



THE CHOICE OF GRAIN

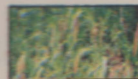
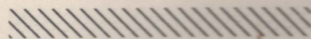
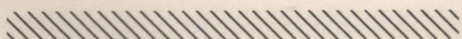
Adivasis &
Food Sovereignty in the Nilgiris

ஓர் தானிய தேர்வு

பழங்குடியினரும்
நீலகிரியின் உணவு மேன்மையும்

The Choice of Grain

- Adivasis & Food Sovereignty in the Nilgiris -



This document addresses issues related to:

Indigenous People
Crop & Food Diversity
Traditional Agriculture Revival
Food Sovereignty
Indigenous Knowledge & Use
Land Rights

Acknowledgements

This document was produced through the SDC-IC NGO Programme Karnataka-Tamil Nadu.

We are grateful to the adivasi people, who participated in this programme and in discussing 'their side of the story' with us.

All photos by Keystone Foundation.

All information from this publication can be reproduced and used freely.

Published in 2005.

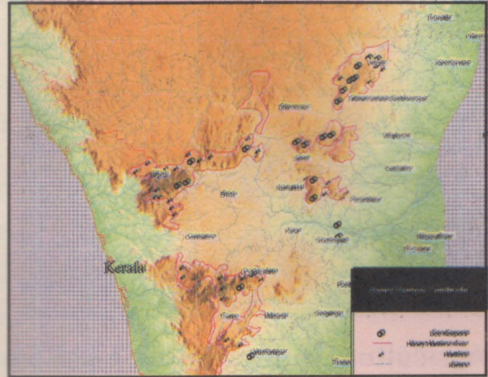
For more information contact

Keystone Foundation,
Groves Hill Road, Kotagiri - 643 217
The Nilgiris, Tamil Nadu, India
Phone/Fax: +91- (0)4266 - 272277 / 272977
kf@keystone-foundation.org
www.keystone-foundation.org



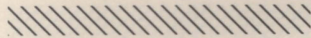
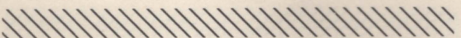
The Nilgiris - A Brief Overview

- * Location: The Western Ghats in the state of Tamil Nadu
- * Area: 2,479 sq. kms.
- * Population: 7,65,000 (Census of India, 2001)
- * Elevation Range: 700-2600 metres MSL
- * Forest land: 57%
- * Average rainfall: 800mm - 3000mm



The Nilgiris are part of the Nilgiri Biosphere Reserve, an ecologically important zone, with a distinct flora and fauna. Its natural vegetation encompasses sholas & grasslands, evergreen, moist deciduous, dry deciduous, evergreen and scrub forest types. The agriculture land is mainly planted with tea, coffee and vegetables.

The Indigenous People of Nilgiris comprise the pastoral Todas, the artisanal Kotas and a number of hunter gatherers and shifting cultivators - the Irulas, Kurumbas, Kattunaickens, Betta Kurumbas, Kasabas, Paniyas, Mullu Kurumbas and Chettis. Together, they number about 30,000. The Badagas, an indigenous pastoral-agricultural community are major role players in the cultural ecology of the Nilgiris. They number approximately 200,000 across the Nilgiri region and are categorized as Backward Class according to the Census of India. The rest of the population of this district comprises migrants and estate workers from adjacent states, who have settled here over a period of time.





Agriculture in the Hills

Before the advent of the British, the indigenous people of the hills including the Badagas, used to grow mixed crops on the hill slopes. This comprised a variety of crops - the main grains being *ragi*, *samai*, *tenai* and Amaranthus. While the Badagas practiced settled cultivation, other communities like the Irulas and Kurumbas, practiced shifting cultivation in the lower slopes (900-1500 m).

The history of change from this traditional cropping system to the new commercial cash crops of coffee, tea and vegetables is interesting. Vegetables like beans, cauliflowers, cabbages, carrots, etc. were first introduced by the British in the 1820s and these were soon being cultivated by the Badagas.



Later, coffee was introduced in South India, again, by the British, in 1838. This was grown at an elevation of around 1000 metres, where the hunter gatherers lived. Their lands were soon introduced to this crop and



it spread within the forested lower zones. Coffee soon became an integral part of the homesteads of indigenous people. However, these lands were developed as diverse and shaded areas with many fruit and forest trees like lime, jack, orange, rosewood, guava, *Albizia* spp., *Erythrina* spp. and *Glyricidia* spp.

