

# PADDY

SAVE OUR RICE CAMPAIGN

No. 21 & 22 January 2014



## A HUNDRED NAMMALVARS WILL LIVE ON...

Nammalvar, our beloved Ayya, the dark complexioned, long-bearded, saint of the farming community in South India passed away, rather suddenly on the evening of 30th December 2013. An agriculture scientist- turned organic farmer and activist, and in the final leg of his life, a saint, he was a leading, guiding light to many young and old, men and women, farmers and scientists, seeking a natural way of life and farming. To us, and the Save our Rice campaign, he was the one who lit the lamp, shone the light, and throughout the last 10 years, guided us with the warm smiles, loving hugs and the bright gaze.

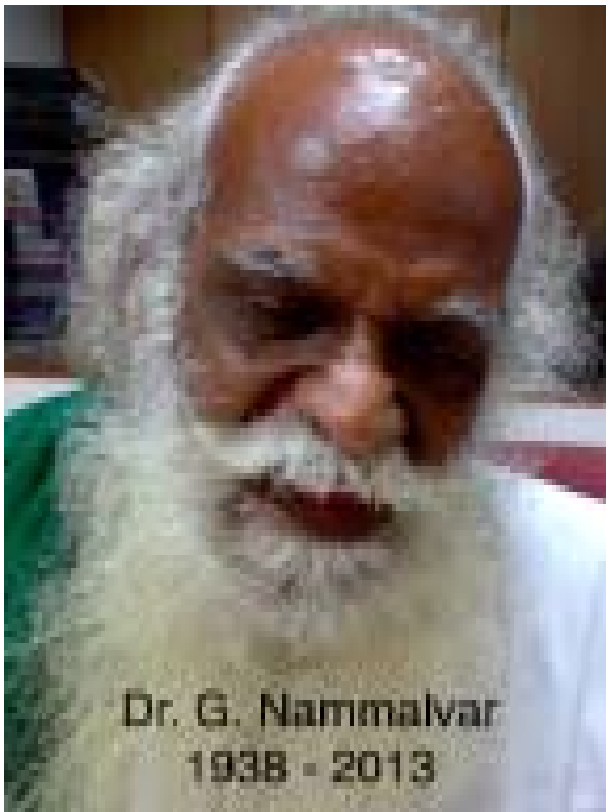


Our association with Ayya started way back in 2003. We were then discussing the need for a campaign to address food security concerns in India. The focus was on rice ecosystems, which were being eradicated in an unprecedented manner. We met him at the Asian Social Forum in Hyderabad. That was the January of 2003. By December 2004, Nammalvar joined us at Kumbalangi, for the Indian Workshop on Rice, where we launched the Save

our Rice Campaign-India. Since then he was with us, attending meetings, chairing days of sessions, reviewing our work, inspiring us to go on, crediting us for taking up a campaign that brought to life hundreds of traditional varieties of paddy, from the graveyard of the Green revolution, and carrying the campaign forward to so many platforms, in his inimitable rustic style. He was so much of an inspiration for us, that we adopted him as our Guru, the enlightened one!

Born in April 1938, to a humble farming family, at Elangad in Tanjavore District of Tamilnadu, Ayya graduated in Agriculture sciences in 1963. His first employment in 1966, at the Regional Research Station in Kovilpatti, opened his eyes to the disaster that was being spewed out by the "Green Revolution". He refused to be part of this myopic way of looking at agriculture, and resigned from service in 1969. The next ten years saw him work as an agronomist for an organisation called Island of Peace, founded by the Nobel Laureate Dominique Pire. There he worked on improving standard of living of farmers and workers in the Kalakad block of Tirunelveli District. He formulated his first thoughts on the Low-External Input Sustainable Agriculture (LEISA), a movement he later helped found in 1990. During every training conducted by him, so many were organised under the Campaign as well, he used to say that all inputs to the land should come from within the farm. He used to say "Adi Kattukku, Nadu Mattukku, Nuni Veettukku" meaning the roots are meant for the earth, the middle (stalk) is for the cattle and the fruit is for the home. The wholeness of an ecological approach in farming was so beautifully described by Nammalvar in all his talks.

Nammalvar was one who always kept his notebook open, to read and write down new information. He was ever ready to learn from whoever could help him learn more. He was greatly influenced by Mahatma Gandhi, Vinoba Bhave, and



Paulo Freire and explored his mission through their teachings especially in education, self-reliance and participatory development. Even during some of our own meetings, where he came to deliver lectures, one could see him sit like a student and take down notes. During his lifetime, he was instrumental in founding, guiding or inspiring many movements and campaigns including “Kudumbam”, the LEISA Network and Millet Network of India, the Save Our Rice campaign among many others. Also the very critical and important work done by him post-tsunami, to revive the saline fields of the coastal Tamilnadu would always be remembered.

Since the middle of the 1980’s, he started his core mission of reviving and spreading natural farming as a way of life in Tamilnadu and other parts of India. He left his familial responsibilities to his wife and daughter and devoted himself totally to the cause of changing the very face of agriculture in Tamilnadu. Today, lakhs of farmer families in Tamilnadu owe their return to farming as a livelihood to this saintly man. In recognition of his selfless work in the field of agriculture, the Gandhi Gram Rural University, Dindigal honored Nammalvar Ayya with a Doctorate of Science degree in 2007.

