

**NEW CROP VARIETIES, AGRICULTURAL IMPLEMENTS
AND MANAGEMENT TECHNOLOGIES**

2012



**DIRECTORATE OF RESEARCH
TAMIL NADU AGRICULTURAL UNIVERSITY
COIMBATORE – 641 003**



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AND MANAGEMENT TECHNOLOGIES**

2012

Compilation

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NEW CROP VARIETIES

1. TNAU RICE ADT 50

Special features

- Medium slender, white rice with less 1000 grain weight (15.9g)
- Higher milling (77.3%) and head rice yield (63.2%)
- Non-sticky cooked rice
- Suitable for all types of preparations
- Resistant to leaffolder, moderately resistant to stem borer and moderately susceptible to GLH, brown spot, blast and RTD



Parentage	: BPT 5204/CR 1009
Duration (days)	: 149
Season	: Samba (August sowing)
Yield (kg/ha)	: 5945
% increase over	: 2.9, 16.5 and 45.1 per cent increase over

CR 1009, ADT 44 and BPT 5204 respectively

Highest yield obtained : 10,494 kg/ha

Area of adoption : Thanjavur, Trichy, Thiruvarur, Cuddalore,
Nagapattinam, Pudukkottai, Perambalur and
Karur districts of Tamil Nadu.

Scientist involved in the release

R. Marimuthu, P.Parthasarathy, R.Vaithilingam, R.Saraswathi, S.Santha,
S.Ganesh Ram, P.Hemalatha, D.Sassikumar, A. Karthikeyan, K.Chozhan,
S.Ramanathan, B.Chandrasekaran, V.Muralidharan, S.Jebaraj and T.Jayaraj

2. TNAU MAIZE HYBRID CO 6

Special features

- High yielding single cross hybrid.
- High starch (76.30%), high protein (11.25%) and high beta-carotein (0.48 mg/100 g) with moderate level of fat (4.65 %) and crude fibre (1.29%).
- Bold, orange yellow semi dent karnal
- High shelling (81%) with high test weight (400 g /1000 grains).
- Multiple disease resistance viz, Sorghum downy mildew, *Maydis* leaf blight, *Turcicum* leaf blight, Post flowering stock rot and Banded leaf and sheath blight.
- Simultaneous sowing of male and female parents for flowering synchronization.



Parentage	: UMI 1200 x UMI 1230
Duration (days)	: 110
Season	: Irrigated (June-July & Nov. – Dec.) Rainfed (Sept. – Oct.)
Yield (kg/ha)	: Irrigated : 7400 kg/ha

% increase over : Rainfed : 5000 kg/ha

Yield (Kg/ha)	Irrigated	Rainfed
	7400	5000
% increase over		
CoH(M) 5	28.2	16.6
900 M(G)	10.6	19.0
NK 6240	8.2	21.6

Highest yield obtained : 13272 Kg/ha

Area of adoption : Recommended for cultivation in maize growing tracts of Tamil Nadu.

Scientist involved in the release

G.Nallathambi, K.N.Ganesan, P.M.Tamilarasi, Sain Dass, K.Thiyagarajan,
P.Veerabathiran, V. Paranidharan and S.Sridharan

3. TNAU SUGARCANE SI 8

Special features

- Best suited for mid late season.
- Commercial cane sugar – 12.9 %
- High sugar yield – 18 t/ha
- Thick and Straight cane
- No spines and easy to detrash
- Best suited for mechanical cultivation
- Tolerant to drought and water logging
- Moderately resistant to red rot
- Perform well in sodic soil

Parentage : CoC 90063 x Co 8213

Duration (days) : 330

Season : Mid late (February - May)

Yield : 146 t/ha (ratoon crop – 135 t/ha)

