



PADDY

Seeds of Hope



sown

Mullakkara Retnakaran Minister for Agriculture

The proverb 'Rice is Life' itself reflects the importance of rice as a primary food source to Keralites. Food preference is unique to the State, which is a part of tradition and culture.

The future of rice production in Kerala lies in improving the productivity with reasonable cost of production through promotion of high yielding varieties of seeds, scientific management of cultivation thereby making rice production a remunerative enterprise for farmers.

The biggest challenge is to make rice a remunerative crop a scenario with multiple benefits. It is possible to transform Kerala into a highly productive and remunerative rice state without disturbing the existing system by improving the yield through better agronomic practice and policies. In fact, the rice based systems are essential for food security, poverty alleviation and improved livelihood.



Interest Free Loans to Identified Green Card Holders

As a part of increasing rice production in the State, paddy area of Kuttanad, Palakkad and Kole areas of

The Government has decided to procure rice at a price of Rs nine per kilo, which is the highest ever procurement price in the country to improve the production and profitability of paddy cultivation.

Thrissur district which are highly productive shall be designated as 'Protected Paddy Fields'. The paddy farmers of the protected paddy fields will be provided with 'Green Cards' which enable them to avail interest free agricultural loans. The procurement of the produce of these identified green card holders will be given priority. Rs.10 crores has been earmarked during this financial year to provide interest free loans to the green card holders.

Paddy procurement

Procuring the rice produced by farmers at remunerative price is really an encouragement to the paddy growers. The Government has decided to procure rice at a price of Rs nine per kilo, which is the highest ever procurement price in the country to improve the production and profitability of paddy cultivation.

The constant efforts from the part of the Government as well as from the Agriculture Department have shown a positive sign. The paddy fields in Alappuzha, Palakkad and Thrissur yielded a good crop during last season. Kuttanad area yielded 1.37 lakh tonnes of paddy from 25,00 ha. which is 30,000 tonnes more than last year.

Ambitious projects like the 'Keralasree', an integrated rice development project and establishments of rice mills under the supervision of Agriculture Department are in store for helping the paddy farmers of the State.

We aspire to increase paddy production substantially and to fulfil the dreams of our paddy cultivators. ■



PHOTO : VENICEXPRESS

RICE FOR ALL All for Rice

R. Hali

Kerala, hailed as the bio diversity paradise of India, accommodates the culture of over two hundred plant species in its wet, garden and dry lands making it an ever green tract of unique ecological significance. Among the same, rice could well be marked as the 'mother crop'. Climate of the state is so conducive and so Keralites grow rice round the year unlike in several other countries where its cultivation is confined only to specific seasons. But the most sensitive area generating unending anxiety during 60's after the formation of Kerala state was its chronic shortage of rice, the staple food of the masses. The intensive political and governmental pressure the state exerted during those days was so vociferous that the Delhi press and authorities termed Kerala as the hungriest part of India. The rice fields of Kerala were yielding then only 50% of its food requirement. The popular saying 'rice is life' could be so observed in its real sense in our food front and the efforts to produce more grains got more care and prominence.

West coast even during 'British Raj' was always nervous and tense due to the paucity of rice and a



lot of activities were undertaken to enhance grain production in the pre independence period also. Lovely and charming Vembanadu Lake had to surrender thousands of hectares of prime shallow area for rice culture. State of Travancore gave interest free loan and generous assistance during 1941-50 period to reclaim *kayal land* for paddy cultivation. Formation of Kerala took place when central government was struggling to get food aids and grain loans from different countries for keeping India starvation free and avoid another notorious 'Bengal famine' like situation. Kerala associated with central government programmes for boosting grain production and performed well in the efforts to produce more rice and it accomplished a production hike to the level of 13.76 lakhs tones by 70's.

Food grain situation in India took a different turn by 1978 when the country took courage to do away with import of grains, thanks to the steep increase in domestic grain production and this

period is hailed as the dawn of green revolution. But the most striking impact felt in areas like Kerala was in the form of plentiful supply of good quality grains for nominal price. The new change made rice growing slowly unprofitable and even uneconomical due to comparatively high cost of production and the availability of quality rice without any restriction in the open market. This really paved way for the farmers to switch over to cash crops and bid good-bye to rice culture. Since then several efforts were done with sufficient fund flow and special government patronage was offered to retain rice culture in the state.

Of all the programmes launched to enhance the capability of the paddy farmers and to reduce the cost of production by combining all available technological innovations, Group Farming for rice launched in 1989 was the most outstanding in winning the confidence of the rice growers by producing splendid positive result. It is worthwhile to have few glimpses of the above efforts hailed even as the 'rice miracle' by eminent public men at this juncture when Kerala propose to implement an all out people's campaign to protect rice fields, rice culture and rice farmers.

Following are the 1989 group farming effort.

- 60,000 acres of rice fields spread over 3000 *padasekarams* covering all the districts were brought under the programme during the viruppu season.
- 1.8 lakhs farmers and 4000 people's representatives were involved in the task. The farmers retained their right over land and the entire produce generated. But all agricultural operations in each *ela* were done in a uniform manner in the leadership of the *padasekara samithy*. This unity building exercise was the key to success.

Wherever required, supplies and services were made available through department of agriculture, service co operative banks, agro industries

corporations, agriculture universities, fertilizers and pesticides firms, national seed corporation, grama panchyath etc.

- Agro clinics were organised in all *padasekarams* which ultimately became the most effective tool for developing micro level contact for interaction between farm development agencies and rural community.

To make rice culture truly scientific, soil-testing labs under the chief soil chemist tested 1.5 lakhs soil samples collected from the *padasekarams*, prepared soil health map for each unit and recommended the manuring schedule. This record-breaking achievement has helped to bring down fertilizer cost and introduce optimum use of plant nutrients.

- Tractor ploughing was resorted in all *elas* enabling the *padasekara samithis* to put down the cost of cultivation to a considerable extent. It was a titanic task then since tractors were not welcomed by the agriculture labour and it was kept out of bounds. The farmers especially small and marginal category could create conducive climate for introducing tractors by using their good offices with the labour wherever signs of unrest cropped up.

The most scintillating part was the creation of movement for revival of the rice culture. The programme got a flying start when E.K. Nayanar the then Chief Minister inaugurated the programme at Ulloor by ploughing with a power tiller and it was depicted as paddy perestroika by a section- of the press. V. V. Raghavan, the then agriculture minister as the moving spirit behind the massive campaign, visited every district and spent several hundreds of hours with farmers, people's leaders, officials, agriculture labour and social workers in the rice fields interacting the different aspects concerned

with the new programme prior to the commencement of 2000 harvest festivals.

- V.V. Raghavan summed up the accomplishments by claiming that the

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group farming efforts produced grains additionally worth Rs.27 crores to the farmers of Kerala. He thanked the farmers, people's leaders, government officers and NGO's for transforming the programme into a people's movement sinking all political differences. The state statistics department later confirmed 29843 tones were additionally produced during the '89 kharif season over the previous year.

A lot of changes have been taken place since 1989 in Kerala's rice sector. We have completed two five year plans since then and now though the productivity has made a significant hike, the area and production of rice have come down to 2.7 lakh hectares and 6.6

State is also planning to launch a massive people's effort combining technology, funding and legal support for helping all those who love rice and environment. The new programme is expected to produce a permanent path way for protecting rice fields and make rice culture economic and profitable.

It will be worthwhile to look at the strength we have at our command now to launch such a bold venture.

- Government has already escalated the procurement price of paddy to Rs.9/Kg which indicates the administration's firm will to make available the best price to the producer. It has also revamped the procurement of machinery so that the trade and

could be made the vehicle for launching micro level rice development activities through the krishi bhavan infrastructure. All that is required is formulation of *padasekaram* wise action programmes providing technological support, input assistance and marketing arrangements. For this the Department of Agriculture should be in the fore front and all corporations, Agriculture University and NGOs should form action oriented monitoring systems. This is within our reach since this programme enjoys unreserved and unlimited political will.

- Our co-operative sector has surpassed all other organisations in the country by offering loan to farmers at 4% interest and even initiating interest free loans to rice farmers in certain districts.

- The emergence of Farmers Debt Relief Commission and the proposed organisation for providing special insurance cover to farm families are really creating a situation in the rural areas of the state for giving shape to a sustainable green revolution with a difference for which the various farmers organisations, voluntary organisations and nature lovers are longing. Various programmes like Watershed management, CADA, community irrigation, ecology and environment protection and value addition of crops, training of skill development etc should get its own areas of accommodation in this programme so that it will truly become a people's movement for rice revival.

Rice is a wonder grain, which provide staple food for half of world's population. It also provides employment and income to millions of rice producers, workers, processors and traders. For Keralites, rice forms the unique food - but much more than a food. It is society, culture, politics, business, the beauty builder of landscape, joy and pride of the community. In short rice is the most cherished, loved, respected and adored crop with pious reverence. We shall join together to bring back more and more rice fields with golden ear heads in all its glory as we need it in our daily food, religious festivals, wedding parties, paintings, songs, stories, novels and above all to make our rural life more charming, heart warming and prosperous.

■ The writer is former Director of Agriculture, Government Kerala.



PHOTO : DALU PARAMESWARAN

lakh tones of rice and Kerala at present is importing 80% of its rice requirements from other states. More than that protecting rice fields, rice culture and rice farmers have become an ecological necessity required for the very existence of the state. Rice production and conservation of the rice fields are no more a problem confined to a group of farmers nor the catastrophe like condition can be handled by a department, university and few corporations. In this situation it is a heart-warming news to learn that the state government is giving top most priority for rice culture revival and 11th plan envisages to bring not less than 40000 hectares additionally under rice.

middlemen will not rob the assistance in the mid way. This price hike has generated great enthusiasm and confidence among the farming community in general and paves way for launching a mighty production programme.

- Government has already moved a law to protect the rice fields. Once the law is enforced nobody will dare to undo the rice fields and convert it into a toy in the hands of real estate lobby. This is also a fundamental requirement for the confidence building exercise.

- The three tier Panchayati Raj system is well placed in the state and it

THE GRAIN

More Valued

Rice is synonym for food to a lot of us. It is hardly a surprise, given that rice is the most consumed grain in the whole world.

Suresh Muthukulam

Rice is life for more than half of the humanity. It is the grain that has shaped the cultures, heritage, tradition, diet and economics of billions of people through out Asia. For them, life without rice is simply unimaginable.

Grown in Asia for at least 10,000 years, rice has influenced the day to day lives of a great society. Rice really dictated the rhythm of life in olden days. It is this grain that linked heaven and earth gods and mortals. Rice dominated the

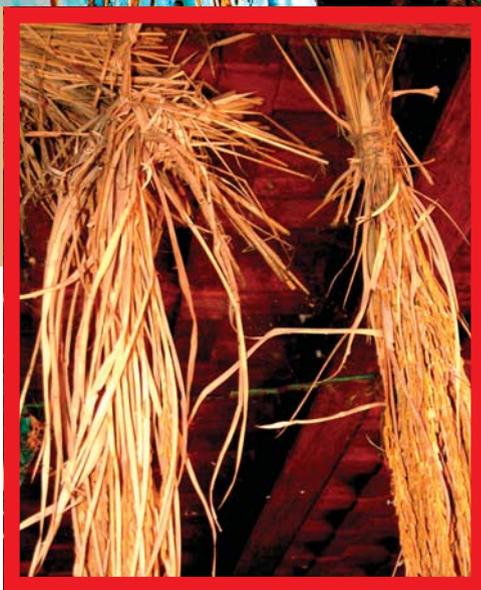
customs, beliefs, rituals and celebrating everywhere it is grown.

Rice is synonym for food to a lot of us. It is hardly a surprise, given that rice is the most consumed grain in the whole world. History has it that in many parts of the world, growing and eating rice symbolises prosperity and happiness.

Wherever the crop has been planted, festivals, traditions, rituals and languages celebrates its importance. Even for those,

for whom rice is an everyday sight, something magical-spiritual - still radiates from the depth of the lush green paddy fields.

In much of Asia, where rice is the





essence of survival, poor people in both cities and rural areas spend half to three fourth of their income on rice - and only rice. Keeping rice prices within their means is an absolute must for social, economic and political stability. For us, rice sufficiency is the foundation of a healthy and vibrant society. We will be prosperous only if we can feed ourself.

Kerala is also the land of rich rice heritage and culture. Moreover, a staple food of Keralites, rice is closely associated with the everyday life of a Malayali, right from his birth to death. Every special ceremony or gathering is directly or indirectly connected with rice.

Feeding of rice or '*chorunu*' is the first ceremony in the life of a child that takes place in the sixth month of its birth. This is a ritual for a baby's first feeding of solid food.

'*Vidyarambham*' is the solemn beginning of a child's education. This is an auspicious day for children who are

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to begin their schooling, when a child attains three or five years. On this day the child is made to write the letter '*Harishree Ganapathaye Nama Avighnamasthu*' with its ring finger on raw rice in a bell metal vessel and the child is made to utter each word when it is written.

On the *Durgashtami* day, a ceremony called '*Poojaveypu*' is performed in the

evening. In the puja performed to goddess Saraswati, during which fruits, beaten rice, roasted paddy (*malar*), jaggery etc. are offered.