In his last years, he setup Vaanagam (meaning *heaven on earth*), a foundation for training people into a sustainable way of living and farming. His ways were simple, nature-loving, peaceful, non-violent, very earthy and sacrificial - qualities that made him a true Gandhian, a rare breed in these greedy times. He had over the years simplified his life and possessed hardly anything. From 2009 onwards, he also gave up wearing a shirt, and wore only a white dhoti and a green shawl to cover his torso.

All of us at the Save our Rice Campaign are feeling a deep sense of loss, unbelievable at one level, but so painful, and real. We do not really feel he is no more, but that somewhere in the vast rainfed lands of Tamilnadu, he is sitting quietly, at peace, seeing into the future, and knowing well that he has done what he always wanted to do – create hundreds of Nammalvars...spread across the state and beyond.

PADDY team

### GOBINDA BHOG RICE

Gobinda Bhog rice is an aromatic rice variety that grows in West Bengal. Hyderabad is one of the primary markets for Gobinda Bhog rice outside West Bengal. In Andhra Pradesh, demand for this variety is for preparing Biriyani. Since 2009, there has been a 30 percent increase in the market price of Gobinda Bhog rice in Murshidabad because of its demand. Currently, this variety fetches a price of Rs. 2,800 -3,000 for a 60 kg bag. Therefore, several farmers in West Bengal are opting to cultivate aromatic rice. 80 percent of the rice produced is consumed locally, while 20 percent is exported.

Source: Business Line print edition, December 10, 2013. Bengal’s aromatic Gobindo Bhog rice attracts more farmers. <http://www.thehindubusinessline.com/industry-and-economy/agri-biz/bengals-aromatic-gobindo-bhog-rice-attracts-more-farmers/article5440868.ece>

*Paddy comments: Every rice growing region has its own super fine varieties of rice. However, many of them are grown in very small areas or going extinct. This is because farmers find it unviable to grow them with low consumer awareness and lack of markets. On the other hand in the recent past the Save Our Rice campaign during it rice melas and festivals has seen a resurgence in consumer interest in traditional varieties and we are working towards promoting more such varieties in the mainstream markets.*

## FOLK RICE CONSERVATION WORK IN WEST BENGAL

Dr.Anupam Paul

**Our rich bio-resources:** Owing to the edapho-climatological factors, rice became the staple food of Eastern India since millennia. There were more than 5000 region specific indigenous rice varieties (folk rice) in West Bengal. A survey report published in 1930 showed that the erstwhile Bengal province had 15000 rice varieties. However, majority of these belonged to Bangladesh. Our forefathers have developed and selected these varieties from a single crop species of rice, ie, *Oryza sativa* aiming to meet the food security of future generations. But we have forgotten to acknowledge their contribution. Each variety is unique with specific characteristics like disease resistance, flood tolerance, flood as well as drought tolerance, high grain yields, aroma etc. Farmer-selected crop varieties are not only adapted to local soil and climatic conditions but also fine-tuned to diverse local ecological conditions and cultural preferences (Deb 2009). For example, *Kalonunia* and *Chamarmani* are blast resistant rice varieties. Low lying areas are replete with flood tolerant varieties. A wide genetic base provides “built-in insurance” (Harlan 1992) against crop pests, pathogens and climatic vagaries.

More than 82000 (NBPGR, 2007-08) rice varieties were selected and cultivated by the farmers of the Indian subcontinent. Nearly 600 high yielding varieties (HYV) were developed by crossing *indica* and *japonica* or selections from the cross. Out of those varieties only four – five HYVs are popular in each state. High yielding varieties do not give high grain yield in all locations especially in marginal lands prone to floods, drought and/or salinity. Hence, calling these HYVs is inappropriate and they may be called modern varieties (MVs).

**How important are these:** Since the devastation caused by AILA, in May 2009, farmers of Sundarban have been desperately searching for true salt tolerant indigenous rice varieties. Earlier they used to grow these in their fields. Along with the introduction of the MVs coupled with the erection of high embankments around the saline rivers, farmers started increasing the area of MVs, replacing the region specific salt tolerant rice varieties. This has been the practice for the last 25 years or so. Farmers chose them as the varieties were considered to be ‘miracle seeds’. However, with the passage of time, the farmers have realized the severe drawbacks of these miracle seeds. But, neither the farmers nor the relevant institutes

conserved the diverse salt tolerant rice varieties because the modern varieties were supposedly *doing well* in the farmers’ fields. Salt tolerant varieties like *Matla*, *Hamilton* and *Amarican mota* have already vanished from farmers’ fields. Nearly 150 indigenous varieties are extant in farmers’ fields of West Bengal. The AILA was an eye opener; it showed that local varieties are best suited if the so called MVs are wiped out by a natural disaster or fail in marginal conditions.