% increase over :

kg / ha	1,46,000
% increase	14.8 over Co 86032

Highest yield obtained : 187 t/ha

Area of adoption : All sugarcane cultivated area

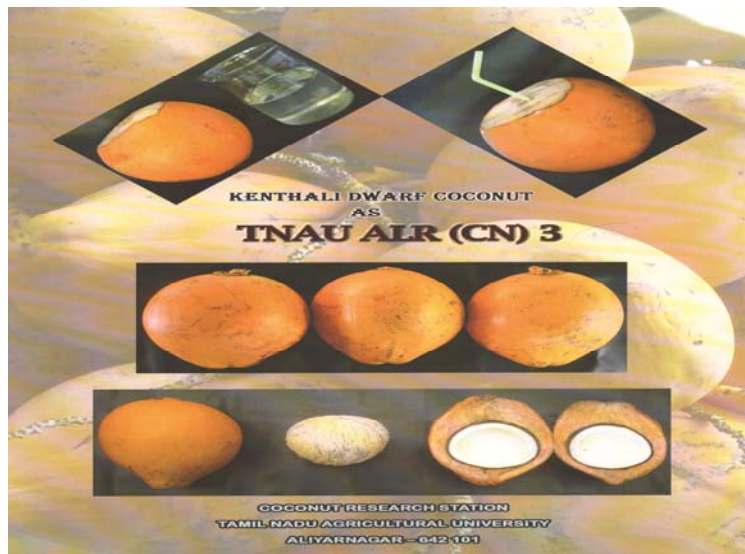
Scientist involved in the release

D.Packiaraj, S.Panneerselvam, N.Raju, S.Thiruvudainambi, M.L.Manoharan, S.Geetha, R.Sudhagar, S.Nazeer Ahamed, B.Rajendran, R.S.Purushothaman, M.Jayachandran, P.Parasuraman, G.Manickam, K.Karunanidhi, T.Kalaimani, A.Thirumurugan, H.Vijayaragavan and T.Jayaraj

4. TNAU COCONUT ALR (CN) 3

Special features

- Suitable for tender nut purpose with sweet taste and high potassium content
- Field tolerance to Eriophyid mite



Parentage	: Selection from Kenthali dwarf
Duration	: Flowering from third year onwards
Season	: Planting during June- July or December-January
Yield	: 86 nuts/palm/annum
% increase over	: % increase over COD – 34.1 % increase over MYD – 37.9
Highest yield obtained	: 121 nuts/palm/annum
Area of adoption	: Irrigated belts of Tamil Nadu

