

**NAMMA NELLU REPORT FOR
THE PERIOD APRIL 2023–
MARCH 2024**

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Contents of this Report

This report of Namma Nellu contains information about the activities (as on 31st March, 2024) for the year 2023-24 and is organised into the following sections:

1. About Namma Nellu
2. Conservation of Traditional Rice Varieties (TRVs)
3. Cultivation of TRV boutique varieties
4. Documentation and Characterization of TRVs
5. Upscaling cultivation of TRVs
6. Seed production
7. Farm school programs
8. Wild Pig Management
9. TRV processing

In this section, we will be talking about our efforts regarding research and upgrading the processing facilities.

9.1. TRVs mini rice processing unit

9.2. Maintenance and upgradation of TRV cultivation and processing equipments

10. Awareness creation

Awareness creation is one of our major focus areas. In this section, we will be talking about the efforts undertaken for creating awareness about TRVs among the general public.

10.1. Website Launch

10.2. Recent Publication

10.3. Participation in Exhibitions, Seminars and training programmes

11. Licences and Certificates

In this section, we will be talking about the mandatory licences obtained and the organic certification obtained.

11.1. External inspection for organic certification

11.2. TRVs seed processing unit license and TRVs seeds selling

12. Value addition of TRVs

13. Nutritional analysis of *Nel pori* samples

14. Capacity building

Capacity building and empowering farmers has been a major focus of our work. This section talks about the efforts undertaken this year.

14.1. Capacity building trainings for farmers

14.2. Training programme on Usage of Grains Pro Bags

14.3. Training on the preparation of value added products

15. Impact of this Namma Nellu programme

16. Work in progress for the coming year

17. Plans for the future

18. Partners and supporters

1. About Namma Nellu

Namma Nellu is an initiative of the Centre for Indian Knowledge Systems (CIKS) dedicated to the conservation, documentation and scaling up of cultivation of Traditional Rice Varieties (TRVs) in Tamil Nadu.



Vision: Conserving agrobiodiversity for food and nutritional security for all

Mission

- Conserve and upscale cultivation and marketing of at least 100 nutritionally and therapeutically important TRVs of Tamil Nadu.
- Make available good germplasm of all these varieties in a decentralized fashion and create a network for the same.

2. Conservation of Traditional Rice Varieties (TRVs)

During the *Samba* season July 2023- January 2024, 161 TRVs were conserved systematically at an area of 1.45 acres in the CIKS experimental farm at Sukkankollai. The following activities were undertaken:

- a. Detailed planning of the varieties to be planted in the field was undertaken including choice of the varieties, seasons, spatial distribution in the TRC, distribution to farmers etc.

- b. We undertook seed germination tests.



- c. We ensured that the seeds are properly cleaned and all admixtures were removed.



- d. We treated the seeds organically and soaked them before raising the nursery.



- e. We raised the nursery with a lot of care and ensured that the name boards were placed for every variety.



- f. We prepared the main field by ploughing of the green manure which is already planted, ploughed it for a number of times required, did the plastering and levelling.



- g. Then we shifted the seedlings and transplanted them with name boards. We did gap filling wherever required.



- h. We applied azolla (an aquatic plant that helps fix nitrogen to the soil) 10 days after transplanting.



- i. Weeding was done three times by conoweeder and once manually.



- j. We applied organic manures twice and also organic growth regulators once.



- k. We adopted non chemical pest control measures like use of bird perch, yellow sticky trap, neem cake bag in irrigation channel and biopesticide spraying.



- l. We performed rouging operations (by which off types and diseased plants are removed) five times to maintain purity, undertook measures to prevent wild pig attack and water management. Field bund cleaning was done as and when required.



- m. After harvesting, threshing and winnowing we check for proper storage, moisture content and store the seeds in gunny bags treated with neem cake extracts to avoid attack by pests. The bags are stacked and spaced as per our standard protocol and fumigated regularly with herbal pest control agents.



3. Cultivation of TRV boutique varieties



In addition to the varieties identified for bulk cultivation we have also identified set of varieties that have the potential to be scaled up and could possibly constitute a good market

and source of income for the farmers. We have outlined below the criteria for the selection of these varieties.