Tea made an entry in 1885 and it spread steadily. Though a late entrant, it now covers 50% of total cropped area of the Nilgiris. It contributed significantly to change in land use - from a mixed and diverse food crop system to a mono-cultural cash crop scenario. However, this large scale change only occurred post independence as according to Government statistics in 1949-50, Nilgiris District still had 4,564 acres of *samai*, 4,183 acres of *ragi* and 295 acres of *tenai*.

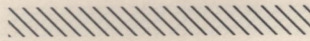
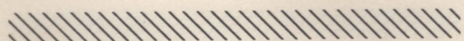
The introduction of large scale cash crops resulted in the following:

- * Mono crops replacing mixed cultivation systems
- * Extensive use of chemical fertilizers and pesticides
- * Lack of food security and nutrition amongst small and marginal communities
- * Reduced water retention capacity
- * Destruction of vast extents of forest land for tea cultivation
- * Increased fuelwood needs for processing tea

Besides the ecological damage, these crops eroded the basis of socio-cultural interactions among the communities. They brought in issues of land ownership, individual profits and an economic hierarchy. They also eroded the knowledge among the people related to cropping, forests, wild animals and weather.

Sedantary vs Mobile Lifestyles

Post Indian independence, settlements got regularized and slash & burn agriculture was declared illegal. The movement of communities like the Irulas and



Kurumbas, were restricted to the demarcated village lands. This changed the mobile lifestyle and ecosystem responses to one of sedentary ways. The intensity of land use increased. With the spread of plantations close to village areas and subsidy schemes by the government, these lands also got converted into small plantations of mainly coffee and tea.

However, in most villages, some land was left fallow. This was occasionally cultivated for millets but was soon overgrown with secondary vegetation and weeds - a home for wild animals like boar, bison and elephants. The easy access to wage labour, the break down of community systems, crop raiding by wild animals and unpredictable rainfall - soon led to the virtual disappearance of this cultivation practice. A community which once cultivated these crops, now bought it from the neighboring state for their ritual needs.

The Revival

It was in this background that Keystone started its work in the Nilgiris in 1995. Though, the initial effort centred around honey bees, the team observed the low nutritional status and received reports from hospitals regarding low blood counts among women and children. After discussions with community members, an effort to revive traditional agriculture practices was undertaken. This was also balanced with cash needs of the community by growing coffee and high value spice crops.



These interventions were meant to address the issues of:

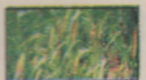
- * Food sovereignty
- * Nutrition
- * Land Rights
- * Community based agriculture

The village of Vagapanai led the way and a group of 27 farmers from the village undertook millet cultivation, popularly known as *tenai kadu* in 30 acres of land. As the cultivation expanded and spread all over the hills in 16 villages, covering approximately 200 acres of land, only for millet cultivation, many interesting aspects emerged.

Adivasi Lands - the Challenges

Overall, the adivasi lands in the Kotagiri and Coonoor slopes of the district have difficult features. The thin layer of soil is lateritic with low biomass content. The slopes vary from 20-70°, causing land slips and erosion. Most of the lands are also in the rain shadow region with rainfall ranging from 500-800 mm (years 2000-2003). These aspects made working on this land challenging and had to incorporate several soil and moisture conservation measures. This translated in the building of stone bunds and gully plugs, digging contour trenches and growing vegetative bunds along steep slopes. Overall biomass increase and mulching was also undertaken to improve soil conditions.

The lands of adivasi people in the Nilgiris are usually registered as a *village patta* i.e. a common title for the whole community. This is shared among the people of the village and used for different purposes. The boundaries of these lands are adjacent to Reserved Forests or private estates. Most of these boundaries are unclear and unmarked, making it difficult for the adivasi people to stake their claim, and enabling the larger estates to encroach onto their lands.



As a first step to growing food, several adivasi villages were enabled to demarcate their boundaries, which were marked using the Geographical Positioning System (GPS) by Keystone staff and planted by the people with species like Agave, Sapindus spp. or *Coffea liberica*. Often this involved discussions and negotiations with estate owners and confirmation of boundaries with the Forest Department. Several villages gained specifically from this exercise. Nedugal Combei recovered 27 acres (11 families) which had been taken over by a social forestry scheme. Another extent of 65 acres for Pudur Combei (5 families) and 90 acres for Velleri Combei (15 families) were demarcated with specified trees and the boundary clarified with the Forest Department.