It has already been established that no modern rice variety can survive in marginal environmental conditions. Traditional crop varieties are often recorded to have out-yielded modern varieties in marginal environmental conditions (Cleveland *et al.*2000). Farmers were lured to grow MVs along with subsidized fertilizers, pesticides and pump sets. They were made to believe that it was the only option to increase grain yield in order to combat the perceived threat of famine. They were never told about the potentialities of region specific indigenous high yielding varieties *vis-à-vis* possible damage caused by the agro-chemicals and its long term effects, withdrawal of ground water or the cost of growing MVs. The MVs gave good yield during the initial years of Green Revolution. Now grain yield of MVs have been officially declining despite heavy application of agro-chemicals. The chemical intensive agriculture has not only expunged the local crop genetic diversities but also their wild relatives that are the only source of unique genes for disease and pest resistance (Deb 2005)

### Comparative Yield Study:

Ideally comparative yield studies should be conducted between folk rice and modern varieties in the same land situation but there are very few studies on this aspect. Comparison was made only on the grain yield and not on the total productivity of the rice fields. Low lying areas with deep water paddy can also provide fish along with grain and straw, whereas, the paddy straw and the amount of fish and snail etc of MVs is not considered as an important by-product. For example, the mainstream agriculturists consider the grain yield of folk variety *Asanliya* in the undulating drought prone area of Purulia district (marginal lands) poor in *comparison* to grain yield of MV in the plain lands of Burdwan district, cultivated using chemical fertilizers, pesticides and irrigation. However, this comparison is not scientifically tenable.

The Biodiversity Conservation Farm under the Agricultural Training Centre, Fulia, West Bengal has been conducting comparative studies for the last couple of years. All the folk rice varieties have been grown through Single Plant Transplanting (SPT). The Table 1 clearly shows that the folk rice

varieties are no less than HYVs in terms of yields. Apart from grain yield folk rice gives substantial amount of palatable straw necessary for fodder and roof thatching. But these are ignored in mainstream agriculture, which looks only at grain yield.

**Table 1 Comparative grain yield of folk and modern varieties**

Sl no	Varieties	Yield(ton/ha)	Remarks
1	Kerala Sundari	4.5-5*	With organic input
2	Bahurupi	4.5-5*	do
3	Kabirajsal	4	do
4	Asit Kalma	4	do
5	Jhuli	4	do
6	Lakalam	3.5	do
7	Kesabsal	4.5	do
8	Radhatilak( Scented)	2.9	do
9	Dudheswar(Fine small grain)	3	do
10	HYV MTU-7029	4.5	With chemical inputs
11	Hybrid KRH-2**	5.5	With chemical inputs

\*The yield is dependent on many factors, some farmers got 6-6.5 ton /ha.

\*\* The yield data was collected from farmers' fields of Odisha and West Bengal. The yield has not been consistent, it varies from 2.5 ton – 6 ton /ha and farmers have to purchase the seed each season.

**Table 2 Coverage of rice in West Bengal in 2012**

Season	Normal Area (Lakh ha)	Targeted Area (Lakh ha)	Achieved (Lakh ha)	Remarks
Aus( Pre-kharif)	2.5		2( approx)	Area is declining
Aman ( Kharif)	39.13	42.90	37( approx)	More than 90% area
Boro( Summer)	14	14	13.69	Govt is not encouraging Boro
Folk rice			2	South 24 Pgs, Burdwan, West Medinipur, Howrah, Jalpaiguri, Coochbihar, Uttar and Dakshin Dinajpur districts have more coverage

Source: Department of Agriculture, Govt of West Bengal

The data indicates that modern varieties have already replaced most of the folk rice varieties from farmers' fields. Farmers have no choice; they have to cultivate modern varieties along with purchased

seeds, fertilizers and pesticides. But many of them have started to raise the question about the efficacy of modern varieties regarding the consistency of grain yield and the cost of production.