Boutique Varieties for Scaling Up of Cultivation – Selection Criteria

The following is the list of criteria based on which these varieties have been selected for scaling up:

- a. Resilient to climate change meeting one or more of the criteria- Pest resistance, Disease resistance, Flood resistant / Drought tolerant, Suitable to soils that may be – sandy, clayey, saline, etc, Short duration varieties
- b. Information available / emerging with respect to nutritional/therapeutic properties either from modern research or from traditional / Ayurveda / Folk knowledge and/or flavor, taste, special dishes
- c. Rich in minerals/antioxidants
- d. Low Glycemic Index (GI)
- e. Building immunity/resistance to disease
- f. Important for pregnant women, lactating mothers
- g. Aromatic and other varieties suited for specific dishes such as – *Idly, Dosa, Kanji, Biryani, Payasam*, etc.
- h. Varieties suited for specific preparations such as flaked rice, puffed rice, etc.
- i. Colored rices especially – red, purple or black rices
- j. Growing consumer awareness/interests.

During the *Samba* season July 2023- January 2024, 36 TRV boutique varieties were cultivated in 6 acres in the CIKS farm. The harvesting of these varieties have been completed and now they ready for threshing and winnowing.

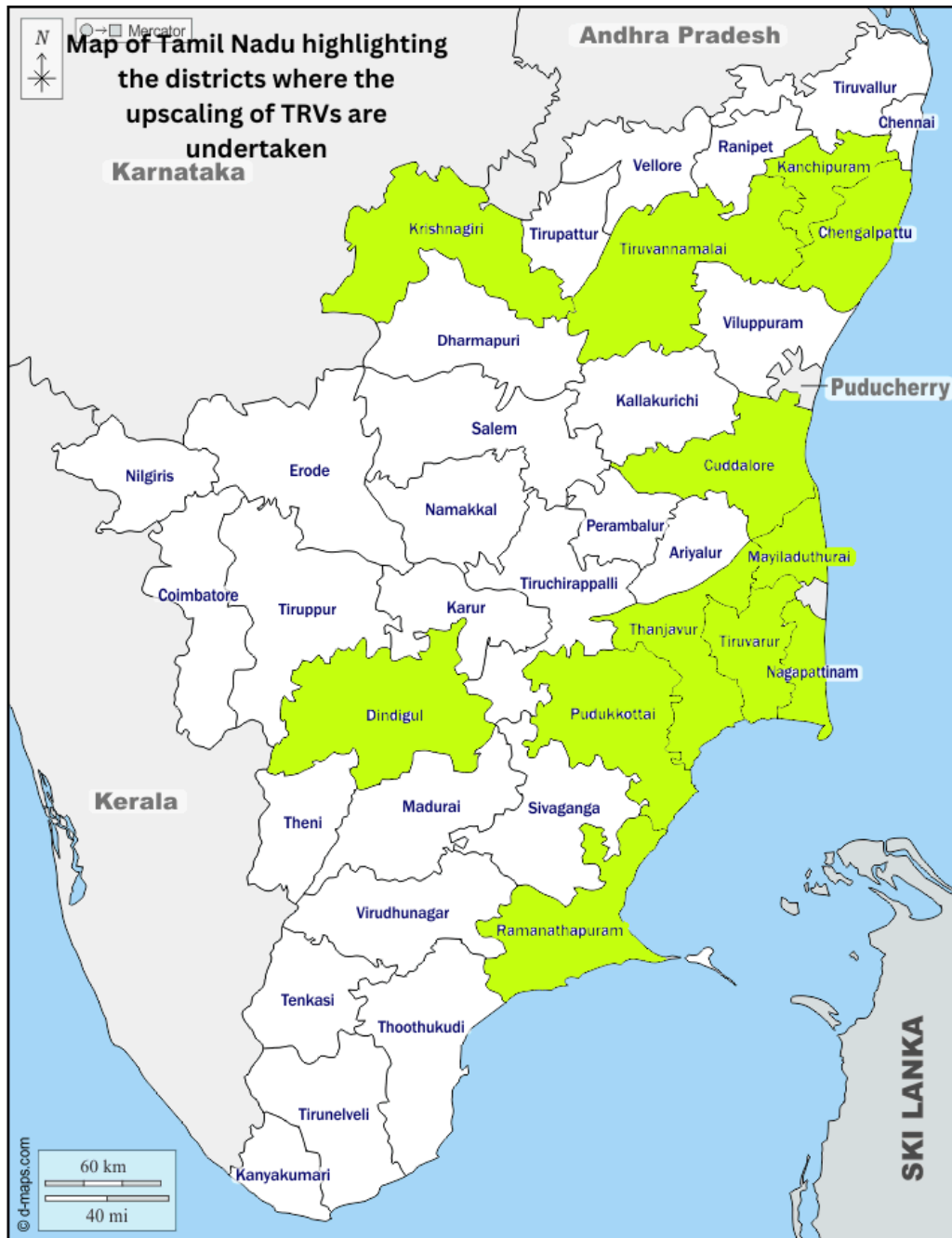
4. Documentation and Characterization of TRVs