However, the most difficult and significant case was that of Banglapadigai. 80 acres of the village land, belonging to 36 Irula tribal families, was under litigation with the nearby Shajbas Estate. The programme helped the villagers to gain access and rights over their land. This land is now cultivated seasonally for millets and vegetables. Some has been planted up with coffee and other mixed species.

The Crops

- Local Name : **Ragi**
- Common Name : Finger Millet
- Botanical Name : *Eleusine corocana*
- Other Vernacular Names : *Mandua, Madua, Kodu, Nachani, Mandal*
- Indigenous Varieties Grown : *Cent, Seevai, Chembu*
- Local Foods & Preparations : Powdered and cooked either as *kali* (porridge) with broken maize, *dosas* (pancakes) or *mudde* (dumpling) and eaten with different chutneys and bean curries. *Ragi* is also eaten as *roti* (bread), *uppuma* (snack) with vegetables and *idly* (steamed dumpling). *Ragi idly* is prepared by kneading dough, rolling it in a leaf and placing it on sticks floating on boiling water.





- Local Name : **Samai**
 Common Name : Little Millet
 Botanical Name : *Panicum miliare*
 Other Vernacular Names : *Kutki, Gundli, Shavan, Samalu, Chama, Gondula*
 Indigenous Varieties Grown :
 Local Foods & Preparations : *Rice, Kali, Payasam, Murukku and Uppuma*

- Local Name : **Tenai**
 Common Name : Fox Tail Millet
 Botanical Name : *Setaria italica*
 Other Vernacular Names : *Kauni, Navane, Koralu, Thina, Kakun, Pandi*



- Indigenous Varieties Grown : *Kaar, Muduga, Sembu, Kongu, Sukku*
 Local Foods & Preparations : *Rice, Kali & Uppuma*





- Local Name : **Kadugha**
Common name : Mustard
Botanical Name : *Brassica juncea*
Other Vernacular Names : *Sarson, Rayi, Avalu, Sasive*
Indigenous Varieties Grown :
Local Foods & Preparations : as flavouring spice



Local Name : **Varaghu**
Common name : Kodo Millet
Botanical Name : *Paspalum scrobiculatum*
Other Vernacular Names : *Kodra, Harka, Arikelu, Koda, Menya, Harik*
Indigenous Varieties Grown :
Local Foods & Preparations : Rice, *Kali* and *Uppuma*

Local Name : **Milagai**
Common Name : Chillies
Botanical Name : *Capsicum frutescens*
Other Vernacular Names : Mirch
Indigenous Varieties Grown : *Jinimas, Vara, Guda, Banmas*
Local Foods & Preparations : as spice for masala and chutneys

Local Name : **Pusinikai**
Common name : Pumpkin
Botanical Name : *Cucurbita pepo*
Other Vernacular Names : *Kumbalakai, Kaddoo*
Indigenous Varieties Grown : *Kumbhkai, Sakarkai*
Local Foods & Preparations : cooked in a clay pot covered with leaves;
as vegetable in sambar or curry

Local Name : **Toghari**
Common name : Pigeon Pea
Botanical Name : *Cajanus cajan*
Other Vernacular Names : *Tuvaram, Arhar, Kandalu*
Indigenous Varieties Grown :
Local Foods & Preparations : Sambar, *Sundal*

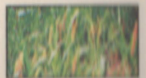


Local Name : **Avarai**
 Common name : Lablab
 Botanical Name : *Dolichos lablab*
 Other Vernacular Names : *Sem, Mochkotta, Anumulu*
 Indigenous Varieties Grown : *Karapu, Vellai, Soni*
 Local Foods & Preparations : curry



Local Name : **Takkali**
 Common name : Tomato
 Botanical Name : *Lycopersicon esculentum*
 Other Vernacular Names :
 Indigenous Varieties Grown :
 Local Foods & Preparations : as ingredient for curry and chutney

Local Name : **Manjhal**
 Common Name : Turmeric
 Botanical Name : *Curcuma longa*
 Other Vernacular Names : *Haldi, Holud*
 Indigenous Varieties Grown :
 Local Foods & Preparations : as spice for curries



Other plants grown are castor (*Ricinus communis*), niger (*Guizotia oleifera*), bottle gourd (*Lagenaria siceraria*), brinjal (*Solanum* spp.), sugarcane, ginger and green gram.