'*Puthari*' or otherwise called '*Huthari*' – as it is called in some regions – is a joyous harvest festival celebrated in South India, especially Kerala. It is celebrated in the Malayalam month of *Chingam* (August – Septmeber) after the paddy harvest. Meaning of the word '*Puthari*' is 'new rice'. At this time rice is just formed and is brought to the house from the field and de-husked. The festival symbolises the solemn beginning of the use of new rice from freshly conducted harvest season for offering in the temple.

As a traditional sweet, *palpayasam* – the pudding made with rice and milk – is prepared with new rice for offering to the Lord on the auspicious occasion.

Another custom of '*puthari*' entails, cutting of little paddy crop which is ready in small bunches and handed over to those present in the ceremony as a precious device present. This is to be preserved in their dwellings as an omen of prosperity and progress.

Folk culture of Kerala can be witnessed in all its splendour during Puthari, as the villagers sing conventional songs and perform different types of folk dances in the traditional temple fairs.

The first day of '*Medam*', occupies a unique position as the '*Vishu*'. On the vishu day the eldest member of the family gives '*Kaineettam*'. He gives silver coins to the junior members along with some raw rice and Konna flower.

In *Agraharams*, where Brahmins live in groups, a woman or a girl from each house will draw an elaborate '*Kolam*' – a ritual drawing in front of the house inscribed on the pavement with white crushed rice flower. These *Kolams* in various attractive designs appear to be fantastically beautiful welcome mats for the goddess.

As per traditional Hindu culture, there is a pre-wedding ceremony. In Kerala, wedding actually starts during this ceremony, where the parents of the boy and the girl exchange horoscopes. If everything is agreed '*Kanyadaanam*' takes

place. After '*Kanyadaanam*', the girl offers puffed rice to the *agni* (fire) around which the mystical ceremony is performed.

The role of rice in wedding ceremonies include rice urn and lamps. Sugar-coated puffed rice is used for praying to the gods for a child. The sumptuous '*Kalyanasadya*' is also centred around a rice feast.

The various age-old ceremonies conducted in some of the famous temples in Kerala also treat rice as an essential part and parcel of every occasion, whether it is worship, offering or a grand procession.

In Mannarasala, the famous temple of Nagaraja (God of serpents), situated to the north-west of Haripad, on the day of *Ayilyam* asterism in the month of *Kanni* and *Thulam* (September and October) all the serpent idols are given an offering of '*Noorum Paalum*' (rice flour and milk) and cooked rice.

Guruvayur, where the Srikrishna Temple situated is probably the only temple in the state that hosts the maximum number of rice feeding ceremonies, in connection with the ritual first meal for infants.

In Sabarimala temple, the holy shrine dedicated to Lord Ayyappa, where the main pilgrimage is undertaken between November and January. The pilgrims carry on their head bundles containing traditional offering like rice, coconut filled with ghee and camphor.

'*Aanayoottu*' - the feeding of elephants is one of the mammoth ceremonies held as part of the '*Ashta Dravya Maha Ganapathy Homam*' at Shree Vadakkunath temple in Thrissur. Here the elephants are given rice mixed with jaggery, ghee and turmeric powder. About 500 kg. of rice is required for one time *Anayoottu* ceremony.

The famous '*Chempeduppu ceremony*' at Chandanapally Malankara Catholic church, Pathanamthitta is also notable for its peculiar usage of rice. Here people offer rice for the *Chempeduppu* ceremony in two large copper vessels (*Chembu*) kept at the church. The copper vessels carrying the half-boiled rice were taken out in a procession by the faithfuls with traditional church orchestra playing the accompaniment.

Many of the traditional festivals in Kerala also can't avoid rice as an excellent ingredient.

Thruvathira, the festival that falls on



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the asterism in the Malayalam month of Dhanu (December – January) is highly auspicious and the devotees throng Shiva temples for worship. On the festival day, women discard rice meal, but only take preparation of *chama* or wheat. This also shows the importance that Keralites give to rice as their staple diet, and take it as a challenge to get God's grace by totally avoiding rice meal for a day!

In Tamil Nadu, giving a gift of rice is a part of Thiruvathira ceremony. Two days before Thiruvathira, it is customary to send rice packets to relatives, living in the same town or village. A rice packet consists of cooked long grain rice mixed with yogurt, milk and butter and seasoned with fresh ginger and curry leaves. This rice is packed in fresh banana leaves, placed in stainless steel or brass container with lids and delivered along the deep fried, sun-dried vegetables.

In Siva temple of Tamil Nadu, a ten day festival in honour of Lord Siva for Thiruvathira is celebrated. Here the

special food offering at the festival is called '*Kali*', a sweet dish prepared with fried rice powder and jaggery.

In Tamil Nadu, '*Pongal*' is an important festival, which is celebrated to mark the withdrawal of the South east monsoon as well as the reaping of the harvest. In fact, the name of the festival is derived from *Pongal*, a rice pudding made from freshly harvested rice, milk and jaggery. *Kolams* (*Rangoli*) are drawn with rice flour during this occasion. The idea behind using rice flour is that the insects would feed on it and bless the household.

In Kerala cuisine also rice is the major ingredient and attraction. It is used in different manners so as to prepare different dishes and snacks. For example some of the famous rice dishes of Kerala cuisine appreciated lavishly even by the foreign tourists are '*puttu*' (powdered rice formed into a cylindrical shape), *vattayappam* (rice paste made into round and sponge like a cake), the lace edged *vellayappam*, *Kallappam* (like a pancake) and *idiappam*, resembling the noodles.

In other Asian countries also the lifestyle and culture of the people is very much intertwined with rice. In some rural villages of Cambodia rice farmers show their respect to the two guardian spirits '*Niakta*' and '*Yiey Tap*', by praying and offering their favourite dish, the sweet rice porridge.

In Bali, rice embodies Dewi Sri- the rice mother goddess of food and fertility. Dewi Sri is the best loved and most worshipped deity there. Their everyday rituals include putting pinches of rice along the edges of fields to keep evil spirits and animals at bay – to grand temple celebrations with elaborate offerings of dyed rice paste, to honour their rice mother. Men, women and children absorb her life force into their bodies by moistening their foreheads, temples and chests with holy water and sticking kernels of uncooked rice to their skin.

In short, rice is the short, stout and wonderful grain that influenced and shaped the mankind's way of life, from time immemorial.

■ The writer is Asst. Director of Agriculture, Govt of Kerala

P.B.Sahasranaman

Wetland plays important part in proper maintenance of environmental equilibrium. Wetland ensures the benefit of the society at large and assists mankind to live in a cleaner and purer environment-which one cannot afford to lose. Kerala has a total wetland area of 1,27,930 hectares, out of which an area of 34,200 is the "inland wetland" and 93,730 hectares in the "coastal wetland". In addition there are three fresh water lakes in Kerala at Pookot in Wayanad, Sasthamkotta in Kollam and Vellayani in Thiruvananthapuram. These wetlands are under threat, due to the so called developmental activities undertaken by the mankind.

Likewise, the paddy fields of Kerala,

especially in Kuttanad and Palakkad are shrinking. There has been an alarming shift from rice and subsistence food farming to cash crops. The area under rice cultivation has been reduced from eight lakhs hectares in the early 1970s to nearly two lakhs hectares in 2000s. Kerala is importing more than eight per cent of its requirements of rice from other States. Land owners who cultivated paddy feel that it is not an economically viable use and therefore they were constrained to remunerative crops and cropping patterns. Such conversion has led to enormous ecological and cropping patterns. The ecological system loses its quality irrecoverably forever and the entire society is the loser.

The Kerala Land Utilisation Order, 1967, a subordinate legislation under the Essential Commodities Act, 1955, which is intended to protect the

BUFFERING the Paddy Fields

PHOTO : DALU PARAMESWARAN



agricultural lands has not served the purpose. One of the reason for its failure is that, the said law gives a discretionary power to the District Collectors to grant permissions for conversion. But the provision does not contain any guidelines as to how and when the power is to be exercised. The present legislation does not empower any one to grant permission for converting the agricultural land.

Though the Constitution of India casts a duty on the State to protect and improve the environment, it is for the first time that Kerala State has felt the necessity for making a comprehensive legislation for the protection of the said paddy lands and wetlands.

The Legislation

The Kerala Conversion of Paddy Land and Wetland Bill, 2007 is intended to conserve the paddy land and wetland and to restrict the conversion or reclamation thereof in Kerala. On the commencement of the legislation the major paddy producing areas of the States, aasthi, koravakandom, kaippad, karappuram, kolakkai, koleland, kuttanadan, palliyil, pokkali fields and the entire paddy fields in Palakkad District will be declared as major paddy producing areas.

The law prohibits the conversion or reclamation of paddy lands and keeping it uncultivated. But the cultivation or rotation of paddy and fish or on a reversible basis during the period in between two paddy crops that is cultivated according to the ecological nature of that paddy field is permitted. But the Government is empowered to grant exemption, if such conversion and reclamation is essential for any public purposes.

Wetlands have to be kept free from encroachment and pollution. Therefore its conversion and reclamation are totally prohibited.

The enforcement

Government will appoint officers, not below the rank of Deputy Tahasildar, for the purpose of ascertaining whether the provision of the Act has been violated or not. The said officer has also been empowered to enter any property, issue

stop memos, seize any vehicles, take photographs, etc.

In addition, the District Collectors have also been empowered to take any action to restore the original position of the paddy land or wet land reclaimed violating the provisions of this Act. The

The Kerala Conservation of Paddy Land and Wetland Bill, 2007 is intended to conserve the paddy land and wetland and to restrict the conversion or reclamation thereof in Kerala.

holder of paddy land, who do not cultivate, is likely to let fallow cultivate it with paddy or any other crop in accordance with Act. If the landowner does not cultivate it, the District Collector can entrust the job of cultivation to third persons. The selection shall be done on the basis of auction and the Kudambashree units have to be given preference in this regard. Such new cultivator will not be having any right over the said land. The District Collector has been empowered to use force so as to enforce any order in this regard.

The officers has been authorized to enter and seize any vehicle, implements, used for any activity which violates the said Act. Such vehicles and implements can be confiscated. A right to file appeal to the District Court is also provided under this enactment. This confiscation is in addition to the penal consequences which is separate and distinct.

The local self Government institutions are also restrained from granting any licence or permit under the Panchayat Raj Act and Municipality Act, for carrying out any activity in the said lands which are converted and reclaimed.

The Government has been empowered under this Act to call for any records of the District Collector and revise

the said order.

Offences under the Act

Any person who violates the provisions of this Act is liable to be imprisoned for a term which may extend up to three years but shall not be less than one year, in addition to fine, which may extend to one lakh rupees. The minimum fine is fifty thousand rupees.

If the offence is being conducted by a Company, every negligent Director, Manager or Secretary and other officers are liable to be proceeded against and punished accordingly. *Mens rea* is very much essential for the offences under this Act, if the offender is a Company.

Civil Courts are restrained from interfering with the steps taken under this Act by way of granting injunction, or other reliefs.



PHOTO : VENICEPRESS

Conclusion

If an activity is allowed to go ahead, there may be irreparable damage to the environment and if it is stopped, there may be irreparable damage to economic interest. In case of doubt, however, protection of environment would have precedence over the economic interest. Precautionary principle requires anticipatory action to be taken to prevent harm. For the benefit of the people as a Trustee the State has to control the use of such land. Sustainable usage of land and making it available for all the use is the present need of the hour. The present legislation is based on the said internationally accepted principle of sustainable development.

■ The writer is advocate based in Cochin

P. Radhakrishnan Nair

The Government has introduced the Kerala Conversion of Paddy fields and Wet lands Bills, 2007 in the Assembly and referred to the select committee. The objective of the Bill is to control the conversion of paddy fields for other crops or non agricultural purposes in the State. It also has provision to take action against those who keep the paddy fields fallow without raising paddy. From the agricultural point of view and on environmental considerations, the said legislation is a highly needed measure, which would produce positive impacts in the agricultural production sector as well as on the conservation of the environment of the region. Although it is a very useful and much needed measure, it is not very unlikely that the move will be facing much resistance, at least from a section of the society. Only the landowners were behind the phenomenon of conversion, for about a decade back, but now it has assumed greater importance, and real estate people, land mafia, land bank groups and other vested interests are also actively behind the move. Even the scientific, and academic society in the State also has diverse views on the scientific, social and economic aspects of conversion of paddy lands.

History of Conversion of paddy fields

Conversion of paddy fields for other uses in the State is active for the past about three to four decades. Though there was a government order as early as 1967, (Land Utilisation Act, 1967) it is apparent that the order was not effective, and large areas of paddy lands have been converted year after year.

Rice is the staple food of the people of Kerala, and conversion of paddy fields to other purposes has caused the State to depend on other sources outside Kerala for major portion of our food. The paddy area in the State (Nilam) as per the original land revenue records in 1970-71 was 5.74 lakh, Net area (8.75 lakh Ha. gross area.). As per the available statistics it is reduced to 2.9 lakhs Ha. (Net) in 2004-05. The figures for 2007 are not available now, but it is likely that the conversion must be going on at an all time higher rate.

Bills in the Pipe Line Constraining the Conversion

PHOTO : VENICEEXPRESS



The area under conversion of paddy fields can be broadly divided into two categories, namely, area brought under other crops, and area used for nonagricultural purposes.