We have done detailed documentation of the agronomic qualities and performance of 161 TRVs. This is in addition to the detailed documentation done for 36 TRV boutique varieties . Totally 24 characteristics (such as Height of plant, Leaf Length, Number of tillers, panicle length, date of flowering, date of harvest, number of grains per earhead, yield per plant etc to name a few) were recorded for each variety.

5. Upscaling cultivation of TRVs





We have upscaled the cultivation of 11 TRVs namely Thooyamalli, Mappillai Samba, Karuppu Kowni, Kitchili Samba, Seeraga Samba, Kuzhiadhichan, Karungkuruvai, Kattuyanam, Panangkattu Kudaivazhai, Burma Kowni and Navara in 5000 acres.

Our farmer's fields are spread across in 12 Districts of Tamil Nadu namely Pudukkottai, Tiruvannamalai, Mayiladuthurai, Nagapattinam, Krishnagiri, Chengalpet, Kancheepuram, Cuddalore, Ramanathapuram, Thanjavur, Tiruvarur and Dindigul.

We have established marketing linkages for these TRVs with 6 FPCs (Pudukkottai Organic Farmers Produce Company Limited, Cheyyar Sustainable Agriculture Producer Company Limited, Chengam Sustainable Agriculture Producer Company Limited, Kurinji Sustainable Agriculture Producer Company Limited, Valanadu Sustainable Agriculture Producer Company Limited and Seeds Sustainable Agriculture Producer Company Limited) farmer groups, individual farmers, Rice mill (Sri Sankar rice mill in Vedavakkam, Chengalpattu), Traders (K A Kasi Traders in Ranipet District and Shri Vasavi Traders in Pudukkottai District) and Sempulam Sustainable Solutions Private Limited Company.

6. Seed production

Seeds used for the seed production should be of good quality from an authentic source. Seeds should be healthy with good germination percentage and vigour. During the period 2023-2024 we have cultivated 9 TRVs (Ottadai, Thooyamalli, Kothamalli Samba, Mappillai Samba, Kattuyanam, Karuppu Kowni, Seeraga Samba, Kitchili Samba and Kuzhiadichan) in 14.5 acres under SRI (System of Rice Intensification) for seeds. The varieties were cultivated by 10 farmers belonging to 4 districts namely Kancheepuram, Chengalpet, Tiruvannamalai and Ramanathapuram. A total of 11.67 MT of seeds have been produced through this effort.



7. Farm school programs



We have regularly conducted farm school program for the school children. Here, children are taught about the cultivation of traditional varieties from "Seed to Market." They are actively involved in all farming operations, including seed treatment, nursery raising, ploughing, transplanting, weeding, pest control, and harvest. Moreover, they are also encouraged to sell their produce to the parent community. These training sessions have fostered a great deal of enthusiasm and interest among both parents and teachers.

8. Wild Pig Management

During this year *Samba* season (August 2023 – January 2024), we faced a serious problem of wild pig attack in our TRVs conservation as well as in our boutique varieties cultivation fields. Wild pigs are nocturnal animals and they attack the fields during night time causing serious damage. They attacked our TRV crops at the stage when they were ready for harvest and therefore the following measures were undertaken to protect the crops from wild pig attacks.



Kaivari Samba and Rasakadam cultivation fields attacked by Wild pigs at CIKS farm

a. Installing sound system



b. Lighting



c. Bursting crackers at regular 1 to 2 hour intervals



d. Placing human hairs in the field bunds so that when the pig sniffs the hairs it causes discomfort and difficulty in breathing.



e. Spraying of Herbolive biopesticide using drone. Herbolive is a certified organic liquid input (certified by Indian Society for Certification of Organic Products (ISCOP) act as repellent for wild boars, rats and other animals in field crops. This Herbolive liquid when sprayed on crops makes them tasteless due to which the wild animals do not eat or damage it.



f. Barbed wire fencing



g. Monitoring at night times



Out of these, some efforts have been beneficial in tackling the attack by wild pigs like monitoring at night times, bursting crackers etc. While short term solutions have been worked out, efforts are in progress to find long term solution.