Tools and Methods

The Irulas usually sow *samai* & *tenai* together, but *ragi* separately. Amaranthus and mustard are mixed with these cereals and grown scattered. Rocky areas are selected for *avarai* and deep soils for *macca cholam*. Hoes with narrow blades (*mattas*), spade (*mammatti*) and hoe-forks (*kothu*) are implements used to prepare the soil. The broadcast grains are worked into the earth with hoes and hoe-forks. Very small sickles are used for harvesting grain while a stronger knife (*vettu kathi*) is required for the thick stems of amaranthus. The harvest is collected in baskets and the crop is visited over a long cycle to cut off ripe ear-heads. Stubble left in the fields is for livestock, mainly goats.

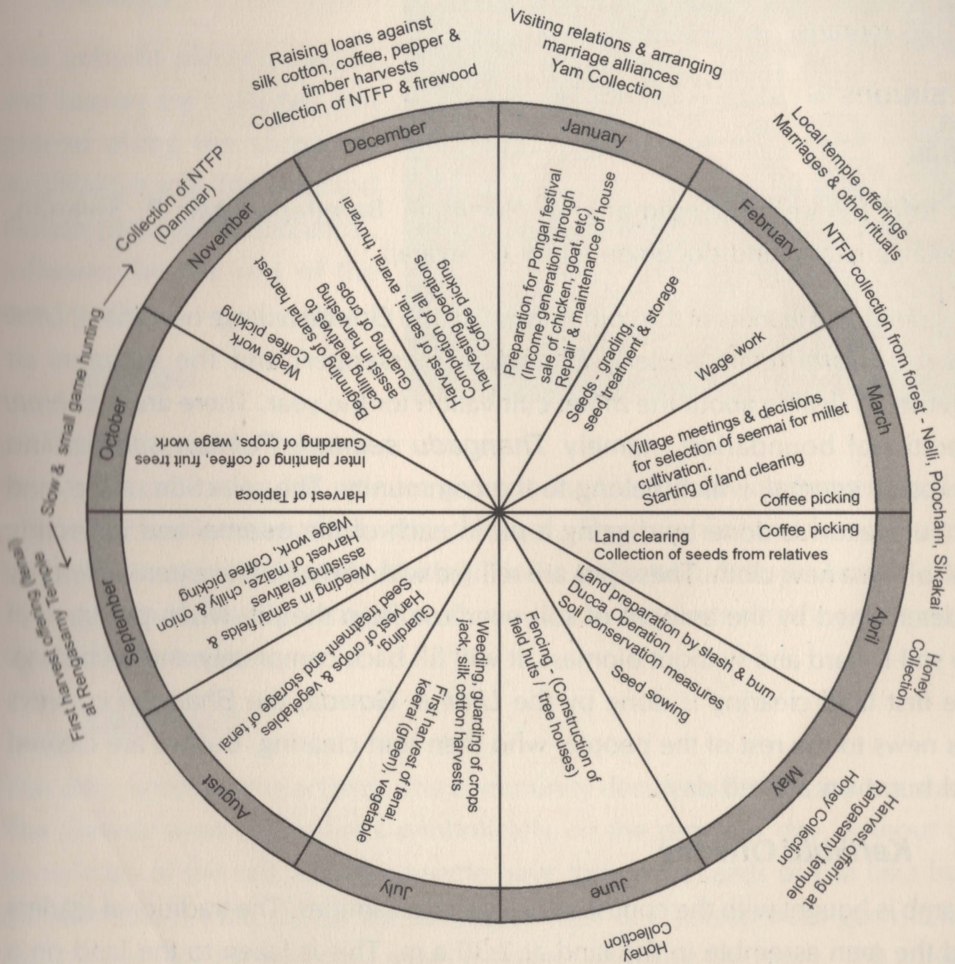


Sticks and sometimes, feet, are used to thresh the grains. When thoroughly sun dried, grains are kept in large woven bamboo baskets (*darsi*) and stored on a platform inside the house. All openings are sealed with a clay and cowdung mixture.