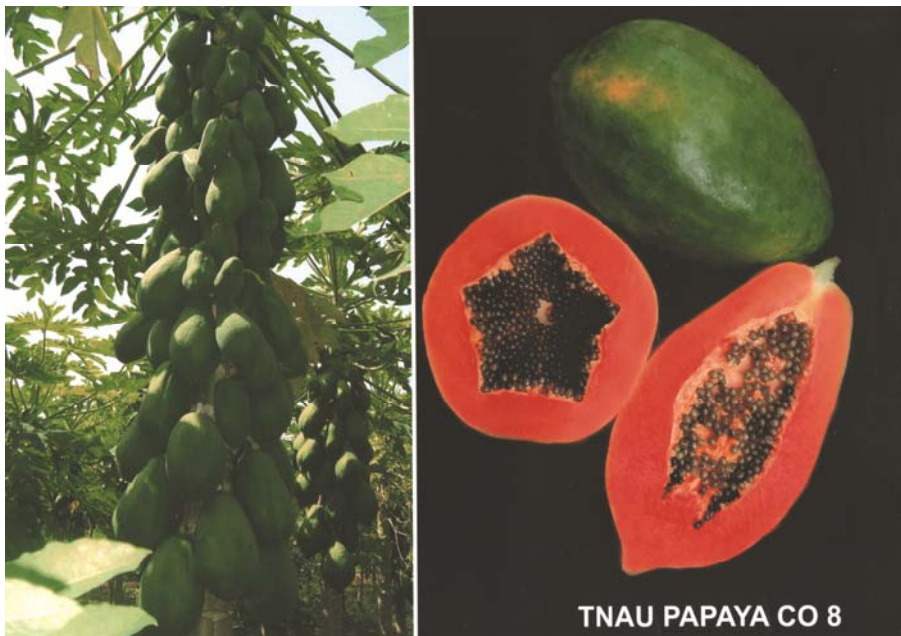
Scientist involved in the release

S. Geethanjali, M. Kumar, N. Meenakshi ganesan, C. Natarajan, D. Packiaraj, C.S.Sridharan, V. Mylswami, T.S. Raveendran, K. Rajamanickam, D. Rajakumar and I.Johnson

5. TNAU PAPAYA CO 8

Special features

- Red pulped dioecious TSS 13.5%
- Papain activity 138TU/mg
- Suitable for dessert purpose, pulping, processing (RTS, jam, tutti-fruity) and papain industry



Parentage	: Initial selective hybridization of CO2 (yellow pulped) with red anthered male followed by intermating and repeated selection in segregating population for red pulp colour
Duration	: Can be economically maintained for 20-22 months under favorable condition
Season	: June- July planting for many parts of Tamil Nadu
Yield	: 230t/ha when planted at a spacing of 1.8 x1.8m

- % increase over** : 4.5% increased yield over CO₂
- Highest yield obtained** : 235 t/ha
- Area of adoption** : Areas with tropical climate having moderate weather condition; can be cultivated in many parts of Tamil Nadu

Scientist involved in the release

K.Soorianathasundaram, N.Kumar, T.N.Balamohan, S.Sathiamoorthy, J.Auxcilia and S.K.Manoranjitham

6. TNAU COCCINIA CO 1

Special features

- Perennial and high yielding (83.09 t/ha/year)
- Long, green, white striped, less seeded sweet fruits (4.5° Brix)
- Suitable for culinary purpose and salad



Parentage	: Clonal selection from Annaikatti type
Duration	: Perennial
Season	: June - July
Yield	: 83.09 t/ha/year
% increase over	: 54.06% increased over local type
Highest yield obtained	: 91.95 t/ha
Area of adoption	: Coimbatore, Theni, Kanchipuram, Thiruvannamalai, Vellore and Dindigul

Scientist involved in the release

L. Pugalendhi, V. Rajshree, P. Jansirani, M. Kannan and V.A. Sathiyamurthy

7. TNAU BOTTLE GOURD HYBRID CO 1

Special features

- Crop suitable for bower system of cultivation
- Cylindrical, without crook neck, medium sized (0.95-1.00 kg)



Parentage	: NDBG 121 x Arka Bahar
Duration (days)	: 100 – 110
Season	: June – July and Jan. – Feb.
Yield	: 79.03 t/ha
% increase over	: 27.28% increase over Warad hybrid
Highest yield obtained	: 83.32 t/ha
Area of adoption	: Coimbatore, Salem, Cuddalore, Thanjavur, Madurai, Theni, Kanchipuram, Thoothukudi, Tiruchirappalli, Dharmapuri, Krishnagiri, Vellore, Thiruvallur, Thriunelveli, Erode, Nagerkoil, Namakkal, Perambalur and Dindigul

Scientist involved in the release

L. Pugalendhi, P. Jansirani, T. Saraswathi and V. Rajshree

8. TNAU ASH GOURD HYBRID CO 1

Special features

- Medium viny
- Oblong medium sized fruits



Parentage	: PAG 3 x CO 2
Duration (days)	: 130 – 135
Season	: June – July and Jan. – Feb.
Yield	: 91.82 t/ha
% increase over	: 36.56% increased yield over MAH 2
Highest yield obtained	: 101.00 t/ha
Area of adoption	: Salem, Erode, Coimbatore, Cuddalore, Namakkal, Madurai, Theni, Kanchipuram, Tiruchirappalli, Thanjavur, Dharmapuri, Krishnagiri, Thiruvannamalai, Thoothukudi, Vellore, Thriunelveli, Nagercoil, Pudukkottai and Perambalur

Scientist involved in the release

L. Pugalendhi, V. Rajshree and H. Ushanandhinidevi

9. TNAU MALAI VEMBU MTP 1

Special features

- Fast growing multi purpose industrial wood species
- Propagated through seeds and cuttings.
- Good fuel wood and calorific value (3700 K.cal to 4200 K.cal.)
- Conserve as alternate pulpwood species
- Basic density 538 kg/m³, pulp yield 50.5% and kappa number 19.6.