Important crops cultivated in the converted paddy fields are coconut, areca-nut, rubber, and banana. Coconut is the most important perennial crop grown in the converted land. Next to coconut is areca-nut in the northern district of Canannore, and Kasargodu, but the Southern district of Kottayam, Idukki, and Pathanamthitta, rubber also is seen as a widely cultivated crop in the converted land. The land put to other crop initially may be used later for non-agricultural purposes of construction of buildings and roads. Land under nonagricultural purposes are used for buildings, roads, land for industrial uses; such as brick, and tile clay mining, and go-downs.

Reasons

Reasons for conversion of paddy fields is complex in nature. It had its beginning before 1970. Major reason for conversion during the early days; before 1968, was lack of irrigation facilities. But after 1968, the major conversion of paddy lands was on the grounds that paddy cultivation is not economic and other crops are more profitable. But the scenario for the period after 1995 was different. The conversion during the said period is extensively for non-agricultural purposes, under the influence of real estate business. The preparations for conversion of paddy lands for non-agricultural purposes in the State was started actually about two decades back, making use of the funds under Command Area Development, by constructing roads to the paddy fields - farm roads. Now the paddy fields having access to roads or which can be accessed by extensions are under threat of real estate and such lands will be converted any time, if it is not controlled immediately by effective measures. Now the money, the landowners gets under the real estate business is really big, and there is a wide spread belief that it is a highly economic

proposal. Urbanization and associated real estate business have given necessary inducement for the mindless conversion of the paddy fields, which has disastrous consequences to the entire ecosystem and humanity.

How to control and check the trend

The only effective means to control and check extensive conversion of paddy fields is by enacting appropriate legislation and strictly implementing the same. Bringing

in legislation is of course, important, but more important is its effective implementation.. It appears that, for effective implementation, wide spread awareness (on the adverse impacts of conversion of paddy lands and the immediate need to check the trend) is necessary. If the present trend is allowed to continue, Kerala would witness serious ecological problems, within a period of one or to decades, mainly in the form of water scarcity, land degradation, crop failure and frequent occurrences of natural calamities of flood and drought. Another serious impact is the shortage in food production. With a flood or drought in the areas we depend for food, or a problem with the transportation, our dependence

for food on other outside sources could result in food shortage. Major social impacts are unemployment and related loss of livelihood to the poor working class, namely the landless agricultural labourers. It is important that these issues are brought to the notice of the people, including the landowners, and a consensus is generated on the need of preventing the tendency to convert paddy lands. Massive awareness programmes, with the active involvement of the Local Self Governments and with the co-operation of the media would prove effective in achieving the goal. If all the section of people are made aware of the serious consequences of the conversion of paddy lands, it would make implementation of the law easy and more effective.

■ The writer is Director, Agriculture and Ecosystem Management Group, Thiruvananthapuram

The objective of the Kerala Conversion of Paddy fields and Wet lands Bills, 2007 is to control the conversion of paddy fields for other crops or non agricultural purposes in the State.



Rice Varieties KERALA'S SPECIAL

An array of such rice varieties having special qualities are available in Kerala which can be grown in various seasons and in different agro- climatic conditions.

Dr. S. Leena Kumary

The rich legacy of Kerala in the rice genetic resources is unparalleled. Traditional rice varieties which combine good eating qualities, low risk and less farm care are considered superior by many compared to modern rice. There are special quality rices also which can fetch a premium price in the domestic as well as international market. An array of such rice varieties having special qualities are available in Kerala which can be grown in various seasons and in different agro-climatic conditions. They include scented/ aromatic rices, medicinal rices, health rices, Organic (Pokkali) rice etc.,

GENERAL CHARACTERISTICS OF THE SCENTED AND MEDICINAL RICES OF KERALA

Variety	Duration (days)	Grain type	Suitability for cultivation
Gandhakasala	150-180	Straw colored, small, round grains, aromatic with white kernel	Suitable for transplanting during Khariff
Jeerakasala	150-180	Straw colored, slightly longer and slender grains, aromatic with white kernel	Suitable for transplanting during Khariff
Velumbala	180	White, long slender grains, aromatic with white kernel	Suitable for transplanting during Khariff
Chomala	165-180	Small, slender reddish straw colored grains, Aromatic with white kernel.	Suitable for direct seeding in uplands
Kayama	150-180	Straw colored, small, round grains, aromatic with white kernel	Suitable for transplanting during Khariff
Kothampalari-kayama	120-130	Small, slender black grains. Aromatic with white kernel.	Suitable for Khariff
Pookilathari	130-135	Small, slender, straw coloured grains, Aromatic with white kernel.	Suitable for transplanting in "palliyals" (Single crop terrace lands)during Rabi.
Njavara	70-75	Plants tall, lanky lodging Panicles are short to medium in length. Yellow and black glumed types occur. The yellow type has golden yellow lemma and palea while it is black in the other Seed coats are brown in colour, endosperm non waxy and grains non scented	Suitable for Kharif crop in uplands and Summer crop in wetlands.
Chennellu	120-125	Yellow and red glumed types occur. The yellow type has golden yellow grains with purple apiculus while the red type has bright red grains. Seed coats are brown in colour, endosperm non waxy and grains non scented	Red type is grown in coconut gardens during Kharif season while yellow type is grown in wetlands during Kharif and rabi.
Kavungin-poothala	150-160	Photosensitive, Long slender white grains	Suitable for rabi crop.

Scented/ aromatic rice

Scented rices are famous for their characteristic fragrance when cooked and fetch high market prices. In Kerala, Wayanad ranks first in cultivation of traditional scented varieties. The region experience a temperature ranging from 19 °C- 30°C and is dominated by plantations of tea, coffee and cardamom. Rice is grown in the broad and extensive valley bottoms in Wayanad and the low temperature regime prevailing in this area encourages cultivation of scented rice varieties. The predominant scented varieties of Wayanad are Gandhakasala and Jeerakasala. The temperature between 22°C and 26°C during flowering and dough stage are ideal for the expression of aroma in these varieties. These indigenous scented rices differ from the scented "Basmathi" rice with respect to growth habits as well as physico-chemical properties of the grains. They

are tall, have long duration and are weakly photosensitive. They possess long thin culms, produce long panicle with small well filled grains with good elongation on cooking. Other scented rice varieties grown in the high lands which lie on the western side of the Western Ghats include Neycheera, Kothampalanikayama, Pookkulathari,

Some of the high protein, high amylose and mineral rich rices from Kerala can be perfect healing foods for many modern ailments like diabetes, colon cancer, mineral deficiencies etc.

Kayama, Kunjikkayama and Rajakayama.

Medicinal rice

Rice varieties which are used either as medicine or as ingredient in medicinal preparations were largely available in Kerala. Though the bulk of the wide variability in medicinal rices grown in Kerala are lost, some varieties viz., Njavara, Chennellu, Kunjinellu, Erumakkari, Karuthachembavu, Kavunginpothala etc. are still grown by farmers. Njavara, is the unique medicinal rice variety from Kerala deserves special mention in this regard. This variety is known as "Shashtikam" in Sanskrit due to its extra short duration, coming to harvest within 60-70 days. Indigenous medicinal preparation using Njavara along with *Kurunthotti* ("Sida") rejuvenates the muscles and nerves. Two types of Njavara have been identified, the white glumed and black glumed, both of which are used in Ayurvedic

treatments. Chennellu and Kunjinellu are varieties indigenous to North Kerala. One type of Chennellu with bright red grains, grown as an upland variety in parts of Kannur district is used in treatment of diarrhoea and vomiting. Another type of Chennellu with straw coloured grains is grown in wet lands in Wayanad district. Kunjinellu is a variant of red coloured Chennellu, with small red grains and is given to patients recovering from jaundice. Erumakkari and Karuthachembavu are the traditional rice varieties indigenous to South Kerala. Karuthachambavu has black grains, blackish red kernels and black endosperm. The gruel made by the poached grains of Karuthachambavu is used to treat nausea, vomiting and stomach pains.

Erumakkari was used for treatment of cough. Annoori, a wild species of rice is used by the kani tribes for treatment of small pox. Kavunginpothala indigenous to Palakkad District is given to diabetic patients to reduce discomfort.

The general characteristics of the scented and medicinal rice varieties are presented in the table.

Health Rices

Some of the high protein, high amylose and mineral rich rices from Kerala can be perfect healing foods for many modern ailments like diabetes, colon cancer, mineral deficiencies etc. The insulin response of a food is measured as Glycemic Index (GI) and it has been found that rice varieties differ greatly in their glycemic index rating, the variation being controlled by the ratio of its starch fractions viz., amylose and amylopectin. Low amylose rices have high Glycemic Index while high amylose rices have medium to low GI. High amylose rice varieties like Kavunginpothala and Njavara and high protein varieties like Rohini, and Vutilla 8 have low glycemic index and can be recommended for diabetic patients and varieties like Karuthachambavu, Revathy, Pavithra, Gouri, Karthika and Bharathy are good

for combating anaemia.

Pokkali rices

The name Pokkali refers both to the peculiar system of 'rice cultivation' in vogue in the coastal saline soils of Kerala extending over the districts of Ernakulam and Alappuzha which is under the influence of tide and are overgrown with mangroves and also the salt tolerant traditional 'rice cultivars' grown in this tract. The rice varieties grown in the Pokkali tract during Kharif season are photo insensitive, having a duration ranging from 120 to 125 days, plant height of over 125 cm, have red kernelled bold grains and are tolerant to water-logging, salinity, and acidity. High genetic diversity exist with in the pokkali varieties viz., Pallippuram Pokkali, Kuzhippalli Pokkali and Vettikkal Pokkali grown in different regions. Other saline

resistant varieties of the tract include Cheruviruppu, Chettiviruppu, Kuruka and Anakodan. Varieties like Orumundakna, Eravapandy, Orpandy, Orkayama etc. are photosensitive and are grown during the second crop season. Kuthiruvithu, Kochumundon and Mundon are the saline tolerant varieties of the Kaipad system of Kannur District. Traditional varieties viz., Mundakan, Karamundakan, Karimundakan, Vellamundakan, Athikkirazhimundakan and Oarumundakan are photosensitive tall indica varieties possessing tolerance to salinity, popularly grown during the Mundakan (second crop) season in the Karthikappally Taluk, which comes under the *Onattukara* ecosystem, where saline water inundation is a common occurrence. In Pokkali system, one rice crop is followed by fish or prawn capture provides a substantial subsidiary income to the farmer. Pokkali fields are highly fertile and the pest and disease incidence is below threshold level and hence manuring or plant protection operations are not necessary for pokkali farming systems making Pokkali rice a natural organic rice.

■ The writer is Professor, Rice Research Station, Moncompu, Alappuzha.

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Dr.V.Ganesan

Rice is one of the most important food crops in the world and the staple diet for nearly half the world's population for more than 5,000 years. Of the total consumption of cereals, roughly one-half is represented by rice. Obviously, it is the most important staple food in India. Rice is the main food of Keralites and it will continue to be like in the near future also. Keralites were depending on the traditional pattern of paddy processing, which rice mills are now replacing with modern facilities.

In the beginning of 90s, the life style of people in Kerala had changed when we started consuming fast food variety rather than traditional food items. In this era a hectic life style is going on and every one is behind fast food. The processed material can be easily stored, transported and marketed. Postproduction processing is generally commodity specific and with each operation, value is added to the produce. It is estimated that value addition is about 75 % for primary processing and 25 % for secondary processing. Value addition ensures high premium to the grower as well as provides





Instant Rice Noodles

Steam whole rice so that from 20%-90% of its starch is gelatinized to obtain a whole rice product, which comprises partially gelatinized rice starch. Mill the whole rice product to obtain a flour product. Mix the flour product with water to gelatinize the rice product starch from 5%-30% further to obtain a dough in which the starch is not gelatinized completely to obtain the dough in a form of noodles. Drying the blanched noodles in a fluidized bed drier to a moisture content of below 15% by weight.

Dried Form of Starch from Rice soup

Rice soup which is generally discarded as waste and which cannot be used for any other purpose for other day is dried for making instant rice soup drink, rice soup vegetable mix, stiffening agent etc. Drum drying technology is used for making rice soup powder.

The concentrated rice soup is poured on the outer surface of an internally heated revolving drum. As drums are heated by steam, the concentrated rice soups get dried. Then the dried products are scraped off using a blade on the surface.

Result obtained is a very fine powder Cocoa powder coated Rice flakes

100g of rice flakes are roasted at 100°C for one to two minutes to make the flakes curly and crispy. Prepare sugar solution in 50 ml of water with 100g of sugar along with four grams of cocoa powder. Stir continuously to mix cocoa powder uniformly. Now the rice flakes are added to the solution to obtain uniformly coated rice flakes. Allow this product to cool to the ambient temperature for a period of 5-10 minutes.



more acceptable quality product.

Quick Cooking Rice

Usually Basmati rice is used for making quick cooking rice. It is very tasty and white in colour than any other varieties of rice. As such, basmati rice was used for preparation of quick cooking rice as well as for conducting experiments. 200 gms of basmati rice is taken and washed thoroughly. The rice is cooked for 10 minutes in pressure cooker. The

water is then drained off. Cooked rice is dehydrated with the help of a fluidized bed drier. A unidirectional flow of air at 800 °C passed through the rice for 60 minutes.