Traditional Seasonal Operations

Indigenous (Kurumba & Irula) cultivation of millets, Collection of Non Timber Forest Produce (NTFP)s and other land based activities including traditional rituals



A family usually owns some planted area and a millet field. The plantation garden has a variety of plants - mainly, coffee (both Robusta and Arabica spp.), silver oak, jack fruit, pepper, papaya, banana, coconut, custard apple, mango, guava, orange, passion fruit, yam, canna, sweet potato and tapioca. The garden is a perennially shaded area and usually close to the main house, providing relief from wind and rain. On an average, this combination of garden and millet fields, provide seasonal fruits and vegetables to the family besides a stock of grain for 6-8 months.

Traditions

Irulas

(as told by Veran, Semmanarai; Perumal, Banglapadigai; P. Sivanan, Vakkanamaram; and documented by B. Sivaraj)

The traditional leaders of the community like the *Gowda* (village headman), *Urali* (leader), *Jathi* (clan leader), *Bhandari* (messenger) and the villagers sit together to decide about the millet cultivation for the year. There are 3 *seemai* (traditional boundaries), namely *Thangadu seemai*, *Poiman seemai* and *Rekodue seemai*, which belong to the community. The selection of the land for cultivation is done by digging a pit in each of the *seemai* and collecting the soil on a new cloth. These pits are refilled with the soil. The extent of fertility is determined by the amount of soil overflow from the pit, when put back (if the soil is hard and without biomass, it will fill back completely and be heavy). The first land clearing is done by the *Urali* & *Gowda*, the *Bhandari* conveys this news to the rest of the people, who then start clearing. Bushes are cleared and burnt on a fixed day.

Karikutti Offering

A lamb is bought with the contribution of all the families. The traditional leaders and the men assemble in the land at 2:30 a.m. This is taken to the land on a Thursday and cut as an offering, amidst chorus of "*Tho..ho..ho...*".



Verede

The heart of the lamb is picked up with a sharp stick made from *ulumai* (*Grewia tilifolia*) and roasted on a fire. This is given as an offering to the deities *Kurumane* and *Arumane*. These gods protect the community and the millet cultivation. The men return home before the rest of the family wakes up.

Ducca

The unburnt pieces of wood and bushes are collected and placed along the slopes to stabilize the soil. The *Urali* and *Gowda* perform the *ducca* first, followed by the rest of the community.



Kundali

All the tools used by the community for cultivation last year are given to the blacksmith for sharpening. The sharpened tools are marked with charcoal. They are first used on a *nagha* (*Syzygium cumini*) tree while reciting "*Kotha pallu murunchu po kundali pallu muruga vena*" (The blacksmith's teeth may break but the teeth of the sharpened tool will not break).

Kambalam

This is the seed sowing activity. The community decides a day for sowing seeds. The *Gowda* sows some seeds symbolically on the previous day, without the knowledge of the rest. Usually people have their own seeds or can take from the *Gowda*. On the day of the sowing at least one person from each family participates. All the lands are sown together, one after the other. The sowing



is accompanied by playing of drums and *kuvalu* (piped instrument). All people present eat jack, coffee and pumpkin, together.



After the sowing is complete, the tools are kept in a common place and prayer offered by all families.

Korakatti

The Urali is carried by two people from the field to the village, where a mat is placed for him. The day ends with coffee and traditional dancing.

Kavasali & weeding

Field huts are erected individually according to their convenience and weeding is also done. A fence is set up and scarecrows made to drive away hare, porcupine and wild boar.



Mandala

The *Gowda* and *Karundale* collect well grown panicles from the whole land before sunrise. These are later offered to the gods as *pongal* by all families. Similarly, panicles are collected and kept at the entrance of the field huts by individuals. Some are given to the *Poojari*, to offer to the evil forces.

Tenai Arakano (Harvest)

Once the crop is ready, each family worships their deities and starts harvesting the grown crop. Traditional songs, stories and legends are shared during harvesting - this relieves tiredness. First, *tenai* is threshed, cooked and offered to the gods, after which it can be eaten by the family members.

Samai Arakano (Harvest)

Samai is grown in winter and is the last crop in the field. Meanwhile, the harvest of amaranthus, pumpkin and tubers is already complete and eaten during the period when *samai* has to be weeded and tended to. When *samai* is ready for harvest, relatives are called and food is offered to them. The harvest is kept in a heap in the yard (*mothei*). During the harvest, traditional songs are sung by the relatives. This is followed by *samai okkal*



(threshing of the grain), which is done by all present. This is done through the night from 9:00 p.m. onwards, interspersed with food and dance. Sometimes, two teams are made and it is like a competition.