Parentage	: Selection from the existing population grown at Thalamalai
Duration	: 60 months
Yield	: 4000 cft/ ha
Highest yield obtained	: 4,329 cft/ha is recorded from a 5 year old evaluation trial
Area of adoption	: Throughout Tamil Nadu with well drained soil except water logged area

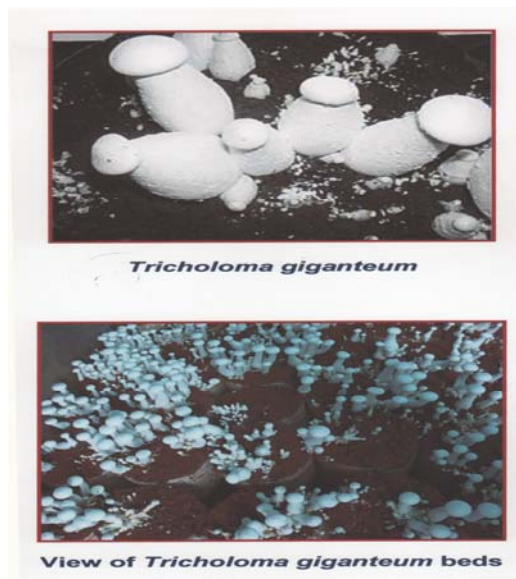
Scientist involved in the release

K.T.Parthiban, P.Durairasu, M.Paramathma, S.Vennila, P.V.Anbu, S.Umesh Kanna, P.Rajendran, R.Seenivasan (TNPL), P.Kumar, V.Saravanan, V.Subbulakshmi, M.P.Divya, I.Sekar, C.Sekar, N.Natarajan, P.S.Devanand, D.Saravana Kumar

10. TNAU MILKY MUSHROOM CO (TG) 3

Special features

- Good keeping quality
- (3 days under room temperature; 5- 6 days - refrigerated conditions)
- Carbohydrates 11.8%, protein 32.9%, fibre 20.7%, potash 8.32%, iron 5.6 mg,
- Cooked mushroom has pleasing aroma.



Parentage	:	Selection, introduction and purified by tissue culture method from wild mushroom collections
Duration (days)	:	45-50
Season	:	Throughout the year
Yield	:	1.6 kg/ kg dry paddy straw
Highest yield obtained	:	1.76 kg/ kg dry paddy straw
Area of adoption	:	Plains of Tamil Nadu

Scientist involved in the release

V. Prakasam, G.Thiribhuvanamala, G. Chandrasekar, E.I Jonathan, K.Anandh
B. Karthikayani and B. Malarkodi

11. TNAU NILIGRIS KUFRI POTATO 1 (KUFRI NEELIMA)

Special features

- High yielding
- Resistant to late blight and potato cyst nematodes
- Good storability



Parentage : E/79-15 x E/79-42

Duration (days) : 110 - 120

Season : All three season in The Nilgiris
(summer, autumn and spring)

Yield : 250 to 300 q/ ha

% increase over :

Kufri Swarna	+ 17.45
Kufri Giriraj	+ 25.77
Kufri Jyothi	+ 25.18

Highest yield obtained : 543.67 q/ha

Area of adoption : The Nilgiris District of Tamil Nadu

Scientist involved in the release

T.A. Joseph, M. Lata, S.K. Pandey, K.S.Krishna Prasad, D.B. Singh,
K.Manorama, N. Somasekhar, G.Ravichandran and R.Umamaheswari