Rice Bread

Bread is one of the convenient breakfast-food consumed worldwide. It is a fermented baked product. Bread consumption in India is steadily

RICE PRODUCTS Value Added

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increasing as it offers convenience and relief from the drudgery in food consumption. The present production of bread in India is 9.58 lakh tones and the estimated growth rate is 9.70 per cent per annum.



Rice bread came out just a few years ago. It is now developed into several type of bread and they are quite attractive to the consumers in Japan despite the fact that they are much more expensive than wheat bread. In the world market, the cost of rice bread is still much greater than wheat; however, it has the potential to grow in many countries in the future. Nowadays, gluten-free rice bread (100% rice) has been developed. This type of bread is good for those who are allergic to gluten.

Preparation of Rice Bread

Breads are made from rice flour, yeast, sugar, egg, fat and water. The mix is made into dough by adding water and kept for rising. Dough is divided into pieces of lime size balls and are allowed to rest for 10-30 minutes. Now it is baked in a proper mould in an oven at 200⁰ C for about 30 minutes. The promising feature of this product is the utilisation of rice flour for making bread. Procedure followed for the preparation of rice bread is same as that of ordinary maida bread. Excellent product could be obtained by replacing 50% maida with rice flour with minor variations in the ingredients. Other baked products like cake, bun and rusk could be developed with rice flour.

■ The writer is Professor & Head, Department of Agricultural Engineering, College of Agriculture, Vellayani, Thiruvananthapuram.



PADDY CULTIVATION

Attracting Organic Approach

K. Bhaskaran Nair

In spite of the persistent and concerted effort from different corners, Kerala is not in a position to produce even one fourth of its annual requirement of rice. During the last 15 years the area under rice cultivation in the State has been reduced

considerably retaining only about 2,90,000 ha. (2004-05). The rate of reduction in area during the period is alarmingly high to reach 60 ha. per day. Also we could not considerably increase the productivity level even with the adoption of various improved technologies like use of chemical fertilizers



and pesticides. The productivity remains almost constant with 2300 kg. of rice per hectare during 2004-05 (Total production comes to 6,67,000 tonnes). The productivity level is too low when compared to other major rice producing centres of the world having almost similar agro climatic situations. We could neither increase the productivity level nor narrow down the wide gap between the achievable and achieved productivity to an appreciable extent.

Many reasons

The reasons for giving up the cultivation of rice by many of the farmers

During the last 15 years the area under rice cultivation in the State has been reduced considerably retaining only about 2,90,000 ha. (2004-05). The rate of reduction in area during the period is alarmingly high to reach 60 ha. per day.



of Kerala causing a fearful reduction in area are attributed to increased cost of production, high input cost, non-availability of skilled labourers, frequent crop loss due to natural calamities, soil ill health and degradation, low productivity, poor marketability, unpredicted price fluctuations for the produce etc.

Another important aspect to be emphasised is the ecological and health problems posed by indiscriminate and unscientific use of chemicals in the form of fertilizers and toxic pesticides. Maintenance of soil health by the judicious application of organic manures is ignored while adopting the modern

reasonable benefit (profit) to the farmers without inflicting any damage on the ecosystem in which he lives.

Giving priority for soil and water conservation, augmentation of organic manures through organic recycling, adoption of crop rotation (mainly with leguminous crops) and maintaining soil health, judicious use of organic manures, bio-fertilizers, botanic pesticides and bio-control agents, following principles of integrated pest management are some of the important principles of organic farming. It includes avoidance of chemical fertilizers and pesticides and taking up mixed farming practices by

providing livestock rearing as a prime component. Resource mobilisation in the farm with a view to discourage dependence of external inputs, also forms a part of organic farming.

To succeed?

While we think about promoting organic farming for rice cultivation the following important aspects have to be reckoned for getting better results.

- An earnest effort is needed to retain at least the existing area under rice cultivation
- It is not advisable to convert the entire area under rice to organic farming system all of a sudden. Suitable products (not prone to natural calamities and crop loss) are to be identified. Suitability with regard to topography, climate, water source, social condition etc. has to be looked into while the selection is done.
- Switch over to organic farming practices can be gradual process. So that the suspected sudden yield decrease can be minimised.
- Intensive research programmes need to be taken up with a participatory approach to formulate location specific package of practices for the new system of farming.
- Field trials with the involvement and support of the farmers need to be conducted to prove and almost rate the local adaptability of the packages formulated.
- Training based extension activities should be strengthened for the successful implementation of the programme.
- Varietal selection needs special consideration. Varieties having adaptability to local conditions, rest once to pests and diseases and high yield potential should be preferred, based on performance studies.



technologies for rice cultivation. All these aspects pose serious socio-economic and ecological problems in the State. It is at this crucial juncture, we are concentrating our efforts by leaps and bounds on taking up organic farming practices in rice cultivation.

A harmonious blend

Many of the people reiterate that organic farming is simply returning to the old traditional farming practices. But it is not so. It is rather a harmonious blending of certain paramount principles of modern agricultural technology and a few primary traditional practices to get a

Another important aspect to be emphasised is the ecological and health problems posed by indiscriminate and unscientific use of chemicals in the form of fertilizers and toxic pesticides.

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- Before popularising the farming system, necessary resource mobilisation programmes should be chalked out and implemented. Attempts should be made for the augmentation of organic manures through organic recycling. This will enable to reduce the cost of cultivation to a considerable extent.
 - Production of bio-fertilizers (azolla etc) and bio-control agents should be programmed in advance to make available them in time which will also help to reduce the cost involved in manuring and pest management.
 - Involvement of local bodies, self help groups, voluntary organizations, cooperative organizations etc. should be ensured in the programme for encouraging group action and public support.
 - Group approach among the farmers involved in the programme should be sought after to attain a combined effort to solve the day to day problems in the field early and economically.
 - There should be sufficient encouragement form Government, local bodies etc. by providing marketing facilities for the produce obtained and to get an attractive price for the organic product.
 - Financial assistance through interest free loan, production bonus input subsidy and compensation for crop loss due to natural calamities and pest outbreaks should be provided to the farmers involved in organic farming.
 - There should be regular monitoring and evaluation of the programme by a local committee consisting of members from Government agencies, local bodies, voluntary organizations, cooperative organizations, selected progressive farmers and farm labourers. District level and State-level committees can also be constituted for effective and smooth implementation of the programme.

No doubt, success is ahead if an earnest and concerted effort is bestowed for popularising organic farming system for rice cultivation resulting an evergreen revolution in the far front of Kerala.

■ The writer is former Deputy Director, Department of Agriculture



Showcasing AGRI IMPLEMENTS

Dr. Sverup John

People began to cultivate the soil and grow their own food about 9000 years ago. Before this they lived by hunting animals and gathering wild plants. Tools for farming were made of wood or stone. Today more people in the world earn their living by farming than by all other jobs put together. What they can grow depends on the climate and the type of soil where they live. The beginning of mechanization of Indian agriculture was made by the use of improved hand – tools and improved bullock- drawn implements. Apart from the manual labour, the greatest amount of farm power in India comes from animals. Among the animals bullocks are used the most.

Quite a variety of implements and machinery is required for carrying out various agricultural operations, starting

from the opening of the land to harvesting, threshing, winnowing and storage. These operations include ploughing, harrowing, levelling, sowing, inter cultivation, the application of fertilizers and manures, harvesting, threshing and winnowing.

Nowadays the attention of our farmers has been drawn to the power – operated machines and equipments, such as tractor, tiller oil engines, and pumps, transplanter, conoweeder, combined harvester etc.. Quite a large number of farmers are using these implements and firms have also been established here to manufacture them. This trend towards mechanized farming is bound to increase.

As far as Kerala is concerned, based on altitude, rainfall, soil and topography, the state has been delineated into different agro-climatic zones. Accordingly the major agro-ecological

zones of our state are:

- Onattukara
- Coastal Sandy
- Sothern midlands
- Central midlands
- Northern midlands
- Malappuram type
- Malayoram
- Plakkad plains
- Red loam
- Chittoor black soil
- Kuttanad
- Riverbank alluvium and
- High ranges

For each agroclimatic zones the crops grown are different. So based on soil, crop, the agricultural implements varies.

Now let us consider one of the major agro climatic zone viz: Onattukara. Onattukara once called Onam Oottu Kara was the 'granary' of the erstwhile



Kayamkulam dynasty comprises of Karthikappally and Mavelikkara Taluks in Alappuzha District; Karunagappally and parts of Kunnathoor Taluks in Kollam District and Pandalam in Pathanamthitta District. In this tract itself there are various kinds of indigenous implements for the specified crop and season of the tract for the agricultural operations as mentioned below:

Land Preparation

The soil has to be prepared for sowing of seeds or transplanting of the seedlings so as to establish the root system. The indigenous implements used for land preparations are discussed here. The field has to be ploughed thoroughly to incorporate the weeds and straw into the soil. Ensure a smooth level field for transplanting the seedlings. Plough and harrow the fields two or three times until the soil is thoroughly puddled and levelled. This will help to reduce the cost of weed control and also the loss of water and nutrition. For effective land preparation Nandan Kalappa (Indigenous Plough) is used.

Nandan kalappa is a plough which is the primary implement used all over the

country. The desi, poughs have a common design and they differ mostly in size, depending upon the soil and the size of the bullocks or buffaloes used in the particular area. The heaviest ploughs are found in black cotton areas of India. The desi plough is almost like a Western-style cultivator, both in design and action. All indigenous ploughs are almost similar indigenous, but vary considerably in size and weight to suite the prevailing soil types, ploughing conditions and the weights and heights of the draft animals in the locality. The following table gives an idea of the size and the draft of the desi ploughs used in different parts of the country.

Apart from Kalappa, Manvetti and Valaithumba are also used by farmers.

Manvetty is used for digging the soil for taking pits and taking basins for coconut and other crops in the garden land. Valiyathoomba is used for taking bunds, trimming bunds in wet lands. This is also known as "Onattukara Thoomba". Due to its acute angle of the spade, operations can be done to one side only.

Koonthali is generally used in all over





the state for digging hard surface and taking pits for planting etc in the garden land. Here the spade is thick and long.

In Onattukara, Pallicheruppu is used for removing stubbles of the previous crop and to mix the sesame seeds sown in the soil during third crop season. Pallicheruppu is characterised with brush like iron rake. After sowing the seeds, the soil is pressed by Thadicheruppu to conserve the soil moisture for germination of the seeds and establishment of the crop. It is merely a flat log 1.8 to 2 m long and is dragged over the soil.

Intercultivation

Weeding and inter cultivation is the operation, which can increase crop yields without much investment, because efficient weeding will save moisture, crop nutrients and, to some extent, air and light to the standing crop. To increase the efficiency of weeding, long-handled hoes, such as the Kochuthoomba is common in Onattukara. This kochuthoomba is light and handy so that women can also use this implement for inter cultivation.

Water Management

Irrigation during summer season and drainage during rainy season are the important component for assured crop production. In several parts of the state

In several parts of the state Chakram and Ara is traditionally used for water management. There are different sizes of Chakram and Ara in our state.

Chakram and Ara is traditionally used for water management. There are different sizes of Chakram and Ara in our state. Medium sized chakram consists of eight wheels made up of wood arranged in circular manner and Ara to fix the chakram firmly in the field and direct the flow of water in the field. This is an efficient way of discharging more water in given point of time.

Harvesting

Almost universally, sickle is the only tool that is used for harvesting crops. Efforts have been made to introduce reapers, mowers and even combined harvesters and threshers. These machines have however, proved successful only on

large padasekharams. But because of their high cost, they have not become popular with all farmers. In the case of sickles, there is less of shattering during harvest. The (Arival) sickles are of two types, plain or serrated or saw-shaped. The serrated sickles are used for harvesting paddy.

Post Harvest

Earlier the produces are sold in volume basis. The measuring utensils used were Para, Changazhi, and Nazhi. Nazhi is the smallest unit of measurement. Four nazhi is equivalent one changazhi. Ten changazhi is required for one para of rice. One para of rice weigh about 7.5 kg rice.

Our state eventhough small in size geographically, is blessed with a variety of indigenous implements, which are in use in different parts of the state for the last so many centuries. The number of implements used by our farmers is really very large. Some of these implements, even if they look crude, are really useful. Let us improve upon the indigenous implements in order to increase their efficiency and thus give our farmers something, which is within their means.

■ The writer is Professor (Plant Breeding), Regional Agricultural Research Station, Kayamkulam

C.S Anitha

Located at the south east of Palakkad, sharing borders with Tamilnadu, Chittoor taluk is resplendent for her scenic splendour, smell of ripened paddy grains and tune of harvest songs. Few months back 'Kavalamcode paddy group farming samithy' at Vadavannur Panchayat has brought laurels to this taluk, being the 'Nelkathir award winner' for the year 2005-06, one of the coveted Karshaka awards instituted by Government of

now had to its credit a membership of 196 farmers involved in paddy cultivation over 157 hectares of land. Right from paddy sowing to harvesting, they had put their heart and hands together and this joint responsibility owes to their strength and success.