9. TRV processing



9.1. TRVs mini rice processing unit

Currently there are large mills which mainly process the modern and hybrid varieties. The equipments are designed in such a way that they can process them only on a large scale and

is also suited to processing only these grain varieties. We need equipments which can process TRVs on a small scale. We also need to adapt these for different varieties so that while processing the original characteristics of the grains are not lost. Taking into account all these considerations, we have set up a small scale processing unit to process the paddy from grain to rice completely inhouse.

List of equipments installed in the Solar Based Mini Paddy Processing Unit

S. No	Name of the equipment	Picture of the equipment	Purpose / use of the equipment	Remarks
1	Pre-Cleaner		It is used to remove the pieces of paddy stalks, stones and other unwanted material from Paddy grains. This makes paddy processing smoother without any obstacles. Capacity – 150 Kgs / hour	First step in paddy processing
2	De – husker / Rice Huller		It is used to remove the outer husk from each and every grain without polishing the rice in order to get the rice in its original colour. Capacity – 100 Kgs / hour	Second step in processing
3	Separator		Separator is used to separate rice from the grains completely. Capacity – 100 Kgs / hour	Third step in processing

4	Destoner		It is used to remove stones from rice Capacity – 100 Kgs / hour	Fourth step in processing
5	Grader		It is used to remove the broken rice from the whole rice. For brown / red / black rice, this is the final step. If we want to convert the brown / red / black rice into white rice then we polish the rice using the huller and then do the grading. Capacity – 100 Kgs / hour	Fifth step in processing.
6	Solar system with Panel		We have set up a solar based operating system to enable smooth functioning of our mini rice processing unit	

We have also purchased vessels for boiling and drying of grains/rice and have also purchased gunny bags and packaging materials for storing TRVs seeds and grains.



9.2. Maintenance and upgradation of TRV cultivation and processing equipments



A team of 24 members from Fractal Foundation, Chennai visited CIKS – TRC on 22nd and 23rd December 2023. Assessments were done by the team members to check how the existing machineries related to TRVs cultivation and TRVs processing can be improved/modified to increase its efficiency and to make it simple for farming communities to use them.

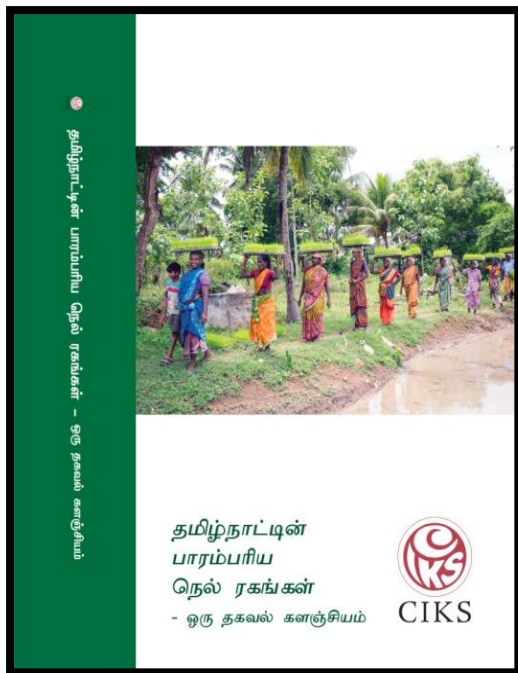
10. Awareness creation

10.1. Website Launch



In October 2016, we had launched a website solely for the Namma Nellu programme (www.nammanellu.com). This website was revamped and updated and the new Namma Nellu website was launched during the 30th CIKS foundation day celebration event held on 23rd January, 2024. The website was declared open by Prof.S.Lakshmi Bala and the key features of the new Namma Nellu website were explained Mr.Vipin Nair of Smudge Design.