Annarasi

When threshing is completed in the morning, the straw is kept aside. *Samai* grain is separated by winnowing with the traditional *vesu gudu* (long



winnowing basket) and heaped on the yard. A line is drawn with ash around the heap and the field guard knife is placed on top of the heap to drive away the evil spirits. Later *samai* is shifted to the house and stored in *kutti* (granary). When the relatives leave, all are given grain as a wage/offering. This is equivalent to 1 *kolagam* (6 litres) per day.

"This is how we grow *tenai* and *samai* traditionally. During *Pongal*, we offer food to all and everyday is like a celebration. We do not sell the harvest ever. Like this, food is grown traditionally with the blessings of nature - clean water, rain and air. Like this, our ancestors have lived healthily for more than 100 years. Our lives are made happier by domestic animals, small game and forest collection during leisure.....and so our community lives...with the blessings of the gods - an honest & happy life"

Kurumbas

(as told by Rasu, Semanarai; Mahalingam, Thalamokkai; Joghee, Vellerikombei and Joghi, Veerakombe and documented by P. Chandran)

Ola Idippu

The *Mannukaran* is the leader for millet cultivation. He has to observe strict rituals for 8 months and can neither eat non-vegetarian food nor eat any food from outside. He also cannot use any soap.

On a Tuesday, the community offers a *puja* (prayer) & *pongal* (a cooked dish) with *avarai*, *poosani*, *thubarai* and *samai* to *Arumane* and *Kurumane* (ancestral deities). The same day, a patch of land is cleared symbolically. The rest of the land is cleared from the next Tuesday onwards and the bushes fired. The un-burnt sticks are taken and stacked in the field along the slopes, to prevent erosion. One burnt stick is taken, tied with a cloth and placed in a corner of the field or house. An offering is made to this stick of *avarai*, *thogari*, *poosinikai*, *keerai*, *ragi*, *samai* and *tenai*. The *Mannukaran* does a small *puja*. The left



over unburnt woody material is collected and kept across the slopes as contour bunds to stabilize the soil. The activity is completed before the month of *Chitrai*.

Bithu Akkothu/ Bithu Arke Harappa

During *Chitrai*, on a Tuesday, a *puja* is performed to *Madheshwara Swami* and *Mari Amman* (local god and goddess). A *pongali* is made with traditional food grains. The cooked food is kept on 5 or 7 *thadasu* (*Grewia tilifolia*) leaves and offered to the deity. The *Mannukaran* sows the first seeds, usually at dawn. This *puja* is completed by men of the concerned families, between 6:00 & 9:00 a.m., after which the women join in the sowing of seeds called *bithu kallappa*. In the evening, a *puja* is performed of the farm tools.

After a month, the land is full of *keerai*. The first *keerai* is offered to the *Mannukaran*, who in turn cooks and offers it to the ancestors. Each family also performs a *puja* in the hut in the field and the *keerai* offered to their family gods. "Till all this is over we do not cook and eat the *keerai*. While cooking we do not use oil.



We use *seeni milaghai* (small chilly) and the small tomatoes, which grow in our fields".

Panjakalam

During the months of *Chitrai*, *Vaigasi* and *Ani*, when the crop is growing and maturing, there is nothing to eat in the field. So the men go into the forest and collect honey, *keerai* and bamboo shoots. During this period, women look after the field. "During this time, we soak the broken *eendhkai* (seeds of *Cycas circinalis*) and wash it seven times. This is ground and steamed, like *idly*.



Teak leaves are used for steaming. This is eaten with tomato chutney" Manickam, Vellericombei.

Thoodoo

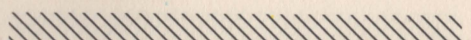
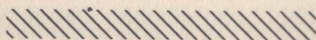
During the month of *Vaighasi*, while the *Mannukaran* is on a fast, a prayer and *pongal* is organized. A goat is offered to the deity with 7 pots of water and greens for blessing the fields with rain. This *puja* is also performed by the men and later the women join for weeding operations.

Ariketti puja (Tenai Kuiva)

In 3 months, the crop starts maturing. The first matured panicles are collected and tied into the shape of a small mound (*anna kedi*) with the help of a forest vine, *olusu kodi* (*Cryptolepis buchananii*). This is placed in a mud pot. The *puja* is performed with the harvest knife in front of the structure and the harvest begins. The harvest is collected and threshed on the yard. First, a measured volume is given to the *Mannukaran*, who performs a prayer and offers the leaves on *thadasu* leaves to the ancestors. After this, *pongal* is organized and shared by all in the community.



