the produce in clean and dry gunny bags and stake them on wooden plank 40-60 cms away from the walls to prevent produce from moisture.
FENNEL **CUMIN** **FENUGREEK** **CORIANDER**	➢ The field must be ploughed and kept open during summer. This will help for controlling the pest and diseases as well as absorption of the rain water.
CELERY	➢ Crop should be irrigated during first fortnight. ➢ Harvesting of plants should be done when about 80 per cent umbels turn to light brown colour. ➢ After harvesting crop should be dried on clean surface and threshed to separate the seeds. ➢ Grading is done with the help of sieve or vibrator.

KRISHI MELA 2009

Smt.Lokeshwari Gopal, Member, Kodagu Zilla Panchayath inaugurating the Board stall organized during the Krishi Mela 2009 at Shantally. Shri.I.R.Noolvi, Scientist, ICRI, Saklespur, Shri.Mukesh Shankar, Assistant Director, Spices Board, Madikeri and M.Y.Honnur, Senior Field Officer Spices Board, Somwarpet were present at the stall and rendered technical advice to the farmers at the stall.

MONTHLY AVERAGE PRICES OF SPICES FOR FEBRUARY 2009

SPICE	CENTRE	GRADE	PRICERS/KG
Black Pepper	Kochi	Ungarbled	109.13
		Garbled	114.13
Cardamom small	Vandanmettu E-Auction	bulk	508.43
	Bodinayakanur	bulk	502.11
	Saklaspur		395.93
	Sirsi		430.60
Cardamom (L)	Siliguri	Badadana	144.82
		Chotadana	126.56
Chillies	Virudhnagar		50.00
Ginger (Dry)	Kochi	Best	100.00
		Medium	95.00
Turmeric	Kochi	Alleppey Finger	46.50
	Bombay	Rajpuri Finger	70.17
	Bombay	Duggirala	43.33
Coriander		Indori	44.83
		Kanpuri	53.83
Cumin	Bombay	4%	99.17
Fennel	Bombay	-	72.92
Fennugreek	Bombay	-	30.24
Mustard	Chennai	-	33.80
Garlic	Bombay	-	11.00
Celery	Bombay	-	49.17
Clove	Cochin	-	NA
Nutmeg(with shell)	Cochin	-	160.22
Nutmeg(without shell)			263.70
Mace	Cochin	-	484.35
Cassia	Chennai	-	74.00
Vanilla*			695.00

SPICES SOURCES

Average FOB export price -January 2009

Prices are collected from secondary sources like Agricultural Produce Market committees, Kirana Merchants Association, India Pepper and Spice Trade Association, Licensed Cardamom Auctioneers etc.

ALL INDIA CARDAMOM AUCTION SALES AND PRICES FOR FEBRUARY 2009 COMPARED WITH FEBRUARY 2008

PERIOD	FEBRUARY 2009		FEBRUARY 2008	
	Quantity sold (Kg)	Average price (Rs./Kg)	Quantity sold (Kg)	Average price (Rs/Kg)
First week	3,02,466	521.78	89,935	591.48
Second week	2,69,422	489.00	80,695	589.62
Third week	2,14,549	495.89	97,289	591.32
Fourth week	1,76,219	497.24	98,290	573.87
Total	9,62,656	502.34	3,66,209	586.30

Source: Auction reports received from Licensed Cardamom Auctioneers

AVERAGE INTERNATIONAL SPOT PRICES FOR FEBRUARY 2009

SPICE	MARKET	GRADE	(USD/KG)	(RS/KG)
Black Pepper	U.S.A	MG-1	2.65	130.43
White Pepper	U.S.A	Muntok	4.63	227.89
Cardamom(Small)	Saudi Arabia	India Asta Extra Bold	14.00	689.08
Chillies	U.S.A	India S4	2.29	112.71
		Chinese Small	1.87	92.04
Ginger(Dry)	U.S.A	Chinese Sliced	1.92	94.50
Turmeric	U.S.A	AFT 5..50 Curcumin	1.87	92.04
Coriander	U.S.A	Canadian	1.50	73.83
Cumin	U.S.A	Indian	2.69	132.40
Fennel		Egyptian fancy	1.70	83.67
Fennugreek	U.S.A	Ind / Turkey	1.15	56.60
Clove	U.S.A	Mad / Zan / Com	4.85	238.72

AVERAGE IMPORT PRICE OF VANILLA IN TO USA

GRADE/ORIGIN	MARKET	NOVEMBER' 08 US $/KG
Madagascar	USA	23.97
Indonesia	USA	16.79
India	USA	16.30
Uganda	USA	21.53

Exchange Rate 1 US $ = Rs. 49.22

SOURCE: 1.A.A. SAYIA & CO.INC.HOBOKEN

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Phone : Off. (0424) 2214111,2214011, 2217195 Tel : MEGAFIN Email : aditya501@eth.net
Website : www.adityaspices.com www.turmericworld.com

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