10.2. Recent Publication



Recently we have come out with a publication in Tamil titled “*Tamilnattin Parampariya Nel Rakankal – Oru Thakaval Kalanjyam*”. This book totally contains 6 chapters and reference section. Chapters 1 to 3 highlight the characteristics of TRVs, the need to conserve them, technologies that should be adopted to conserve them, organic cultivation methods, SRI method and insitu conservation. Chapter 4 mentions about the agronomic characteristics of TRVs. Chapter 5 explains about the nutritional and therapeutic properties of TRVs and Chapter 6 contains information about 150 TRVs. This book was released during the 30th CIKS foundation day celebration event held on 23rd January, 2024 by Mr.Raghunath Narayanan (Catalyst group, Bangalore), first copies of the book were received by Dr.Unnamalai (Shri AMM Murgappa Chettiar Research Centre) and Mr.Manigandan (Farmer, Sirkazhi) and Ms. K. Parimala (Co-author of this book) delivered an insightful presentation about the book and its contents.

10.3. Participation in Exhibitions, Seminars and training

S. No	Date	Details of the event/training attended	Purpose of visit / Participation
1	14 th April 2023	SPS marabuvazhi pannai, Dharmपुरi District	Observed how solar energy can be used to power TRVs mini paddy processing unit and its functioning
2	17 th June 2023	National Traditional Paddy Seed Festival, Thiruthuraipoondi, Tiruvarur District	Got to know about the status of TRVs, possibilities of getting new TRVs, establishing marketing linkages for TRVs etc.,
3	8 th and 9 th July 2023	FPOs Mela, Trade Centre, Chennai	To establish and strengthen marketing linkages for TRVs
4	26 th July 2023	Training on usage of grains pro bags	To increase the shelf life of TRVs grains, rice and value added products
5	25 th , 26 th and 27 th August 2023	Agri Exhibition, Madurai	To establish and strengthen marketing linkages for TRVs

11. Licences and Certificates

11.1. External inspection for organic certification

An External inspection was carried out by IMO, the certification agency on 10th June 2023. Inspection was carried out in the entire farm including fields and premises, godowns, seed bank, equipments room, cattle shed, office premises, processing units and kitchen and all our records were also verified.

11.2. TRVs seed processing unit license and TRVs seeds selling

We have obtained Seed Processing unit license and Seed selling license from the Department of Seed Certification and Organic Certification on 17th November 2023 and 1st November 2023 respectively.

12. Value addition of TRVs

We made efforts to prepare Nel pori and Rice pori from 10 TRVs namely Kaivari Samba, Pisini, Kottara Samba, Poompalai, Karuppu Kowni, Chengalpet Sirumani, Kuzhiadichan, Arikiravi and Navara. Experiments were also done to prepare *pori urundai* from the *poris* thus obtained. A variety of sweets and savouries using TRVs have also been developed and during the occasion of Diwali, we collaborated with Sempulam Sustainable Solutions and had curated a box of sweets and savouries made from unique and nutrient packed traditional rice varieties. The box contained the following:



a. Navarasa *Adhirasams*

It is an exclusive assortment of nine *adhirasams*, each crafted from a distinct and nutrition-rich traditional rice variety. The rice varieties used for these nine *adhirasams* are Kalanamak, Karuppu Kowni, Kitchilli Samba, Kottara Samba, Mullan kaima, Navara, Seeraga Samba, Sivappu Kowni and Thengaipoo Samba.

b. Adukku Nel *Manoharam*

It is a delicious sweet made of fried *murukku* dipped in thick jaggery with a flavouring of cardamom, dry ginger etc. This *manoharam* is made with the protein rich Adukku Nel rice.

c. 50 traditional rice *Porivilangai urundai*

This is a very healthy snack with a lot of protein and energy. The main ingredient in this special *porivilangai urundai* is a mixture of 50 traditional rice varieties.

d. Kallimadaiyaan Butter *murukku*

This is a crispy, crunchy deep fried savory snack with rice flour as the main ingredient. Rice used for this *murukku* is the famous zinc and iron rich Kallimadaiyaan rice.

e. Neelan Samba *Thattai*

This crisp deep fried cracker is made with rice flour, lentils and other spices. The Neelan Samba rice used for this is very high in calcium.

f. *Mukoodal* Mixture

Mixture is a delectable mix of components that are fried to perfection to give that perfect crunchiness. This *mukoodal* mixture is made from Thooyamalli rice, Thanga samba rice and Kitchilli Samba rice gives a special twist to the snack.