"The entire season involves not only an exchange of seeds but an overall strengthening of bond between the relatives. There is also improved co-operation between the villagers. Visits of relatives from other villages also takes place".



Seed and Storage

Seed selection is done in the beginning and the grain is tied in the cloth and kept above the cooking area in the house. This is used for sowing the fields the next year.

"*Tenai*, which matures first is first offered to the gods and harvested. The best large sized panicles are separated for seed and kept in a mixture of ash and *vengai pattai* (bark of *Pterocarpus marsupium*). Threshing is done by beating the panicles with sticks and crushing with legs. The rest of the harvest is stored on the bamboo loft in sacks or in mud pots and kept above the fireplace. The smoke keeps away pests. Sometimes, a hole is dug in the ground and plastered with cow dung. This is also used as a storing place", Joghee, Veerakombei.



"We grind lemon leaf, red soil and *vasambu* (*Acorus calamus*) and mix it with the *thogari* seeds, which preserves them for an year", Manickam - Vellericombei.

Millets - Integral to Adivasi Rituals

For both the Kurumba and Irula communities, millets are used in rituals of death & puberty and those related to prayers to ancestors and their family gods.

In the death ceremony, *tenai* and *samai* are kept along with the body - as it is believed that the soul is now undertaking a journey for which certain items are required. *Tenai* is also used to perform prayers in the home of the deceased. *Keerai* is scattered all along the journey from the village to the graveyard, in



the belief that evil spirits will get distracted by them and not enter the village. After the funeral, *ragi kanji* (thin porridge) is spread near the entrance of the hut of the deceased and left overnight. In the morning, this is checked for footsteps of the spirit, which may have returned home.

For prayers to the ancestors and the family god, *samai* is a very important ingredient. *Samai* is cooked along with other items of *macca*, *ragi* & *pusinakai* and offered at the *govai mane* (temple for ancestors). Home made castor oil is also used in rituals of puberty ceremonies and spirit stone ceremonies, amongst the Irulas.

Special prayers are offered if the *Mannukaran* dies, using millets. Around his grave all the millets are planted symbolically, to signify the important role played by him in millet cultivation.

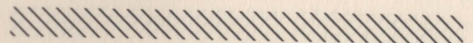
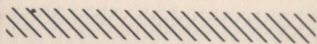
Food Security & Nutrition

This being the starting point of the whole initiative, it is interesting to see how the families gained in terms of food security and nutrition. It was also interesting



to note how people, especially children, actually preferred rice as they were used to eating it. Over the years, there has been a change in food preference because of the high subsidy on rice through the Public Distribution System (PDS).

Women too, found it difficult to undertake de-husking of grain by pounding in the *ural* (mortar) as they were also expected to work in estates for the added income. However, over time and some technological innovations in the programme (a de-husking machine), these aspects were overcome. It will



also take more time for the practice to be widely practiced - due to the higher social status attached to rice in South India.



Technically, as rice is available from the PDS, food security is assured. Millet growing adds to their stock and supplements diet. In a study undertaken by Keystone in 2002 (George, Ann; Food Security amongst Tribal Communities in the Nilgiris), it was seen that a family eats approximately 15 meals a month using millets for a period of 6-8 months or till stocks last. The main difference millets make is to their nutritional status, *ragi* being the most preferred millet and given especially to children and elders. The following table elaborates the nutritional value of crops and compares millets to rice.

Nutritive Value of Crops (per 100 gm)

Crop	Protein	Calories (mg)	Calcium (mg)	Iron	Vitamin A
<i>Ragi</i>	7.3	328	344	3.9	42
<i>Tenai</i>	12.3	290	37	12.9	
<i>Varaghu</i>	8.3	309	27	5.0	
<i>Samai</i>	7.7	341	20	9.3	0
Amaranthus	16-19	366	25-389	3-22	14-190
Rice	6.8	345	10	0.7	0

These aspects directly relate to the family and its composition. The same holds for harvests and food security. According to Mannickam, "from 1 acre we can harvest - *samai* - 1 bag; *tenai* - 1 bag; *ragi* - 1/2 bag; *cholam* - 2 bags;



keerai - 1/2 bag; beans 1/2 bag and *thogari* - 1/2 bag. The produce lasts for 6 months - though they can be kept upto 3 years”.