12. TNAU BLACKGRAM VBN 7

Special features

- High yield
- Resistant to Yellow Mosaic Virus
- No incidence of leaf curl virus
- Resistant to Powdery Mildew
- Less pod borer damage



Parentage : VBN3 / Vigna mungo var. silvestris 8

Duration (days) : 65-70

Season : All season for Tamil Nadu and Kharif season for South zone

Yield : 981 kg/ha

% increase over :

VBN 3	24%
VBN (Bg) 4	30%
Pant U	30-50%
RPU	38-50%

Highest yield obtained : ART- 1550 kg/ha, IVT – 2375 kg/ha

Area of adoption : All over Tamil Nadu except Kanniyakumari and Nilgiris and South Zone, Karnataka, Andhra Pradesh and Orissa

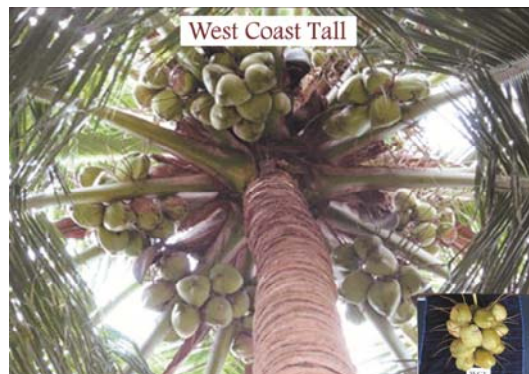
Scientist involved in the release

M.Pandiyan, N.Ramamoorthi, N.Nadarajan, BB.Singh, AR. Muthiah, N.Senthil, P.Sivakumar, K.Thiyagarajan, D.Packiaraj, Sanjeev Gupta, S.Geetha , T.Kalaimani, RP.Soundararajan, SK.Ganesh, T.Jeyaraj, R.Samiappan, M.Paramathma

13. TNAU COCONUT VPM 4 (KERA KERALAM)

Special features

- Early bearer, comes to flowering in 58 months, against 72 months in ECT
- High kernel thickness (1.3 cm)
- High copra yield (3.6 t/ha)
- Highest oil outturn (2.44 t/ha)
- Suitable for rainfed and irrigated condition



Parentage : Selection from germplasm type collected from CPCRI, Kasaragod, Kerala

Duration : Expected life span - 100 years

Season : June- July or December – January

Yield : 152 nuts/Palm/ Year

% increase over :

Nuts/ha	26,600
East Coast Tall (ECT)	29.6%
VPM 3	47.6%

Highest yield obtained : 250 nuts/palm/year

Area of adoption : All districts of Tamil Nadu

Scientist involved in the release

C.Natarajan, R.Vaithilingam, M.Kavitha, A.Yuvaraja, N.Meenakshi Ganesan, S.Rajarathinam, K.Ganesamurthy, S.Giridharan, P.Seshadri, G.Nallathambi, K.Thiyagarajan, T.S.Raveendran, T.K.Ramachandran, D.Packiaraj, S.Geethanjali, S.Mohandas, P.Parthasarathy, M.Kumar and T.Jayaraj

14. ARECANUT HARVETSER

Special features

- Unskilled workers can also use to climb
- Light weight aluminium pole with improved configuration of cutting edge of the knife for easy harvesting
- Seating arrangement (adjustable and pivotable) with back rest for safe and secure operations
- Rotatable unit to facilitate harvesting of bunches form surrounding trees.