Radhatilak - promising scented variety



Comparison of Panicles

**Table 3: Some prominent folk rice varieties so far extant in farmers' fields of West Bengal**

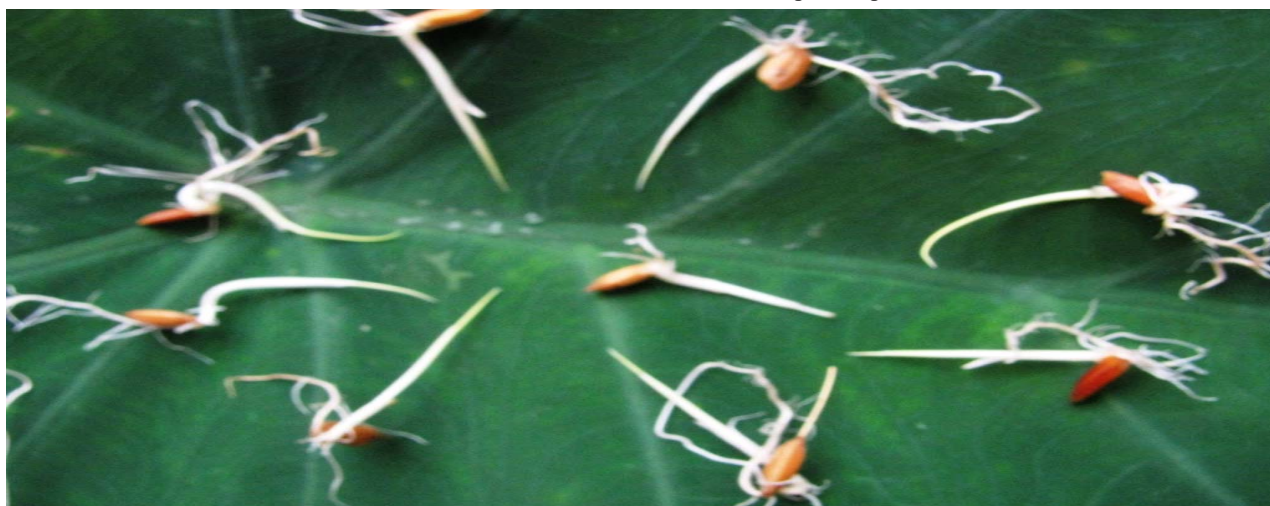
Varieties	Districts	Area (in ha)	Remarks
Kaltura, SM, Jirasari, Sanu-ad-dhee	Hill regions of Darjeeling	100	Scented rice
Kalonunia, Sadanunia	Jalpaiguri, Coochbihar	20000	Scented rice
Tulaipanji	Uttar and Dakshin Dinajpur	5000+1000	Scented rice
Gobindobhog, Badshabhog and Sitabhog	Burdwan, Birbhum, Bankura, South and N 24 Pgs, Hoogly and other districts	31000	Popular scented rice, Gobindobhog and Badshabhog are usually called as KHAS, Burdwan district has major coverage
Asanliya, Bhutmuri,	Purulia, Bankura	50	Non-scented, bold rice, Bhutmuri is a red rice
Kerala Sundari,	Purulia, Burdwan N 24 Pgs, Hoogly,	400	Non-scented, bold rice, good yielder-4.5t/ha, Sagar Island of S 24 Pgs has good coverage
Bahurupi	N 24 Parganas, Burdwan, Hoogly, Howrah, Nadia	100	Non-scented, bold rice, good yielder-4.5t/ha, Hingalgunj Block of N 24 Pgs and Burdwan has good coverage.
Kabirajsal, Chamarmani	Medinipur, Nadia	30	Good for daily cooking
Dudheswar	S 24 Pgs and N 24 Pgs	15000	Small grain fine rice
Moulo, Jamainaru	Howrah	35	Daily cooking
Kaminibhog Kojihuri, Gheus,	Sundarban area of N 24 Pgs	50	Bold scented, used as parboiled rice
Khejurchari, Marichsal	N and S 24 Pgs	150	Daily cooking, Muri (rice bubble), Panta ( water soaked rice) etc
Radhatilak	N 24 Pgs, Hoogly, Nadia, Bankura, Purba Medinipur and Burdwan	50	Scented, gives more yield than Gobindobhog, good adaptability

Source: Compiled from various sources

There is no specific published data on the extent of area under folk rice varieties. The figures were collected from various sources. Besides the above mentioned area of 72965 ha under folk rice varieties, other varieties are still cultivated sporadically<sup>1</sup>.

**Seed Requirement and Seed Production in West Bengal:** Prior to the Green Revolution (GR) farmers used to exchange seeds among themselves and thereby conserved thousands of region specific varieties through cultivation. Since the Green Revolution, seeds became a commodity like any other marketable product being sold from the agro input dealers.

#### Germination of two seedlings -Jugal



Farmers never exchanged poor quality seed with the neighbouring farmers, on the contrary now a section of seed dealers sell non-seeds or spurious seeds to its customers – the farmers.

There was no dearth of seed during the pre-Green Revolution period as farmers knew the techniques for seed production and preservation. Moreover, crop seeds were not considered a marketable commodity. With the onset of externalization of agricultural inputs in the name of GR, farmers do not want to take up the burden of seed production and preservation as seeds are available in the market.

The requirement of rice seed for Aus, Aman and Boro in West Bengal is around 98000 tonnes and the state produces nearly 70000 tonnes per year. The remaining 28000 tonnes come from other states. The total cost of seed would be around Rs 245 crore (98000 tonnes x Rs 25000/ tonne). If the area under folk rice is increased by 50% of the total rice area, there could be a savings of Rs 122.5 crores. Moreover, one does not need to replace the seed every three years, like in the case of modern varieties, for it can be continued over a thousand years provided seed production and conservation techniques are properly maintained. It is worth mentioning that the scented varieties like Kalanamak and Basmati are more than 2500 years old and are still in vogue.

#### **Rice Conservation in West Bengal through the Department of Agriculture, Govt of West Bengal:**

**Rice Research Station, Chuchura (Chinsurah) of West Bengal** began rice conservation since the 1930s. During the 1960s it had more than 3500 folk rice varieties and these were also donated to the International Rice Research Institute (IRRI), Philippines. However, the centre had selected many improved rice varieties out of the folk rice. At present it has more than 800 folk rice varieties. It also distributes folk rice varieties among the farmers. The station published a book on sixty folk rice varieties in 1962 (Recommended varieties of paddy for West Bengal, Directorate of Agriculture, Govt

of West Bengal). In 2008, 46 years since its inception, the centre also published a book on 467 folk rice varieties giving some major characters of the varieties (The Rice Biodiversity in West Bengal, Directorate of Agriculture, Govt of West Bengal). However, there might be some repetition for a particular variety may be known by different names in different places. Scientific methods like DNA finger printing and other morphological studies can sort out the problem of duplication. In West Bengal DNA finger printing has been done for nearly 150 varieties.