13. Nutritional analysis of *Nel pori* samples

Three TRV *Nel poris* namely Arikiravi, Adukku Nel and Kaivari Samba *Nel poris* were sent to National Agro Foundation (NAF) for testing of their nutritional parameters on 18th July, 2023. From the results obtained it is evident that the TRV *Nel poris* contained high amounts of Protein (values in the range of 8.14 to 9.87g/100g), iron (values in the range of 2.06 to 8.38mg/100g), calcium (values in the range of 30.55 to 35.86 mg/100g), potassium (values in the range of 237.18 to 374.45 mg/100g) and zinc (1.80 to 2.12mg/100g).

14. Capacity building

14.1. Capacity building trainings for farmers

During the period 2023 – 2024, we conducted nearly 200 capacity building training programmes for 5,000 farmers across Tamil Nadu. Trainings were conducted on topics like System of Rice Intensification (SRI), Non Chemical Plant protection measures, Seed Production, Packages of practices for rice cultivation and conservation etc.

14.2. Training programme on Usage of Grains Pro Bags



We have conducted training on the Usage of Grain Pro Bags for FPC partners and staff members on 26th July 2023 at CIKS – TRC, Sukkankollai. Grainpro India Post Harvest Technology Pvt Ltd conducted the training. Explanation was given about the wastage of food grains during storage, Transporting, Drying and about Hermetic Technologies (It is a technology that uses gas-tight and moisture-tight materials to seal commodities prone to deterioration when exposed) and its pricing. The training programme ended with question and answer session.

14.3. Training on the preparation of value added products

We conducted a 4 day training (20th, 21st, 26th & 27th March 2024) on the preparation of value added products at CIKS TRC to the members of women Joint Liability Groups (JLGs) and staff. Totally 10 participants took part in this training which included 5 staff and 5 women JLG members. Mrs. Nalina Kannan from Thaligai restaurants, was the resource person and detailed explanation as well as demonstrations were given about the following *Vadakam / Vathal* and *Rice Appalam* preparations – 1. *Ilai vadakam*, 2. *Oma podi vadakam*, 3. *Koozh vadakam*, 4. *Star vadakam*, 5. *Ribbon vadakam*, 6. *Chilli vadakam*, 7. *Aval vadakam*, 8. *Millet vadakam*, 9. *Sambar vadakam*, 10 *Kozhambu vadakam*, 11. *Instant vadakam*, 12. *Arisi appalam* and 13. *Noodles*. After the training, participants were made to try out the *vadakam*, *appalam* and *noodles* preparation hands on to further enable them to do the preparations themselves. We have also purchased necessary vessels for the preparation of these value added products.

15. Impact of this Namma Nellu programme

The major impacts of this programme are as follows:

- Nearly 160 varieties are conserved year after year in Sukkankollai experimental farm and also in farmer's fields
- Nearly 50 metric tonnes of seeds are produced through this effort every year. This can be planted in more than 2000 acres
- This program has established standardized procedures for traditional rice harvest at the proper stage of maturity for processing as raw or parboiled rice. This is crucial for ensuring the quality of the rice and its suitability for various culinary uses.
- Equipments for milling have been procured to support the processing of traditional rice varieties. This is important for efficiently processing and preparing the rice for consumption.
- Consumers now have increased access to a growing number of TRVs of good quality. This ensures a diverse selection of rice options and helps preserve traditional rice varieties.
- Through this program extensive research has been carried out which has enabled sharing of authentic information about the agronomic, nutritional and therapeutic properties of TRVs.
- Information is being generated and shared about the use of TRVs in cooking and the preparation of specific dishes. This helps raise awareness about the culinary versatility of traditional rice varieties.
- Approximately 25 TRVs are consistently available in the market in high volumes.
- Through this program a range of value-added products based on selected TRVs has been successfully developed and tested. This diversification of rice-based products, including sweets and savouries, has created new market opportunities and increased the economic value of traditional rice varieties.