The fifteen member administrative board with S.Ananthakrishnan as president and K.S.Mohammed Iqbal, Secretary is always keen and committed to prioritise the needs of farmers and provide them with all the facilities right from input availability to marketing

infrastructure. The constant care and attention needed for the crop is ensured daily by the samithy members. The facilities and required amenities are evaluated time to time and effective measures if needed are undertaken on strict transparent guidelines based on participatory approach. Two crops viz. Virippu and Mundakan are being raised each year bridging the scientific know-how and field level do-how. As the land preparation starts, the samithy ensures the availability of high yielding variety seeds, fertilizers, organic fertilizers, bio

Honouring THE SWEAT

Right from paddy sowing to harvesting, they had put their heart and hands together and this joint responsibility owes to their strength and success.

Kerala through department of Agriculture. The award carrying a cash prize of Rs. two lakhs, gold medal, shield and certificate is given to the best group farming samithy registered under the Travancore –Cochin Literary Scientific Societies act.

'The award is a recognition to our decade long efforts in protecting the interest of fellow paddy farmers and promoting paddy farming inline with timely technologies'-remarks K.S. Mohammed Iqbal, Secretary, Kavalamcode group farming Samithy. Registered during 1990, the samithy





pesticides, trichocards at the right time, very important for bringing out a successful paddy crop. The high yielding varieties like Uma, Kanchana, Harsha, Ponmani etc, developed by Kerala Agricultural University and Tamilnadu Agricultural University had given them good results. The samithy is self-sufficient in producing vermicompost needed for the entire Padasekharam. Plant protection and water management measures are strictly monitored by direct farmer level contacts. Also special attention is being taken to channelise the benefits passed on to farmers by government machineries to right hands at appropriate time.

The samithi has succeeded in enlightening farmers to adopt judicious machinery, which tackled labour problems to a major extent. Functioning in their own office building, samithi has full fledged machinery and infrastructure facilities for the agricultural and post harvest operations like tractor, power tiller, threshing unit, pumpset, wet seeder, dry seeder, power sprayer, cono weeder and a seed store. Very soon, they will be equipped with a 'combined harvester' from Agriculture Department. Also samithi has approached Gramapanchayat to set up a rice mill processing unit to facilitate marketing

and fetch more income to farmers. Group approach in farming activities, production and application of organic inputs viz. fertilizer and pesticides and bio control practices has considerably reduced the cost of production and increased the yield to an average of 5-6 tonnes per hectare in both seasons. During 2005-06 samithy could procure paddy worth Rs. one crore directly from farmers. An approximate of Rs. 20,000 per hectare is earned as profit through this group approach activities, says the secretary. The samithi also promotes other income earning supplementary farming activities like dairying and pisciculture. Samithi has succeeded in bringing the farming community into confidence by equipping them with up to date scientific techniques, easy access to farm loans, financial assistance for medical treatment and children's education etc. Samithi also conducts study tours frequently helping farmers to set their pace with modern trends.

Apart from concentrating on to their own activities, Samithy has also undertaken a leading role to fight for the common cause and grievances of paddy farmers. With the cooperation of neighbouring samithies, they took a leading role in getting sufficient order from Highcourt to release water from

Gayathri irrigation project to prevent crops at grain stage from drying up. This timely action has saved the farmers from heavy crop loss. Also during 2004-05 when the co-operative bank has refused to procure the mundakan crop, the samithy has directly procured and sold entire crop of Vadavannur panchayat at a rate fixed by government for an amount of one crore. Samithy has appreciated the efforts taken by the present government for implementing policies and decisions in tune with the wishes and aspirations of paddy farmers. The Secretary specially mentioned, that the current policies schemes and interest taken by government in paddy sector has boosted confidence and faith among farmers to take up paddy cultivation in more area. They firmly believe that paddy farming is not a loss provided that group planning and participatory approach are ensured right from sowing seeds to seed production. Let the mesmerizing breeze crossing Palaghat Gap caress the scintillating fields of Palakkad forever.....

Samithy can be contacted through the Secretary Kavalamcode Padasekhara samithi, Vadavannoor, Palakkad-678504 Phone-9495657977.

■ The writer is Agricultural Officer, Farm Information Bureau, Thiruvananthapuram.

Gopakumar Karakonam

Agriculture is the most important sector of the Indian economy and it provides food security as well as employment. Around 60 percent of the workforce of the country comes under the agricultural sector. The growth of the industrial sector also depends on agriculture, which provides raw materials and generates demand of consumer goods. There is a huge demand for agro-based products in the domestic as well as international market. 90 percent of the world's rice is produced and consumed in Asia. Wet land for Paddy Cultivation is spread over very large area in Asia especially in India, Japan, Malaysia, Indonesia, Thailand and China. Paddy cultivation is important in Asia as rice is the major food. It provides work for

many people due to the amount of work involved such as preparing the paddy fields, sowing seeds, transplanting, harvesting and so on. Government can help the farmers by providing irrigation, subsidised loan facilities etc.

At present, agriculture is market-oriented and factors such as cost of production, profitability etc are taken into account for farm management. It also involves resource planning, farm costing marketing and so on. Professionally qualified agricultural graduates and scientist conducts research to find out better varieties of seeds and plants having higher yields. They also work on creating innovative techniques of cultivation.

Professional courses

Several Agricultural Universities in India provide higher education and

research facilities to the meritorious students. B.Sc Agriculture, M.Sc Agriculture and PhD programmes are available. There are 34 State Agricultural Universities, four Deemed Universities and three Central Universities which offer Under Graduate Programmes in agriculture in our country.

B.Sc Agriculture course of four years duration is offered at all Agricultural Universities. Admission is open to meritorious plus two students with science subjects including biology. Selection is through entrance examination.

M.Sc Agriculture courses are offered for meritorious graduates in Agriculture. Specialisations include Agronomy, Agricultural entomology, Agricultural Extension, Plant Breeding and Genetics, Plant Pathology, Soil Science and Agricultural Chemistry, Agricultural

Nurture the Future

Economics, Agricultural Meteorology, Plant Physiology, Agricultural Statistics, Horticulture, Home science (Food Science and Nutrition).

In Kerala, the College of Agriculture, Vellayani. P.O, Thiruvananthapuram – 695522 and the College of Horticulture, Vellanikkara, KAU. P.O, Thirssur – 680 656, both under the Kerala Agricultural University offer M.Sc Agriculture Programmes in the above specialization. Selection is on the basis of entrance test. B.Sc Agricultural graduates are eligible to appear for this entrance test.

PhD programmes in Agriculture are also available at these colleges in the disciplines of Agronomy, Agricultural Entomology, Agricultural Extension, Horticulture, Home Science (food science and nutrition), Plant Breeding And Genetics, Plant Pathology, Soil Science and Agricultural Chemistry. Detailed information can be obtained either from the website www.kau.edu. or from the colleges concerned.

Kerala Agricultural University) and Central Agricultural University are filled up through this entrance test. Graduates in agricultural / allied subjects with 60 percent marks (55 percent of SC/ST and physically challenged) are eligible to appear for this entrance test. The ICAR provides scholarships to students in the form of Junior Research Fellowship and for PhD in the form of Senior Research Fellowship (SRF).

Some of the agriculture universities offering M.Sc Agricultural Courses are the following.

- The Tamil Nadu Agricultural University, Coimbatore – 641 003 (www.tnau.edu)
- The Punjab Agricultural University, Ludhiana – 141004 (www.pau.edu)
- Chaudhary Charan Singh Haryana Agricultural University, Hisar – 125004.
- Indira Gandhi Krishi Vishwa Vidyalaya, Raipur – 492 012,

Chhattisgarh.

Seed Science and Technology

Some Agricultural Universities offering Seed Science and Technology at Masters and PhD level in India. Meritorious B.Sc agricultural degree holders are eligible for admission. Since the seed industry is growing very high it has bright job prospects in Government and private employment markets. The following Agricultural Universities offer this course.

- Chaudhary Charan Singh Haryana Agricultural University, Hisar – 125 004 (www.hau.nic.in) .
- Acharya N.G Ranga Agricultural University, Hyderabad – 500030 (Andhra Pradesh) (www.angrau.net)
- Chandra Shekhar Azad University of Agriculture and Technology, Kanpur – 208002 (UP) www.csauk.ac.in
- Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur – 482004 (MP)
- Punjab Agricultural University,

Agricultural meteorology deals with the influence of weather on crop and animal husbandry. The scope of Agricultural meteorology covers the study of climatic recourses of given area for effective crop production and develop weather-based effective farm operations.

ICAR's Entrance Test

The Indian Council for Agricultural Research (ICAR) New Delhi, annually conducts an all India level entrance test for admission to the Masters Degree programmes in the field of Agriculture and allied sciences and for awarding ICAR's Junior Research Fellowships. All the seats for the Masters Degree Programmes in Agriculture at the Indian Agricultural Research Institute and 25 percent of seats in all the State Agricultural Universities (including the



PHOTOS : VENICEEXPRESS

Ludhiana- 141004.

- Tamil Nadu Agricultural University, Coimbatore – 641 003 (www.tnau.ac.in)
- Kerala Agricultural University, Vellanikkara. Thrissur- 680 654 (www.kau.edu)

Agricultural Meteorology

Agricultural meteorology deals with the influence of weather on crop and animal husbandry. The scope of Agricultural meteorology covers the study of climatic recourses of given area for effective crop production and develop weather based effective farm operations. It helps to study crop weather relationship in all major crops and forecast yield and to develop weather based agro advisories to sustain crop production by utilising various weather forecasts and climatic forecasts.

The National Commission on



M.Sc Agri Biotechnology courses are offered by some Agricultural Universities including Tamil Nadu Agricultural University, Coimbatore. Selection is based on All India Level combined biotechnology entrance test conducted by the Jawaharlal Nehru University, New Delhi (www.jnu.ac.in).

R&D organisation, food agriculture organisation, ICAR etc.

Agri Business Management

Indian Institute of Management (IIMs) at Ahmedabad and Lucknow, are some of the few institutes offering a two year postgraduate programme in Agri-Business Management. This programme is specially designed to develop young men and women into competent professional managers for the agriculture food and food processing, agri business, rural and allied sectors. The programme curriculum has a solid managerial foundation, a focus on food and agricultural market place. Meritorious professional graduates and post graduates in agriculture / related disciplines are eligible for admission. Selection is based on IIM – CAT score.

Kerala Agricultural University, Thrissur also conduct MBA Agri Business Management Course (www.kau.edu)

Agricultural Biotechnology

M.Sc Agri Biotechnology courses are offered by some Agricultural Universities including Tamil Nadu Agricultural University, Coimbatore. Selection is based on All India Level combined biotechnology entrance test conducted by the Jawaharlal Nehru University, New Delhi (www.jnu.ac.in). Meritorious Agriculture graduates are eligible for admission. Job prospects are bright for agricultural Bio Technologists. ■

Agriculture has recommended a separate department of agricultural meteorology in all State Agricultural Universities and ICAR / Research Institutes to strengthen teaching, research and extension in agricultural meteorology and to train the technical personnel.

Masters and Doctoral level professional programmes in Agricultural Meteorology are being offered by some Agricultural Universities. Kerala Agricultural University, Vellanikkara, Thrissur; Tamil Nadu Agricultural University, Coimbatore; GB Pant University of Agriculture and Technology, Pant Nagar (UP) are few among them.

Agricultural mythologists can find job opportunities in academic field,





Vision Greenful

Nandakumar M.

Adattu Farmer's Association (AFA) is an exemplary effort of a group of farmers for empowering its own agricultural practices especially while the agricultural sectors of Kerala face many obstacles. In Adattu - a village in Thrissur, 2500 Acres of land known as Kol Nilam is cultivated by 2432 families under a well planned programme. The cultivation (known as Puncha) takes place once in a year in between the months of October and February. There are nine Kol nilams (areas decided by circular bunds) where the paddy is cultivated after pumping out the rain waters from the field. Nine committees

which consist of ten members each, plan the whole cultivation process in advance. Adattu Farmer's Co-operative Bank (AFCB) formed by the farmers looks after the economic needs for the different stages in the paddy cultivation process. The bank was initially formed by the amalgamation of three co-operative bodies in 1980, having about 7000 members. Now there are 22,000 members with a deposit of Rs. 70 crores and Rs. 61 crores of outstanding loans.

The koythu committee arranges regular meetings with the farmers to decide the dewatering procedures, selection of the seeds, fertilizers and pesticides to be used, watering intervals and the final harvesting of the paddy

fields. The grains are collected and sent to the rice mill run by the AFCB for quality checking like moisture level in the grains. After the final processing the paddy is stored in the godowns owned by the Co-operative society. The farmer are paid the standard price decided by the government, the same day they deliver the products. AFCB gives a loan of Rs. 11,200 per acre for each farmer without charging any interest. The Managing Director, C.K. Varghese told that each farmer could earn between Rs. 25,000 to Rs. 30,000 per acre of the land. Last year the society could even provide the farmers the cost of loading, unloading and transportation etc. The society collected 32,275 metric tones



of the crops worth Rs. 28 crores last year and collected them in rented godowns so that the farmers did not have to sell the product at a cheaper price to the private agencies.

The AFA arranges regular awareness programs for the farmers to co-ordinate the whole process in a highly meticulous way. For the last three years the farmers increased the organic manure in stead of the use of synthetic fertilizers.

The backbone behind this whole progressive movement is a group of committed farmers led by M.V. Raveendran, the President of ADA, C.K. Varghese the Managing Director of the Farmer's Co-operative Bank and the board members.

The society planning to expand its activities into other agricultural fields like the coconut and areca nut production. They are already running a super market, and a medical store (Neethi) to enhance the financial needs of the society.