**Agriculture Training Centre, Fulia:** Inspired by the works of Vrihi of Bankura, the author of the article has started conservation of folk rice since 2001 at the demonstration farm at the Agriculture Training Centre, Fulia and now the centre has about 300 folk rice varieties. After constant persuasion, the centre was declared as a Biodiversity Conservation Farm by the Directorate of Agriculture in 2006. Initially, the centre had collected 22 varieties from Vrihi. It also collected folk rice varieties from farmers, the Development Research Communication and Services Centre (DRCS) ,Kolkata, Swarnirvar of Baduria, N 24 Pgs., different farmers across the state, Sambhab of Odisha, Thanal of Kerala, Sahaja Samrudha of Bangalore, and others in Nagaland, Assam and Maharastra. Till date more than 350 farmers have received folk rice varieties directly from the centre and the seeds reach more than 500 farmers indirectly. Different universities are taking the folk varieties for various studies like morphological studies, DNA finger printing, estimation of vitamin B complex, protein and minerals. Agricultural universities like Bidhan Chandra Krishi Viswavidyala, Viswa Bharati of Santiniketan have collected more than 30 and 155 varieties respectively from the centre. Different state government farms have collected folk seed from the centre.

The centre sets a record in the history of Indian agriculture for no government farm has ever distributed so many folk seeds in a year. The centre also reevaluates the varietal characters of the seeds conserved.

**Table 4 Folk Rice Seed Distribution from ATC Fulia during the last three years**

Year of Production	Year of Distribution	No of varieties distributed	No of recipients farmers
2009	2010	50	56
2010	2011	Year of severe drought	Only panicles were collected
2011	2012	74	121
2012	2013	126	80

**District Seed Farm, Mathabhanga, Cooch Bihar:** It has just stated conserving 30 folk rice varieties out of which 22 varieties were received from ATC, Fulia. The District Seed Farm, Cooch Bihar has been maintaining six folk varieties for the last five years.

#### Panicles of folk rice varieties



#### Panicles of Bahurupi

##### Non Governmental Effort:

Vrihi (means rice in Sanskrit, [www.basudha.org](http://www.basudha.org)), a farmers' organization in its true sense was established in 1998 by the renowned ecologist Dr Debal Deb in collaboration with Navdanya of New Delhi at Basudha of Bankura district. Initially Sri Arun Ram, Amalendu Mukherjee, Late Nirmal Mahata joined him. Later Sri Debdulal Bhattacharaya joined. Since then it started collecting folk varieties from the farmers' fields giving due acknowledgement. Dr Deb had started the work of

folk rice conservation in 1992-93 while serving the WWF in Kolkata. It characterized 416 folk rice varieties in detail (vide *Seeds of Tradition, Seeds of Future*, Navdanya, New Delhi 2005). The Protection of Plant Varieties and Farmers' Rights Authority, New Delhi (PPVRA) has awarded Vrihi for the characterization of Jugal (means double seeded rice) and Sateen (means triple seeded rice) in 2009. It established the largest non-governmental seed exchange centre in Eastern India. At present Vrihi conserves 850 folk rice varieties at Kerandiguda village, in Roynada district of Odisha. Its base since 2011. Sri Bhirab Saini on behalf of Vrihi is now conserving 116 varieties at Basudha. Vrihi contributed more than 80 varieties to Bose Institute, Kolkata and 46 varieties to Viswa Bharati for DNA finger printing and other studies.

##### Institutional efforts:

The Bose Institute, Kolkata is maintaining 150 folk rice varieties at their Madhyamgram farm for DNA finger printing and other research purposes. DNA finger printing and other biochemical studies have been done for 100 varieties. The Department of Agriculture, University of Kolkata has 150 folk rice varieties and DNA finger printing has been done for 47 varieties. However, they do not grow all the varieties every year as they preserve the seeds at low temperature.

##### Other organizations

**and efforts by individual farmers:** Prior to the Green revolution, farmers used to cultivate different traditional varieties in different locations and earned additional income from straw, small fish and snails, organic matter from associated plants that grew in rice fields and nutritious grains from associated plants like Shyama (*Echinochloa* sp). There are still thousands of farmers who stick to folk rice for their livelihood. We must acknowledge them for keeping the region specific folk varieties alive to withstand natural calamities as the so called HYVs cannot combat adversities.

## Biodiversity Conservation Farm, ATC-Fulia



Rice conservation at Hingalgunj



**Rays of Hope:** International organisations like the United Nations (UN), the Food and Agriculture Organisation (FAO), national governments, institutions, scientists working in mainstream agriculture, civil society and farmers have started realizing the importance of cultivation of folk crops and conservation thereof in farmers' fields. Though there is an institutional apathy towards folk crop conservation and there is hardly any allocation of funding for promotion and studying the folk rice varieties. The UN has declared 2011-20 as the Decade of Biodiversity. The Biodiversity Act, 2002,

has come into effect a decade back. All most all the states have Biodiversity Boards to monitor, document and promote biodiversity conservation for our future food security. Many farmers have come forward to conserve folk crop varieties. Different seed festivals are being organized all over India in order to promote the importance of folk crops with regard to crop-biodiversity and future food security, taste and aroma, nutritional qualities, medicinal values, region specificity and eco friendly nature.