Weight	:	12 kg
Cost of the device along with the knife	:	Rs.7000/-
Scientists responsible for release	:	K.Kathirvel, D.Ramesh, D.Manohar Jesudas and A.P.Mohankumar

15. MANUALLY OPERATED LINE MARKER

Special features

- Easy to operate
- Reduced seed rate
- Suitable for small and marginal farmers
- Reduction in cost of cultivation
- Maintenance of optimum plant population
- Easy for inter cultural operation (Weeding, Spraying)

Total Weight	: 6 Kg
Bottom Rod “L” Angle	: 1.5 m
Spacing	: 15 cm to 150 cm
Marking Tyne Length	: 22.5 cm
Handle Rod Length	: 1.5 m (Similar to Cono weeder)
Cost of the implement	: Rs. 650/-
Scientists responsible for release	: M. Sundar, S.Geetha, N.Ramamoorthy, M.Ramasamy, S.Chellamuthu and B.J.Pandiyan

16. TRACTOR OPERATED MULTI-PURPOSE HOIST

Special features

- Amenable for fruit plucking, coconut harvesting, training, pruning, lopping and spraying tree crops.
- The equipment is attached to the back of a 45 hp agricultural tractor.
- Two labourers can stand on the platform and do operations
- Platform can reach a maximum height of 8.1 m
- Can also be used for maintenance works on street lights, white washing and painting of buildings.



Cost of the machine : Rs.45,000/- (only the attachment)

Scientists responsible for release : A.Tajuddin and R.Thiyagarajan

17. IMPROVED COCONUT TREE CLIMBER

Special features

- Lesser weight of the lower unit (3.0 kg) than existing model (6.0 kg)
- Lower unit is lifted simultaneously by leg and hand force for continuous operation
- Comfortably designed upper frame makes
- Harvesting capacity 45 trees/day (38 trees/day for existing model)
- Cost of harvesting - Rs. 3.50/tree (Rs. 4.50/tree for existing model)



Cost of the machine : Rs.2,300/-

Scientists responsible for release : A.Tajuddin and B.Suthakar

18. AERIAL ACCESS HOIST FOR COCONUT HARVESTING

Special features

- First machine of its kind in tractor mounted form
- A full length chassis from front to rear of the tractor provides support
- The entire weight of the hoist and moments transmitted through the chassis to the stabilizers with out transferring to the tractor chassis.
- Four trees can be accessed from a single position.
- The time required for locating unit and operating stabilizers - 1 min.
- The time required for positioning against a tree of 10 m height was 2 min.
- The positioning of the operator platform can be done by the operator himself

Lifting capacity	:	120 kg
Platform size	:	1000 x 700 x 1000 mm
Working height	:	16 m
Platform access height from the ground	:	15 m
Platform outreach	:	6 m
Rotation/slewing angle	:	360 degrees
Stabilizer	:	Hydraulically operated 4 nos. to provide absolute stability
Power	:	PTO of tractor, with exclusive hydraulic system and controls
Cost of unit	:	Rs.7.60 lakhs
Scientists responsible for release	:	D.Manohar Jesudas, .S.Sivakumar, T.Senthilkumar, C.Divakar Durairaj and V.M.Duraisamy

MANAGEMENT TECHNOLOGIES

19. SUB SURFACE DRIP FERTIGATION SYSTEM FOR MECHANIZED SUGARCANE CULTIVATION

Details

- Trenches of 30 cm depth, 40 cm width at 180 cm spacing formation
- Planting of two budded setts @ 8 setts / m on either side of the furrow.
- Laying the inline laterals with a emitter spacing of 60 cm with 4 LPH drippers to a depth of 20-25 cm just below the setts and the drippers must face upwards.
- Irrigating the crop at 100% PE on alternate days for light soils and once in 3 days for heavy soils.
- RDF: 275:62.5:112.5 kg NPK/ha
- Weeding and earthing using mini tractor operated rotovator and ridger.
- Harvest at 10-11 months with cane harvester



Advantages

- Favour more ratoonability
- Irrigation water saving up to 40%
- Higher net returns