The society planning to expand its activities into other agricultural fields like the coconut and areca nut production. They are already running a super market, and a medical store (Neethi) to enhance the financial needs of the society. ADA has started processing and marketing pure coconut oil under the brand name 'Farmer's Coconut Oil'. They expect more support and aid to their efforts from the public and the government organizations. It is because the proven practices by a group of farmers, spanning over a period of more than twenty five years should inspire such endeavours in other domains of cultivation and production in our society. ■

Emperors of pet kingdom

Dr. D. Shine Kumar

Roots of colours on the long tail. Swift and beautiful movements. Sixth sense to foresee disasters awaiting mankind. Name it pheasant.

The new trend fastly catching up with our pet keepers is the pheasants. The golden birds arrived from the snowy Italian jungles are enriching our courtyard. With its orange tinged feathers, pheasant makes the firmament golden. The British ambassador, Armhest had no second thought to name the silver hued beauty queen as Lady Armhest at the first sight.

The pheasants adorn the exteriors of the rich in Kolkata, Hyderabad and Delhi. The aviaries giving space to provide feed, water and shelter are more suited for the pheasants. Aviary is an enclosure made of brick with an area of 10' x 10' and at a height of one foot covered with weld mesh. Placing tree branches inside the aviary will provide an ideal resting place.

Prof. Higgly from Italy was the first to get the pheasant bred. It lays around 30 eggs in an year at different clutches.

Three hen and one cock constitute an ideal flock. While the chicken takes 21 days for incubation, pheasants take two more days to hatch. Small incubators or local brood hen can be used for this purpose.

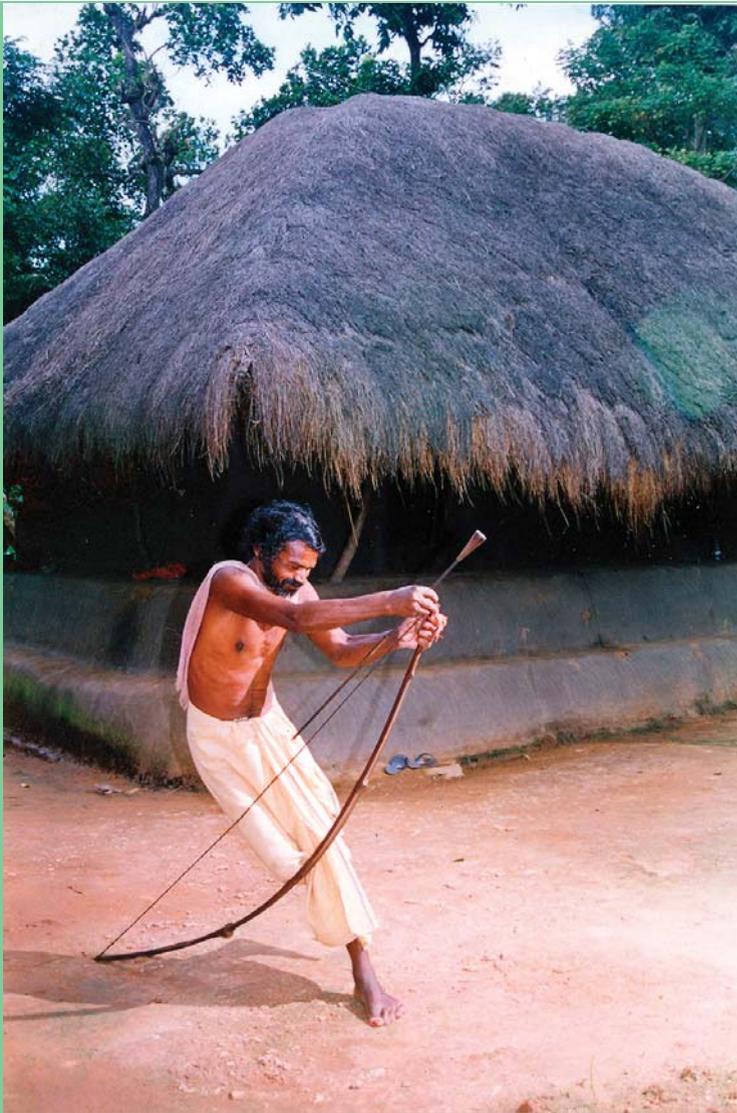
Like all other birds, the male pheasants are more beautiful. In two years the tail grows to a length of one metre making it the most beautiful bird of its kind. Grains, bread crumbs, orange, grapes and green grass are the staple food. To add the colour patches, it is desirable to feed carrot juice, charcoal powder, brick powder, coriander leaves and cuttle fish during breeding season.

No one will bother spending Rs.7000 - 15,000 to get a pair of this embodiment of beauty. Installing a microchip on its head will help the geologists to foresee the tsunami like natural calamities.

With their magnificent splendour, they are self-proclaiming themselves as the emperors of pet world.

■ The writer is Public Relations Officer, Dept. of Animal Husbandry, Government of Kerala.

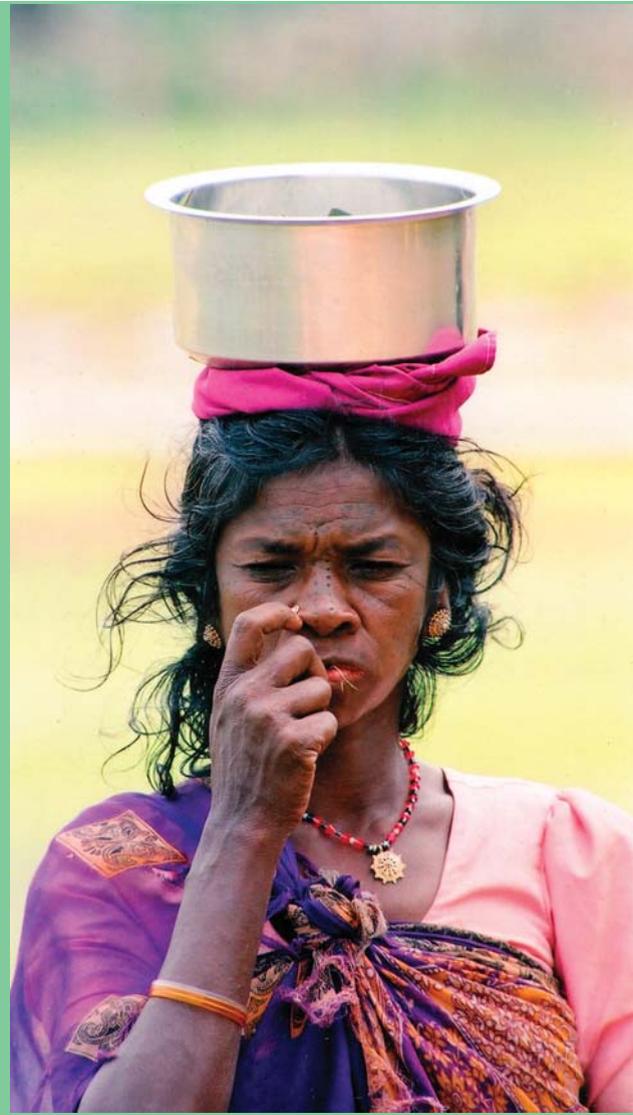




 PHOTOFEATURE

Francis Babu's
Camera transcribes
the mystic beauty of
Wayanad and its aboriginal life
to visual images







Heaven Celestial

Dr. S. Hemachandran

The fort and Palaces of Thiruvananthapuram where the Royal family stayed and ruled over, demonstrate the vitality and strength of the ancient tradition of Kerala Architecture. The history of this land is in many ways reflected and entwined with the history of these eye-catching

edifices. Sri Padmanabhaswamy temple, the fort encompassing the temple, the Palaces, heritage buildings and ponds are now part of National Heritage.

Sri Padmanabhaswamy temple, the shrine consecrated to Sri Padmanabha, the chief deity of the Royal family is almost in the middle of the fort. There are abundant of palaces surrounding the temple, which were constructed in a span of about 800 years. Very old buildings

were obliterated and new-one were built in place. Almost all structures are fine examples of traditional domestic architecture except a few constructed by European Engineers.

Sreepadam Palace is a cluster of residential structures built in different periods of time. The earliest one in the palace complex is a nalukettu which is mentioned as Sreepada Thirthakkara Kandukondedathu Koyikkal in the

Mathilakom Records (Sri Padmanabhaswamy temple records). Lord Sri Padmanabha is being worshipped as reclining Vishnu (Vishnu Anantasayin) with head directing towards the South. It is believed that the lustral water (thirtham) washing the legs of Sri Padmanabha had been drained to the tank in the Sreepadam Palace complex. Hence it is known as Sreepada thirtham. Sri Vira Ravi Varma who ruled Travancore between 1484 and 1503 stayed in this Palace for many years. The nalukettu, that is a building of four halls around a central courtyard, has pooja rooms, living rooms and a small kitchen on the north eastern side with a well connected to it (on the east). There is a padippura or entrance to this nalukettu on the southern side facing the temple. The tank is on the east of nalukettu with flights of steps from four sides. Other traditional style buildings built during

the time of Marthanda Varma (1729-1758) are also there.

The latest building in the Sreepadam Palace complex was built during the time of Rani Gouri Parvathy Bai (1815-1829) who succeeded Rani Gouri Lakshmi Bai

Sreepadam Palace is a cluster of residential structures built in different periods of time. The earliest one in the palace complex is a nalukettu which is mentioned as Sreepada Thirthakkara Kandukonedathu Koyikkal in the Mathilakom Records

(1811- 1847), the mother of Maharaja Swathi Thirunal Rama Varma (1829-1847). The palace was designed by an Engineer of the English East India Company in 1816 (took nearly two years for completion) for the official purpose of Rani Parvathy Bai. It is designed in Western style with large, fluted Corinthian columns in front. The façade has a high ceiling with a semi circular balcony particularly envisaged to enter horse-carts in to the building. The two storeyed building has enough rooms on both the floors, but the thrust is given to the first floor adorned with large doors and windows and Italian floor tiles. The walls are plastered with fine lime mortar with glossy finish.

Sreepadam Palace, now the office of the Director of Archaeology, is dedicated to the nation on 22nd September 2007.

■ The writer is Director-in-charge Department of Archeology



Rousing the Taste Buds

Indu Narayanan

Rice is the main ingredient in Indian cooking. Following are certain recipes, the main ingredient being rice.



Kozhukkatta

Ingredients:

For the dough: one cup raw rice

2 cups water

One tbsp oil

2 pinches of salt

For the filling: 3 cups grated coconut

1 ½ cups grated jaggery

¼ tsp cardamom powder

To prepare the dough for the covering

Wash and soak the rice in one cup of water for one hour. Grind the rice to a smooth paste using all the water used while soaking. Heat the remaining one cup of water in a heavy bottomed pan. Add oil and salt. When water comes to boil, lower the heat and add the ground rice paste in a steady steam. Stir continuously to avoid any lumps. Cook the dough till the moisture is evaporated completely. Remove from heat. Allow the dough to cool slightly. Grease your palms with a little oil and knead the dough till smooth. Cover and keep it aside.

To prepare filling

Combine the grated coconut and jaggery

well. Add the cardamom powder.

To prepare kozhukkata:

Divide the cooked rice dough into lemon sized balls. Make ball into a cup shape and put a little filling in it. Seal the edges well to cover the filling. Arrange these on idli plates and steam cook for seven minutes.

N.B. kozhukkattas have either sweet or salty fillings. It can also be prepared without any filling.

String Hopper

2 cups fried rice flour

A pinch of salt

one tsp ghee

Boiling water to make the smooth dough

One cup grated coconut

Pour boiling water to the rice flour. Add

ghee and salt to this. Make soft dough.

Take a small portion of the rice flour

dough into the string hopper machine,

press to the greased idli moulds.

Decorated with grated coconut steam

cook for five minutes. And serve

sprinkling sugar or with stew.

Chaklis

300 gm fried rice powder

200 gm fried gram powder

6 tbsp melted ghee

One tbsp sesame seeds

2 tbsp chilli powder

Salt to taste

Oil to fry

Take all ingredients except oil in a deep-bottomed vessel. Add water and knead into smooth dough. Then put small portions of this dough into chakli maker and press to make small wheels to the hot oil. Deep fry both sides and transfer to a paper to remove excess oil.

Kuzhalappam

200 gm rice flour

Half coconut, finely grated.

One tbsp cumin seeds

1 ½ half chilli powder

Salt to taste

Oil- 4 tbsp+ to fry

Combine all the ingredients except oil to fry. Add water and knead into dough (as required for chappathis). Take a small ball from the dough. Roll into a stick and join the ends to form a hollow cylinder. Having two inches length. Deep fry these in hot oil till they become crispy.





Kovakka

Controls Diabetes

Dr T.E. George

Ivy gourd (*Coccinia indica*) is grown mainly for its cute looking small stubby green coloured edible fruits rich in vitamin A, protein and fibre. This vegetable is also called little gourd or coccinea. It is having great medicinal value as its leaves and fruits inhibit the activity of enzymes involved in glucose production, such as G-6-phosphatase and helps in controlling diabetes. The fruits (kovakka in Malayalam) are used to prepare an array of delicious dishes like stir fries, stuffed curries, stews, pickles and salads. As this crop can be maintained as a perennial by regular pruning, this is more or less a permanent feature of most of the Kerala's kitchen gardens.