**Dr. Anupam Paul is Assistant Director of Agriculture (Trg) at the Agricultural Training Centre, Fulia, Nadia, WB.**

### References:

Cleveland, DA., D. Soleri and S E Smith, 2000, A biological framework for understanding farmers' plant breeding, *Economic Botany*, 54:337-394

Deb, Debal, on behalf of VRIHI, 2005, *Seeds of tradition, seeds of future: Folk rice varieties of Eastern India*, Research Foundation for Science Technology and Ecology, New Delhi.

Deb, Debal, 2009, Biodiversity and Complexity of Rice Farm Ecosystems: An Empirical Assessment, *The Open Ecology Journal*, 2009, 2, 112-129, 1874-2130, \ [URL:www.bentham.org/open/toecolj/articles/V002/112TOECOLJ.pdf

Harlan J R, 1992, *Crops and Man* (2nd edition), American Society of Agronomy, Inc and Crop Science Society of America,

Inc., Madison, WI. pp148

National Bureau of Plant Genetic Resources, Report, 2007-08, Indian Council of Agricultural Research, New Delhi

### Footnotes

<sup>1</sup> For example *Kaloboro* in Fulia of Santipur Block in Nadia, *Kataribhog* in N Dinajpur, *Dorangi, Sabita, Patnai* in S 24 and N Pg s, *Dharia, Malsira, Pakri* in Jalpaiguri, *Talmugur, Hogla, Hamai, Malabati, Katarangi, Kumragore, Lilabati, Moulo, Lalgetu, Getu, Sadagetu* etc in Sundarban area, *Kalma, Raniakanda* in Howrah, *Laghu* in Murshidabad, *Sungibaran* in Birbhum, *Bhasamanik*, in Murs huidabad, Paschim and Purba Medinipur, *Sada Chenga, Nagra Patnai* and *Salkele* in Nadia, *Badshabhog* in Burdwan, Nadia, Hoogly and Paschim Medinipur, *Kankhri* and *Kankhuria* in Purba Medinipur, *Tulsimanjari, Radhunipagal* and *Laghusa I* in Birbhum





## A MEMORABLE JOURNEY THROUGH ARUNACHAL !

Usha S

Certain things happen in our life and we can't fathom the reason for that. Just that, when it happens we must recognize that we are ready to experience it. So it happened with my unexpected trip to Arunachal Pradesh, one of the pristine north eastern states of India. One of my close friends had visited Arunachal Pradesh way back in the eighties as part of the Namdapha Biosphere Reserve work and had written about it in a leading environmental education magazine in Malayalam. I have forgotten the details, but it had given me a context about life and nature there and I longed to visit Arunachal since then. However, it took almost three decades for it to happen, and then it did unexpectedly. Since the last 10-15 years we have been going through a hectic period in work and life, trying to counter the pressures of urbanization-industrialisation, which is killing our cultures and wilderness.

### NOT ALL WEEDS ARE HARMFUL, SOME HAVE BENEFICIAL PROPERTIES TOO

When several farmers in the Cauvery Delta region were facing losses during the last cropping season due to water scarcity, Mr. R. Baskaran from Patteswaram village in Kumbakonam, Tamil Nadu got good paddy yield. He used the direct sowing method which enables paddy crop to withstand drought and grow well, and reduce the crop period by 10-15 days. He cultivated white ponni variety in his seven and half acres. By using organic manure, he increased the water holding capacity of his field. The tillers grew well and there was less chaff. Due to the application of organic sprays like *Anrithkaraisal* and *Panchagavya*, the leaves retained their greenish colour even after the crop reached the harvest stage. He managed weeds in his field in a scientific way. According to him there are two categories of weeds, one is companion weeds and other is competitive weeds. According to his observation, companion weeds have shorter roots which help to maintain soil moisture and competitive weeds have longer roots which compete with the main crop for water and nutrients. He also noticed that many beneficial insects like lady bird beetle used the companion weeds as their shelter and preyed on different pests attacking the paddy crop.

*The Hindu, August 29, 2013. Not all weeds are harmful.*  
<http://www.thehindu.com/sci-tech/agriculture/not-all-weeds-are-harmful-some-have-beneficial-properties-too/article5068445.ece>

Travelling through Arunachal, meeting farmers, children, women, teachers and officials brought back memories of a saner world and slowed the pace to our life, at least for a while.

It was through sheer coincidence that we met Satyanarayanaji, from Trivandrum, who lives in Arunachal Pradesh. After the launch of the film "In search of lost rice seeds" about the Save Our Rice (SOR) campaign, by Suma Josson, a thin frail man with a white beard came to me and introduced himself. He was Satyanarayana. He said that he was touched by the film and wanted a copy of it. Then we had a conversation about the film, about the SOR campaign etc and his work with the Lohit Library movement<sup>1</sup> in Arunachal. The communication with him continued. We sent some of our publications and PADDY for their library. When we decided to hold the SOR review meeting in Bengal during October 2013, I informed Satyajji and he invited us to visit Arunachal. He wanted us to meet his friends and students and share our experiences of the SOR campaign. We thought it a wonderful opportunity as Arunachal is a rice growing state.