Economics

- Net return- Rs.1,06,956/ha with B:C ratio of 2.01

Scientist responsible for release

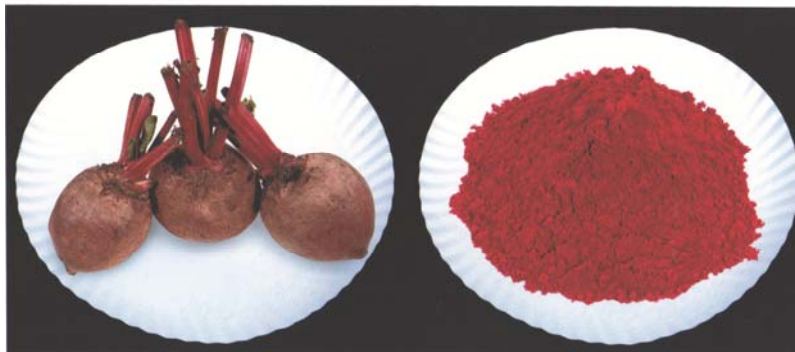
- S.Krishnasamy, A.Gurusamy & P.P.Mahendran

20. BIOCOLOUR FROM BEETROOT

Details

- Prepared through spray drying at a temperature of 200 °c.
- Freshly prepared biocolour powder - dark reddish pink and soluble in water. Nutrients content 100g carbohydrate - 69.36, protein - 5.50, fat - 0.2, fiber - 0.28, ash - 4.8, total antioxidant - 1.636, tannin - 2.74 and others - 13.41.

BIOCOLOUR FROM BEETROOT



Advantages

- Useful confectionery, bakery, Processed milk and fruit products.
- Non toxic, non hazardous and ecofriendly.

Economics

- Cost of production Rs. 560/- per kg

Scientist responsible for release

- P.Vennila, N.Varadharaju, Z.John Kennedy and R.Kailappan

21. SOIL TEST CROP RESPONSE BASED INTEGRATED PLANT NUTRITION SYSTEM FOR AGRICULTURAL AND HORTICULTURAL CROPS (STCR-IPNS)

Details

- Soil Test Crop Response based Integrated Plant Nutrition System (STCR-IPNS) for achieving desired yield on various soil types.
- STCR-IPNS recommendations along with the entire improved package of practices for various crops can be adopted on similar and allied soil types as well

S.No.	Crops	Soil types
1.	Rice	River alluvium (Noyyal & Manakkarai series), red non calcareous (Irugur series), black alluvium (Kalathur & Adanur series)
2.	Wheat (Hill & Plains)	Laterite (Ooty series) and mixed black calcareous (Periyanaickenpalayam series)
3.	Sorghum, Cotton	Periyanaickenpalayam and Irugur series
4.	Maize, Blackgram, Sunflower, Bhendi, Ashwagandha	Periyanaickenpalayam series
5.	Ragi	Mixed black calcareous (Periyanaickenpalayam series) & red calcareous (Somayanur series)
6.	Greengram, Onion, Chilli, Turmeric	Irugur series
7.	Groundnut	Irugur, Somayanur and Ooty series
8.	Gingelly	Black alluvium (Adanur series)
9.	Sugarcane	Periyanaickenpalayam & Irugur series, red coastal alluvium (Gadillum series)
10.	Beetroot, Radish	Red calcareous (Palathurai series)
11.	Tapioca	Red calcareous (Thulukkanur series)

Advantages

- Increase in crop yield (agricultural crops: 20-25%; horticultural crops: 30-35%).
- Balanced fertilisation to crops
- Increase in fertilizer use efficiency.
- Least adverse effect on environment by minimizing nutrient losses
- Sustained soil health and crop yields

Economics

Agricultural Crops : Rs.3,000 - Rs.20,000/-

Horticultural Crops: Rs.25,000 - Rs.1,50,000/-

Scientist responsible for release

- R.Santhi, P.Murugesu Boopathi, R.Natesan, S.Chellamuthu, S.Maragatham, S.Poongothai, K.M.Sellamuthu, A. Bhaskaran, S.Thiyageshwari, V.P.Duraisami, S.Mani, P.Thangavel, M.Dhakshinamoorthy and V.Velu