In an analysis done of harvests and family size in Vagapanai - the average food availability for a family was 6-8 months and millet based meals are interspersed with other foods like rice.

It was the older generation that appreciated this food the most, as is amply illustrated by the following case study:

Malli, Pudur Kombai

I am Malli, my husband Lakshmanan died. Here in Pudur Kombai, I stay with my son Nanjan and daughter-in-law, Neelavathi. We work on 2 acres of *tenai* land. We have cultivated *tenai*, after a gap of 18 years. On this patch, we are the only family cultivating and have lots of wild animals coming and damaging the crop.

Nanjan and Neelavathi decided what to grow where and have grown *ragi*, *tenai*, *cholam*, *keerai*, beans, *thogari*, *poosani*, *kadugu* and *samai*. These are important food crops. We also grow sweet potato. During the day time Neela guards the fields and Nanjan goes for wage work. At night both stay at the field hut and guard the crop. Whatever crop is grown in our land is used as food, never sold. Grain is given as wages to whoever helps in cultivation. Similarly, we also help them during cultivation.

During the last harvest, we have collected 4 bags of *ragi*, 5 bags of *tenai*, 3 bags of *samai*, 2 bags of beans, 5 bags of *cholam*, 1 bag of *thogari* and 1 bag of *keerai*.

Ragi and *samai* are nutritious, filling and give strength to the body. One is not sick so often.



The Changing Future

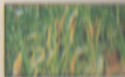
This effort aims to raise issues of food sovereignty amongst marginalized adivasi communities. In a larger scenario, it challenges genetically modified and hybrid crops and brings back crop diversity into a largely monocultural plantation area. The programme has also brought many other benefits like bringing the community together, marking of boundaries vis-a-vis estates & forest lands, clearing of fallow land for growing high value crops, raising community nurseries and using soil & moisture conservation activities. Covering approximately 800 acres of adivasi land in 16 villages, the impact of the programme has been widespread.



Despite the advantages, the effort has been intensive. Several factors play a role in slowing the acceptance of this type of mixed millet cultivation. Some of the main factors are:

- * Changed food habits due to subsidized grains, mainly rice
- * Breakdown of community systems to sustain this agriculture
- * Lack of rights to ancestral lands
- * Crop raiding by wild animals
- * Unpredictable rainfall pattern

These aspects remain challenges for the future. Even though there is an established world wide recognition of the nutritional value of these crops, this awareness needs to be spread with the original growers.



At Keystone, we propose to strengthen this activity by spreading more information and awareness, creating more seed banks and initiating appropriate technology interventions for post harvest and value addition. We need to increase the scale of operations for viability and enable a common recognition of the benefits besides helping the younger generation to get more involved in land based activities. It is also necessary to build a larger campaign for making these crops more popular and easily usable amongst the members of the adivasi community.

Kurumba song



*Adu adu Navane Adiba navane
Aerode kichu Aerethondu bantha
Pesage pisalu benthathu kanda.....
Aerode kichu Aerethondu bantha - 2
Pesage pisuvathu benthathu kanda
Onthu more motte nathane kanda
Odiba kanda oithuba kanda
Chithirai pisulu sirithathuva
Mungaru mugilu murithathu ega
Karade kichu kararethonu bantha
Aerode kichu Aerethonu bantha
Odiba kanda oithuba kanda
Adu adu Navane Adiba navane*

("Sway with the wind, grow and ripen, crown of the millet!
Brave the fire of the grassland, the blazing Sun of April.
Before the dark clouds break and pour.
Grow ripe and full that we may gather you,
With our winnowing baskets into our sacks.
Tasty crown of the millet grow ripe and full...")



References

Ghosal, Anjali and Krishnan, Omkar (1995); Millets of India, Navdanya Hidden Harvests; Green Foundation
Progress and Annual Reports (1998 to 2004); Keystone Foundation
Maps and Photo Database (1998 to 2005); Keystone Foundation
Shiva, Vandana, et al (1995); The Seed Keepers, Navdanya
Venugopal, D., (1993); The Nilgiris, Nilgiri Documentation Centre





Contact Information

KEYSTONE FOUNDATION

Keystone Centre, Groves Hill Road, P. B. No.35,
Kotagiri - 643 217, Nilgiris (T. N.), India
Phone : +91 - (0)4266 - 272277, 272977 Fax : 272277
e-mail : kf@keystone-foundation.org