After our review meeting in Kolkata, the four of us (Jayakumar, Sridhar, Lenish and I) boarded the train to Arunachal on 22<sup>nd</sup> October evening. The train journey through vast stretches of green paddy fields itself was an experience. Except for a few cities here and there we could not see any large industries or high rise buildings. Life looked slow and peaceful. People could be seen working in the fields. Children were playing and running around goats in the fields. We were reminded of our childhood in rural Kerala, which was almost like this with green paddy fields, coconut gardens, sacred groves etc. Life was slow and had a lot of mystery. People were not under pressure to make money, and focus only on money. There were people around to protect and advise us. A lot of education happened outside the schools, we learnt from illiterate farmers, grandmothers and many others.

In our compartment there were army personnel from Kerala returning to Arunachal Pradesh. They told us a lot about the local community in Arunachal and said that Arunachalis are peaceful people. The journey was interesting

with vendors selling toys and other things in the train. One man had numerous attractive products, all strung on a stick- a supermarket on a stalk! How innovative people are; the ugly modern super markets will kill all these human skills and ingenuity.

We reached Tinsukia railway station on 24<sup>th</sup> October early in the morning. Satyaji had sent a car to pick us up and arranged the permit for us to enter Arunachal<sup>2</sup>. We reached Namsai( land of golden soil) where one of Satyaji's students, Timita and her family welcomed us . They had arranged for my stay with a veterinary officer, Namitha and her family, where we spent many hours talking about their food, culture and life. Others in our group stayed in a guest house .

The next two days we spent in Namsai. On 24<sup>th</sup> afternoon, along with Konchiwa( a teacher, a former student of Satyaji who acted as our guide

### RESEARCHERS CLAIM DEVELOPMENT OF DIABETIC-FRIENDLY RICE VARIETIES

Diabetes is fast spreading and this is a major problem with even people below 30 years. In response to this crisis, Acharya N. G Ranga Agriculture University has taken up research on development of diabetic friendly rice varieties in collaboration with private industries. Through the marker identification method, researchers collected anti - diabetic genes from different varieties and introduced them in the selected varieties. As of now, 40 rice varieties are available with the researchers and 14 of them were found to be have anti - diabetic properties. Among these varieties Samba Masuri was found to be friendlier to diabetics. "Scientists are on the job of building glycemic indices (GIs) with the data on how much carbohydrates in each existing rice variety raises a person's blood glucose levels after consuming the particular variety," Vice-Chancellor of Acharya N.G. Ranga Agriculture University A. Padma Raju said to *The Hindu*.

The Hindu, December 22, 2013 <http://www.thehindu.com/news/national/andhra-pradesh/researchers-claim-development-of-diabeticfriendly-rice-varieties/article5487561.ece>

*PADDY comments: India is a store house of many indigenous varieties that already have various medicinal properties including for addressing diabetes. It would be useful if our public universities look into this and evaluate these rice varieties and help farmers with seed production and other assistance instead of focussing on techno-fixes alone.*

during the three days), we visited a progressive farmer of that region along with two officials from the Agriculture Department. It was heartening to see the farmer's field, old house made of wood and bamboo, paddy storage and the rice mill. He told us that he cultivates traditional varieties and also undertakes experiments for the Agriculture Department when they ask him. He added that generally they do not use pesticides in their paddies, but their main commercial crop is tea, which they cultivate in home gardens and use fungicides there. We felt that it is not difficult to convert such fields into organic cultivation because of the rich biodiversity around and the rich knowledge about agriculture. Later we had a discussion about it with the officials as well as farmers.

On 25<sup>th</sup> they had organized a meeting of farmers in the town, which was inaugurated by the Sub Divisional Officer . School students from the Lohit library exhibited traditional paddy seeds. It was well attended by farmers and we made a presentation about the SOR campaign, followed by a discussion. During the interactions farmers said that they prefer traditional paddy seeds and they eat what they produce. Some of them cultivate the modern high yielding varieties (HYVs) for marketing. We were served a delicious lunch with scented local steamed rice (cooked in bamboo stems) covered in wild leaves combined with a lot of greens and fish. There was no 'waste' after lunch. It was a true zero waste event!

In the evening we visited some Buddhist temples and started early next morning for Roing, another district in Arunachal Pradesh. The journey was through tough terrain, with no roads and many times through rivers- tributaries of the Brahma puthra. We reached a small village Sunpura where another group belonging to Idu bishmi community had organised a meeting attended mostly by women farmers. They had also brought some traditional seeds to show us. Farmers are so passionately connected to seeds! Who has the right to de-link them from their seeds? One of the progressive farmers talked to us about the prospects of cultivating rubber. The Government has started to promote rubber in some parts of Arunachal. We shared our experience from Kerala, about how it has impacted biodiversity, food security and water security. It is always a wonder to me how the bureaucracy thinks in a particular way , without any imagination and behind times. Such thoughtless agriculture schemes are a problematic for many states, especially those with diversity.

On one hand the world is moving towards sustainable agriculture, family based integrated farming systems, coping with climate change and food security issues, on the other our policy makers are failing to plan and implement projects that will address these issues. And Arunachal has a lot of potential in this regard . A state rich in natural resources, biodiversity, low density of population can easily achieve sustainable development goals, unlike many other states.