Kerala Agricultural University has released a high yielding variety of ivy gourd namely Sulabha. Average yield of this variety is around 1050 fruits per plant per year. The fruits are 9.5 cm long and weigh about 18g each on maturity. The fruit is cylindrical in shape and pale green in colour, with continuous striations.

Ideal planting time of ivy gourd is May-June and September-October under Kerala conditions. This crop is

propagated through vegetative means. Stem cuttings with three or four nodes and 30 – 40 cm length, selected from high yielding female vines are used as planting material. The selected cuttings should be planted in pits of 60 cm diameter dug at a spacing of four m by three m. Two or three cuttings may be planted in each pit. The plants should be allowed to climb over pandal or trellis. The plants have to be irrigated during

hot weather and care should be taken to keep the root zone sufficiently moist. It responds well to better nutrient management. Liberal application of farmyard manure (25 kg

per pit) along with 70 g nitrogen and 25 g each of phosphorus and potash per pit would prove to be rewarding. Weeding is to be done as and when necessary, depending upon the weed intensity. The soil in the ring should be stirred after two or three irrigations.

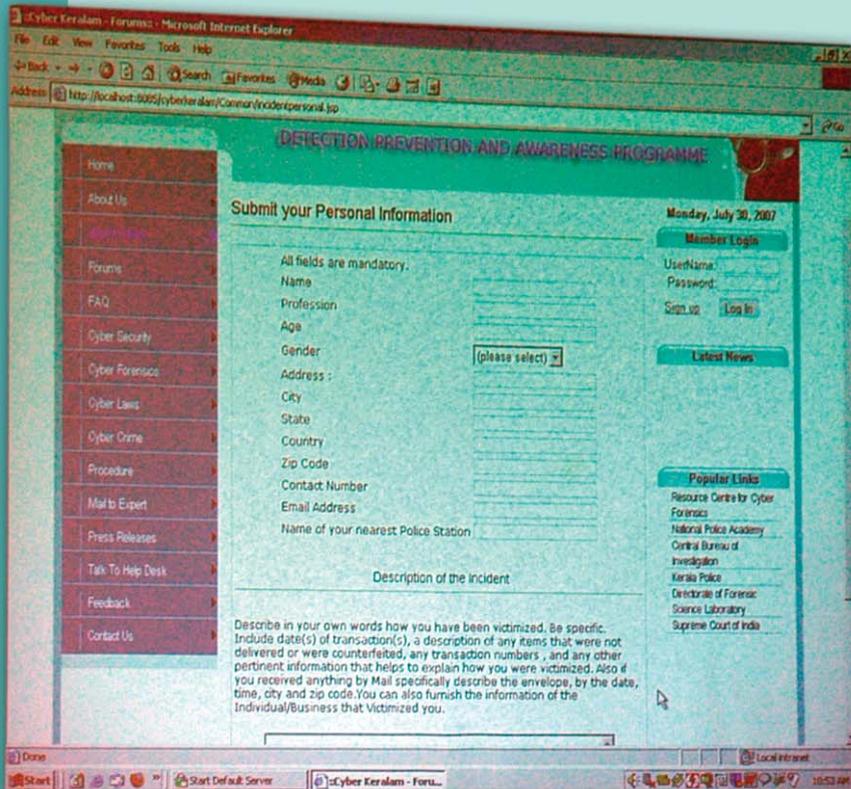
The crop comes to flowering in around 40 days and the first harvest can be taken within 45 to 50 days after planting. It produces female flowers in the axils of leaves. The fruits are set parthenocarpically. The fruits should be harvested at tender stage. Normally, two harvests can be done in a week. Fruit production is not season bound and fruits are available all through the year. No major pests and diseases are known to affect this crop except mild attack of fruit

Ideal planting time of ivy gourd is May-June and September-October. This crop is propagated through vegetative means. Stem cuttings with three or four nodes and 30 – 40 cm length, selected from high yielding female vines are used as planting material.



flies and gall insects. The plants can be maintained as a perennial for four to five years by proper pruning techniques. When fruiting is over, vines are to be pruned back, leaving a 60-75 cm long vine. All the diseased, dead and thin branches are also to be removed at the time of pruning. After five years, it is better to take up fresh planting preferably at a different site.

■ The writer is Professor & Head, Department of Olericulture, College of Horticulture, Kerala Agricultural University.



Cyber Crime Portal Ready

Dr. C. Venugopal

C rime is a public wrong affecting the entire society, resulting in criminal proceedings. It is deemed to be one against the state representing the whole community. IT and communication technology is being increasingly used by our society for fast business solutions. It has its own side effects. Interestingly, Information Technology is misused for criminal activities. These type of crimes, popularly known as cyber crimes, are new generation crimes, in which computers are used and networks for criminal activities. The target of criminal activity can be a computer, network or operations.

Cyber crime is comparatively a novel evil affecting mankind. It involves multitude of criminal activities such as software theft, mischief, fraud, forgery, defamation etc. Eventhough cyber crimes includes criminal activity by which computer or network forms an essential part, it also includes traditional crimes involving computers or networks that are used to

support the illicit activity. Cyber crime as Wikipedia defines is a 'criminal activity involving the information technology infrastructure, including illegal access (unauthorised access), illegal interception (by technical means of non-public transmission of computer data to, from or within a computer system), data interference (unauthorised damaging, deletion, deterioration, alteration, or suppression of computer data), systems interference (interfering with the functioning of a computer system by inputting, transmitting, damaging, deleting, deteriorating, altering or suppressing computer data), misuse of devices, forgery (ID theft), and electronic fraud'

Unlike traditional crimes, cyber crimes are transnational in nature, which curtails the police's ability to catch the culprit. Any person who has computer with Internet connection can be a party to a crime affecting systems or network and remain anonymous. The problem faced by law enforcement agencies is the anonymity. The jurisdiction of crimes is another headache for them.

Cyber crimes are classified into three-crimes done on Internet, crimes done using Internet and crimes done using computers. Some of the crimes done on Internet are Hacking, Identity Theft/ Phishing, Virus or worm attacks, Website Defacement, Cyber Terrorism, financial crimes such as credit card frauds and cheating, Intellectual property theft such as piracy of software, infringement of trademarks and copy rights and source code theft.

Hacking with computer system is an offence under section 66 of The Information Technology Act, 2000. As per section 66(1) "whoever with the intent to cause or knowing that he is likely to cause wrongful loss or damage to the public or any person destroys or deletes or alters any information residing in a computer resource or diminishes its value or utility or affects it injuriously by any means commits hacking"

Cyber stalking with threatening e-mails was one of the oldest methods of intimidating somebody destroying the peace of mind and draw the victim to the criminals' intention. Apart from this, Identity Theft, Defamation, Spamming, Internet Fraud, Extortion, Trafficking, Gambling, Narcotics, Pornography, Pirated software distribution are some of the cybercrimes done using Internet.

Another type of cyber crime is the crime done using computer. According to section 2(1)(i) of The Information Technology Act, 2000 "Computer" means any electronic, magnetic, optical or other high speed data processing device or system which performs logical, arithmetic and memory functions by manipulations of electronic, magnetic or optical impulses, and includes all input, output, processing, storage, computer software, or communication facilities which are connected or related to the computer in a computer system or computer network". Popular crimes done using computer are Forgery of official documents, Certificates, Stamp Paper, Counterfeit currency, Morphing, Software theft, etc

It is at this juncture a web portal www.cyberkeralam.in and a call centre (0471-2727004) under the leadership of Kerala State IT Mission with the technical support of Cyber Forensic Wing of C-DAC and the High Tech Cell

of the State Police started functioning recently. This project was inaugurated by the IT secretary K.R Jyothishilal at PR Chamber in the Secretariat. The project entails defence mechanisms and measures to be taken for the public and other preparedness to be taken, to the reporting of a cyber crime. Those who are aggrieved with hacking, E-mail Theft, Fake Websites can report the crime to this web portal. Using the call centre you can have an enquiry regarding the procedure to be followed against the individual or business that have victimised you. The Cyber Forensic Cell will advise you with technical support on complaints. As the cyber crimes are of international nature, measures were also taken to enquire it with the help of international law enforcement agencies.

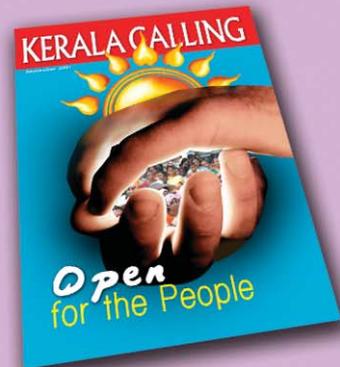
Registration is free for customers in this portal. The victims of cyber crime can report the crime through this portal. The High Tech Crime Enquiry Cell of the Kerala Police with the help of Resource Centre for Cyber Forensics, C-DAC, will handle the complaint. Facilities are also provided for asking expert opinion regarding any cyber crime through the forum. Cyber forensic discussions, off topic discussions are also encouraged through these forums. This ambitious project of Kerala State IT Mission also provides for training to government officials. The project also aims at strengthening the Akshaya kendras and the police offices to check cyber crimes

Cyber crimes have now become a nuisance to the society. It is high time curbed this dreadedly menace affecting modern computer literate society. This portal is expected to create awareness among people about the various types of cybercrimes and measures to be taken to educate the public for the prevention of such crimes. Due to the rising number of cyber crimes, the Kerala Police has stepped up cyber vigil on to the major IT chat rooms. It is also planning to set up an exclusive facility for imparting training in cyber forensics for tackling e-crimes shortly.

■ The writer is Research officer, Information & Public Relations Department, Government of Kerala

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Be Healthy, Naturally

Chithra Reshmi S.

“Nature is the greatest healer” - the best citation to be believed in this hectic day-to-day life. Best way to live a healthy life is being in touch with nature. There lies the relevance of naturopathy- the treatment or prevention of disease etc. without drugs, usually involving diet, exercise, massage etc. helps human to lead a healthy life.

Naturopathy is a system of curative science, which stimulates the innate power of the body to regain and sustain good health with the help of panchabhootas (five modalities of nature) – earth, water, air, fire and ether. It states that ‘all healing power is within the body’ and insists on aiding the human system to remove the causes of diseases i.e. toxins, by ousting out the unwanted matter from the body.

Naturopathy is not a treatment but is a ‘style of living’ to be practiced for a healthy life. The practice of naturopathy is mainly based on the principles like

accumulation of morbid matter in the body, abnormal composition of blood and lymph and lowered vitality.

According to Naturopathy, patient is treated and not the disease. It believes that all the diseases arise due to the accumulation of morbid matter in the body and is cured by removing the same. It considers the physical, mental as well as environmental factors responsible for diseases.

Holistic approach is the key element in theory and practice of naturopathy whereas in other systems of medicine, the approach is specific. In naturopathy, the body is treated as a whole, instead of treating each organ separately.

Naturopathy movement started in western countries, especially in Germany with a name ‘water cure’ (hydrotherapy). It had captured an impetus in the Indian subcontinent as Mahatma Gandhi established a Naturopathy Hospital in Maharashtra to popularise the system.

The origin of Naturopathy is traced from the Vedic period and is closely

linked with the dietary as well as health principles of Ayurveda, like pathya ahara and swastha vrutha.

The methods in naturopathy include hydrotherapy, air therapy, fire therapy, space therapy, mud therapy, food therapy, massage therapy, acupressure, magneto therapy and chromo therapy.

Hydrotherapy results with very effective physiological effects on treatment depend on the factors like





The methods in naturopathy include hydrotherapy, air therapy, fire therapy, space therapy, mud therapy, food therapy, massage therapy, acupressure, magneto therapy and chromo therapy.



temperature and duration of the therapy. It can be employed in most of the disease conditions. Air therapy is employed with different pressures and temperatures for various types of disease conditions. In fire therapy different heating techniques are used to produce different specific effects on body. Space therapy is applicable to avoid situations like congestion of body and mind. Fasting is the best therapy to relieve congestion. Mud therapy is

employed in treatment of various diseases like constipation, skin diseases etc.

Mud is a good absorbent, solvent and eliminator of toxins and thereby it rejuvenates the body. Food therapy stresses that food is the best medicine. Massage therapy is an effective substitute for exercise and is generally employed for tonic, stimulant and sedative effects. Acupressure is applied to get rid of the ailments of different points on hands,

feet or body which are associated with different organs. In magneto therapy, magnets of different powers and shapes are employed in treatment, by applying directly on different parts of the body or through charged up water or oil. In chromo therapy, the energy of sun's visible light rays are employed through irradiation of body or by administering charged water, oil and pills for treatment. ■

DESCENDING Wild Beauty

Ramkumar

A twilight in the jungle. Common langurs amuse themselves with mock chases and somersaults. The deer grazing languorously, glance around occasionally, an impatient kingfisher makes a smart dive. The scene suddenly changes with the appearance of the national animal – a young male tiger, in its golden brown coat glistening in the descending sun majestically surveying the surroundings. The deer family quickly vanished and the langur alarm calls changed to a shrill as the predator drew closer to the tree they were sitting. The tiger slowly walked away, oblivious to the terror he created.