16. Work in progress for the coming year

a. The following activities related to the cultivation of the TRV boutique varieties have been completed- Drying the grains, checking the moisture content, germination test, Storage bag

treatment with neem cake extract, Bagging, Labelling, Storing and regular monitoring and now the grains are stored in godown.

b. We have started the collection of new TRVs which are not available in CIKS – TRC

c. We have started documenting the characteristics and location of wild rices which have been found in some places in the Chengalpet District. Wild rice is not a true rice of the *Oryza* genus. It is an annual, aquatic, reed-like grass that can grow up to a height of 12 feet. It grows naturally in shallow lakes and slow-moving rivers. This is of importance to us because of their agronomic properties (ability to withstand flooding) and their high nutritional value. Therefore we have planned to study in detail about wild rice.

d. During the *Navarai* season (January to May 2024) we have started the cultivation and conservation of 29 TRVs at an area of 0.22 acres (22 cents) at the CIKS farm. The 29 varieties which we have planned for cultivation are Navara, Karungkuruvai, Kullakkar, Kuzhiadichan, Ananthanur Sanna, Rakthasali, Kalanamak, Arupatham Kuruvai, Ilupaipoo Samba, Kallurudaikar, Karuthakar, Muttakar, Ottu Kitchili, Perungkar, Poongkar, Sempalai, Varappu kudainchan, Thirupathisaram, Thenkaipoo samba, Sivappu kuruvikar, Kaivari Samba, Kitchili Samba, Thooyamalli, Seeraga Samba, Soorankuruvai, Murukangkar, Kalanamak, Kalabath, Rajamudi. We have also started the cultivation of 12 TRV boutique varieties (Kaivari Samba, Navara, Karungkuruvai, Kullakar, Rakthasali, Anandanoor Sanna, Arubatham Kuruvai, Thooyamalli, Kitchilli Samba, Seeraga Samba, Kalabath and Kalanamak) at a substantial 6.71 acre area at the CIKS farm. The cultivation efforts such as conducting seed germination tests, seed cleaning, seed treatment, raising the nursery, ploughing, transplanting the seedlings, applying azolla, weeding, applying organic manures, adopting non chemical pest control methods, Rouging operations, harvesting, threshing, winnowing, checking for moisture content and storing the seeds in gunny bags are being followed for the *Navarai* season and for the Samba 2023 season as well.

d. During the *Navarai* season we have also started the cultivation of sun hemp at an area of 15 cent for seeds. Sun hemp is very useful for organic farming as its residue is used as a green manure and it adds nutrients and organic matter to the soil, aids in nitrogen fixation and enhances soil microbiota. It also suppresses the growth of weeds and nematodes.

- e. During the *Samba* season, we will be continuing all the activities like the previous year.
- f. Testing of nutritional parameters for 10 TRVs has been done. Nutritional testing for another 26 TRVs are under progress. A detailed analysis would be undertaken after completion of nutritional testing for all the 36 varieties

17. Plans for the future

- a. To scale up the cultivation of TRVs through partnerships and linkages.
- b. To work on post harvest processing and get at least 50 more traditional rice varieties to the consumer.
- c. To set up a small scale machinery for agriculture.
- d. To conduct extensive studies on the nutritional and therapeutic properties of traditional rices.
- e. To establish a facility in every district for region specific seed supply.
- f. To set up a museum/interpretation centre on rice.
- g. To set up Pulse Voltage Electronic fence to help manage wild pig attacks in our farm.

18. Partners and supporters

We have received enthusiastic and generous support for the Namma Nellu program from a large number of sources both institutional and individuals including the following -

A. Current partners and collaborators



B. Individual donors

Individual supporters have included historians, lawyers, accountants, school teachers. Sanskrit scholars, sailors, homemakers, sociologists, ecologists, molecular biologists, textile technologists, theoretical physicists, an aerospace scientist, etc. just to give a few examples.

C. Farmer partners

Farmers groups have been partners in various activities such as - Seed production, production of inputs and maintenance of units for processing and value addition. These have included farmers clubs, SHGs (Self Help Groups), JLGs (Joint Liability Groups) as well as FPCs (Farmer Producer Companies). They are located in the districts of Kancheepuram, Chengalpet, Tiruvannamalai and Dindigul.

D. Partners for Marketing and Promotion

Marketing has been done both at the wholesale and retail levels and involved farmers groups, producer companies as well as private companies. Sempulam Sustainable Solutions Private Limited Company (www.sempulam.com), a social enterprise is our marketing partner. Sempulam procures products directly from the farmers with whom we are working. Branding and retailing is done by Sempulam. Promotional efforts have involved partnership with wellknown chefs and hotels and restaurants.