We reached Riwatch in the evening. Our journey was through rivers like Chowkham and Korunu the tributaries of Brahmaputhra. Rivers are an integral part of life in Arunachal. Riwatch is an organization working to protect the cultural diversity of the region. The Director , Mr Vijai Swamy, from Maharashtra, is a friend of Satyajji. They had come to Arunachal as teachers with Ramakrishna Mission schools three decades back and never left. Then the local community used to build houses for the teachers . Their students have now become officials, teachers, ministers etc .

Riwatch organized a meeting next day at Roing, a small town, the district capital, along the banks of Dibang river. Old farmers, artists, officials, students, and media persons attended this meeting. Traditional paddy seeds were exhibited and veteran farmers were honoured. One official from the Agriculture Department said that this meeting happened at the right time, because the government is proposing to introduce hybrid paddy seeds in Arunachal. Therefore, conservation of traditional paddy seeds and other agro- biodiversity has to begin now. Otherwise, the precious agro-biodiversity would be lost in the coming years. Riwatch has expressed interest in being part of the Save Our Rice campaign.

We visited the river bank in the evening, highly eroded due to deforestation and landslides, met some people working in the tourism industry and spent time with a doctor's family who live in a beautiful traditional house. They told us about the problems modernity has created among their younger generation. Next day we started for our next destination, Dibrugarh, in Assam. Satyajji's friend runs a school there and he had organized two meetings, one for college students and another for school children. We were leaving Arunachal and Satyajji .

The vast Brahmaputhra , the fragile mountainous Arunachal and its people, the tea

Some organizations and farmers have engaged themselves in folk rice conservation in a very serious way. Some of them are as follows:

Development Research Communication and Services Centre, (DRCSC) Kolkata has been doing sustainable agriculture for the last 15 years through the farmers associated with its various sister organizations in West Bengal and other states. Now, it maintains 135 folk rice varieties.

Vivekananda Institute of Biotechnology, Nimpith, S 24 Pgs has started conservation work in 2012 with 20 deep water rice varieties from ATC, Fulia.KVK Nimpith has taken 30 varieties from the ATC, Fulia centre.

Paschim Sridhar Kathi Garm Unnayan Sangha, Hingalgunj, N 24 Pgs has been conserving folk rice varieties for the last 5 years and they have now 200 varieties including 12 salt tolerant varieties. They have been distributing the folk seeds in AILA affected areas.

Sri Avra Chakraborty of Richharia Conservation Centre, Burdwan has 160 varieties and it has been conserving it for the last five years after receiving seeds from Vrihi, ATC- Fulia and some local farmers. Valopahar of Bundwan Block of Purulia has 17 folk rice varieties also received from ATC Fulia. Satmile Satish Club (NGO) of Cooch Bihar maintains 44 varieties taken from the ATC Fulia.

Manas of Teghari, Madanpur, Nadia, a society works with mentally challenged persons has 25 folk rice varieties , collected from ATC Fulia and the inmates eat folk rice. Sri Debashish Ghorai of Pathar Pratima, S 24 Pgs has 50 folk rice varieties. Sri Naryan Ch Bachar, Bajitpur of N 24 Pgs has 20 folk rice varieties. All of them are exchanging varieties with other farmers.

gardens with lot of trees( unlike the tea gardens in the south which are bare) , the vast paddy lands all remain clearly etched in our minds. This journey has added more meaning to our campaign, work and our personal beliefs.

### Endnotes

<sup>1</sup> The Lohit library movement was started by Satyajji along with his students in different villages of Lohit district . The library is run by school students.

<sup>2</sup> For security reasons in the border areas outsiders need permits to visit.

## KNOW YOUR FOOD

A Seminar on Empowering women on safe food was organised by Thanal, Save Our Rice Campaign, Organic Bazaar and the Women Study Unit and Human Rights Forum, Govt. College for Women, Thiruvananthapuram. The event was held on 20th January, 2014 from 12.30 pm to 3.30 pm at the Seminar Hall, Govt. College for Women. An interactive session was conducted with Dr. K.C. Raghu (Food Technologist and Founder Pristine Organics) and



Sreedevi (Food Activist and Farmer).

Dr. Raghu talked about the importance of reviving our traditional food culture, which is based on sound nutritional principles and stressed on the need to understand the connection between food, culture and nature. Sreedevi shared her experiences about eating traditional grains, and choosing local and seasonal foods. The students and teachers asked questions about food safety issues. The aim of the event was to generate interest among students and young consumers about food, nutrition and health and also create awareness on safe food.

*The articles in PADDY may be used (as is or translated) for educational, awareness creation and non-commercial purposes with due acknowledgement.*

Campaign Awareness Material - For Private Circulation only  
Contact Office - Save Our Rice Campaign,  
Thanal, OD-3, Jawahar Nagar, Kawdiar P.O., Thiruvananthapuram, Kerala, India - 695003  
Tel/Fax:91-471-2727150, email : indianricecampaign@gmail.com  
PADDY Team : Usha S., Sridhar R., Sreedevi L. & Deepak R.  
Layout : Anand Balan ; Printed at : Arsha Printers, TVM-01  
Produced by R Ponnambalam, Managing Trustee, CREATE, Paramakudi, Tamilnadu,  
with the support from EED.