The tiger can thrive in any extraordinary range of habitats – from the cool foot hills of the Himalayas to the hot and arid forests of Rajasthan; from the forested mountain slopes of the Western Ghats to the mangroves of Sunder bans. A female tiger start breeding at the age of three and can raise three to four cubs in her life time.

To save tiger, protection of its habitat and its prey is equally important.

Conservation is not just about saving the tiger. It is about protecting all creatures that share the tiger's habitat, all the creatures it depends on. Forests produce oxygen, absorb carbon dioxide and harvest fresh water. A great many rivers have their origins in forests. Hence wildlife conservation and celebrations of wildlife magnify total protection of nature and its bounty, the nectar of life on earth.

The Sariska story

The Sariska story broke out in September 2004 after Wildlife Institute of India team failed to spot the big cat. This become a major crisis since 'Project Tiger' was launched in 1973. The incident termed as "biggest alarm call in the country's conservation history". Sariska a favoured tourism destination lies between Jaipur and New Delhi, an eyecore to the marble quarry lobby. They generously encouraged the poachers. The demand for tiger skin and body parts and the high price they command in international market also made poaching extremely lucrative.

The Tiger task force

The tiger task force after the Sariska incident in its report "Joining the Dots"

submitted to Prime Minister concludes "the country has no choice but to make peace with the communities that share the tiger's home. If not we will lose the war of conservation; this must be done in many ways – from preferential shares in tourism, to collaborative management involving communities". The report states that in the past 30 years only 80 odd villages and 2,904 families have been relocated from all 28 of the tiger reserves in the country. Another 1500 villages with 65,000 families remain; 250 of the villages are within the core areas of tiger reserves. The relocation is a costly affair estimated Rs 11,000 crore. The task force report suggests a time bound programme to identify the villages to be shifted outside crucial tiger habitats, with careful consideration of the people's needs. It also warns that relocation itself led to clearance of forests and destruction of habitats. An interesting study quoted in the report is that of Bandipur National Park, part of Bandipur Tiger Reserve in Karnataka. A survey shows lack of resources and livelihood drove the people to the closest available resource : the forest.

The Tiger task force suggest that





some areas have to be made “in violate” – left to the tigers only. Ease the pressure on people, people respond with sustainable practices. Ease the pressure on the forest, the forest will regenerate and the pressure on the tiger will ease. An early study on the Scheduled Tribes and Castes in the Forests of Kerala, shows Thekkady and Parambikulam wildlife

Periyar Tiger Reserve At a glance

Thiruvananthapuram 272 kms
Kochi 190 kms
Nearest town Kumily
Ideal time to visit October - May
For entry details Deputy
Director, Periyar Tiger Reserve
Periyar East, Thekkady - 685 536,
Tel: 04869 - 222027, 94479 79091.
E-mail: mail@periyartigerreserve.org



divisions hold a population of 2444 tribals. In the 2003 wildlife census 71 tigers were sighted in the State. A second abode for tigers, Parambikulam - Anamalai Tiger reserve is also proposed.

Trade threat

The demand for traditional medicines based on animal body parts pose a great challenge to enforcement agencies. A report quotes that during the last decade the Metropolitan Police Wildlife Crime Unit in London, U.K. seized nearly 30,000 items worth millions of dollars, ranging from tiger skins, rhinoceros horn, tiger bone wine, tablets with tiger parts, eggs of endangered birds and dried sea horses. Illegal trade in endangered species worth \$5 billion according to Interpol, is second only to illegal trade in drugs in terms of cash value. The Wildlife Crime Unit in South West London houses a large collection of items seized by police. Almost all tiger trophies, including a sad piece of tiger cubs that were killed and stuffed when they were 10 days old, their eyes not yet open when they were slain.

In India some cases of tiger poaching were handed over to CBI. The National Tiger Conservation Authority also requested State Governments to hand over the cases of seizure of tiger skins to CBI. The authority will set up Wildlife Crime Control Bureau (WCCB) to curb poaching. One such unit will function at Kochi soon.

A tiger park protected by the people

The best way to protect our forest and wildlife is by creating social fencing, a model Kerala has shown to other park managers. This is achieved by participatory forest management practices. Nestled in the Southern Western Ghats mountain ranges, rich in biodiversity Periyar (777 sq.km.) became India's 10th tiger reserve in 1978.

The Periyar model of conservation is successful with eco-development committees and self-help group women, who live close to the park. As stakeholders they believe eco-development and biodiversity conservation as prime duty and means for livelihood. Each year nearly half a million tourists visit the park and eco-tourism is managed by the local people. The lakhs earned is

pumped back to the local community. People oriented and park centered community based eco tourism is the hall mark of Periyar Tiger Reserve. Revenue earned through eco tourism in 2006 was Rs. 266 lakhs. These programme are conducted by local people responsible for the surveillance of the vulnerable parts of the reserve.

People once made living by illegal operations in the forests turned forest protectors and earn their livelihood through eco tourism activities. A group of people engaged in sandalwood smuggling later surrendered, is now running bullock cart ride, taking visitors in the bullock cart through different trekking routes of the reserve. Programmes like Tiger trail, nature walk, border hiking, bamboo rafting, Jungle patrol all have local participation. They believe that Periyar should be protected at any cost. Even though the government eco development project elapsed in 2004, the spirit among the locals and officials resulted in launching Periyar Foundation, a charitable society comprising officials and citizens to protect tiger and the rich biodiversity.

The Periyar Tiger Reserve

The Tiger Reserve named after Periyar river is in Idukki district. The enlightened Maharaja of Travancore Sree Chithira Thirunal Balarama Varma appointed Mr. S.C.H. Robinson as the first Game Warden. The recommendation of Robinson led to the formation of Nellikampathy sanctuary in 1934, later declared as Periyar Tiger Reserve.

Tiger Monitoring

In Periyar Tiger Reserve, there exists regular and systematic monitoring of Tiger movement, applying 40 camera traps in equivalent number tiger monitoring blocks. 47 direct sightings of tiger and 37 direct sightings of leopards reported in 2006.

Accommodation

The KTDC hotels Aranyam Nivas, Edapalayam Lake Palace and Periyar House provide excellent accommodation. Lodging facilities are available in Kumily. Stay atop the watch tower is another choice. Bamboo Grove lodge offers cottages and tents, Kerala meals, boating, rafting and trekking. ■



Knots communicate



M.A. Baby, Minister for Education dedicates Sreepadam palace to the nation at Thiruvananthapuram.

What is there in a knot, especially made in coir? Come and learn the communication tools of our ancestors at the exhibition on *Archaic Pieces of Knowledge* by the Kerala Archaeology Department at Sreepadam Palace.

Unique knots like the 'Mukkambara Kettu', clustering a variety of knots in coir are exhibited to share the interesting information regarding the archaic pieces with the public.

A wide variety of coins, household items, musical instruments and weapons from old times are on display. *Elikkudukka* or mouse trap made of bamboo, used by the Stone Age people to catch rat is another attraction.

Nannangadi, a large burying pot of the Megalithic Age excavated by Archaeology Department from Sreekariyam is also exhibited.



Rememberance with Reverence

Gandhi Jayanti has been observed with reverence in the State. The solemn celebrations included prayer meetings and paying homage at his statues. Verses and prayers were recited from the holy books of various religions. Gandhiji's favourite song, Raghupati Raghava, was invariably sung at all meetings. The Information and Public Relations Department of Government of Kerala conducted a week-long celebration to mark the occasion. October 2nd is now observed as world Non-Violence Day.

N.K. Premachandran, Minister for Water Resources, inaugurated the state-wide celebrations. Pannyan Raveendran MP, Thalekkunnil Basheer, B.S.Rajeev, Sheela Thomas, Secretary, I&PRD, P. Abdul Rasheed, Director-in-charge, I & PRD attended the inaugural function held at VJT Hall.

Padmasree Dr. K.J. Yesudas was the chief guest at the prayer meeting held at Gandhi Park. N.K. Premachandran, minister, V. Sivankutty MLA, Jayan Babu, Mayor attended the function. The Mayor flagged off the procession at Gandhi Park. A photo exhibition on Gandhiji was also conducted at VJT Hall.

Tasty and crispy

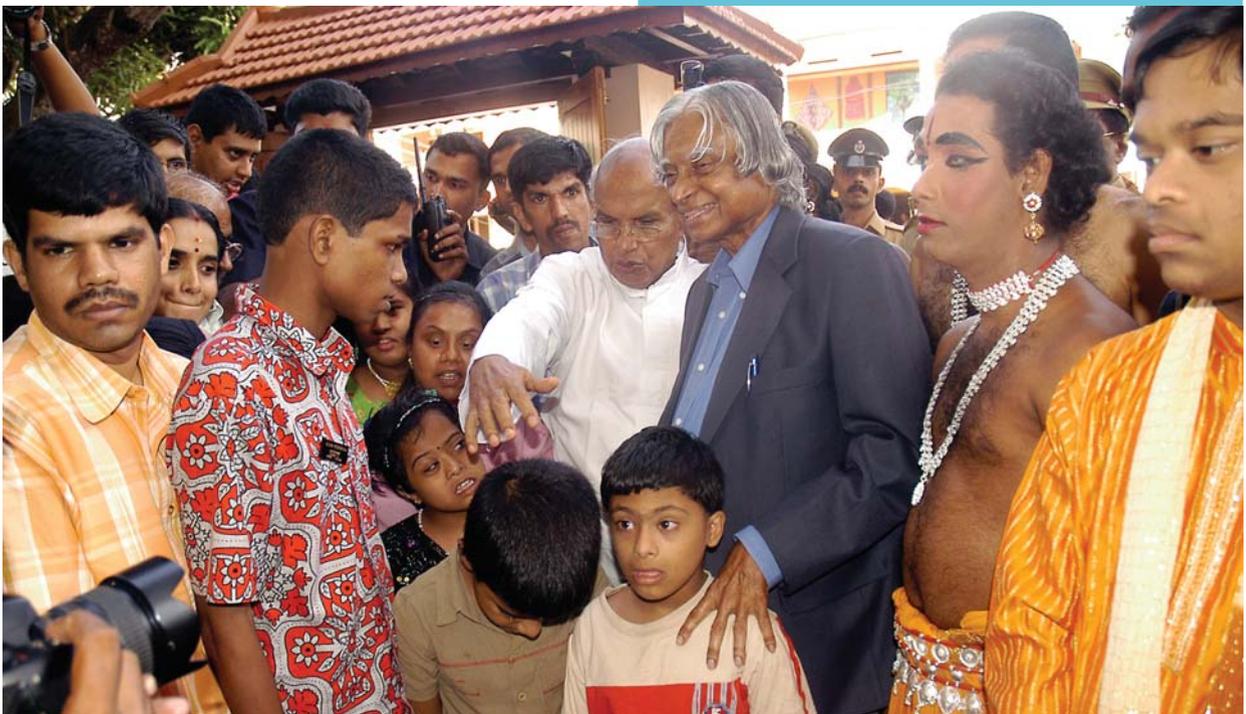
A cup of tea is always followed by some snacks, usually some kind of chips. Time has come to think of coconut chips. *Coco Crispy*, the new brand of coconut chips manufactured by Kerala Agro Industries Corporation Ltd. is all set to become the taste of Kerala.

Corporation's attempt to manufacture value-added products from coconut led to the production of coconut chips which will be available at the market @ Rs.10 a pack. Launched by Mullakkara Retnakaran, Minister for Agriculture, this healthy snack is made from tender coconut and is prepared without using oil.

Pannyan Raveendran MP released the coconut vinegar, a product manufactured by the Corporation using the water derived after the preparation of chips.

The function at Press Club, Thiruvananthapuram was presided over by V. Sivankutty MLA. V. Surendran Pillai MLA and Agriculture Production Commissioner K. Jayakumar attended.

ALWAYS YOURS: A.P.J. Abdul Kalam, Former President of India, interacts with the mentally challenged inmates of Freedom Centre at Kovalam.



Rejuvenating Package for Kuttanadu



The farming society of Kerala has been once again gifted with an exciting offer from the State Government, after the formation of the Debt Relief Commission. Now it is the turn of Kuttanadu, the once rice bowl of Kerala. The Government has decided to launch an integrated farming initiative to rejuvenate the ailing agricultural sector of the world renowned wetland.

The initiatives were on the basis of

the recommendations made by the National Commission on Farmers, headed by noted agriculture scientist M.S. Swaminathan. The Commission, appointed by the Union Government to study the farm crisis in 32 agriculture-distress districts in the country, including Alappuzha and Idukki districts in Kerala, has recommended a package for Rs.1840 crore to restore the pristine glory of the unique wetland. The package includes

three broad categories of activities - revival of farming, ecological rehabilitation and enhancement of livelihood.

The panel had also made several recommendations to the State Government like the organisation of rice festivals, ensuring sustainable fisheries in the rice-fish farming sector, setting up cage-culturing units to arrest the decline of diversity of species, facilitating a small farm management revolution through restructured 'padasekharams, supported by common service centres having computer and internet facilities.

The State Government would soon begin fish breeding centre and cage fisheries project at Pathiramanal and the inland fish landing centres in the Kuttanad region. The work on the revival of the Thottappally Spillway would be taken up urgently. Steps would be taken to facilitate smooth flow of water through the connected channels. Work on renovation and revival of Thanneermukkam bund would also be taken up in this season. The Commission Report contains all these projects.

Nafi Mohammed

