



**TNAU**



**DoA**

# 81<sup>st</sup> Scientific Workers' Conference

12<sup>th</sup> June, 2015

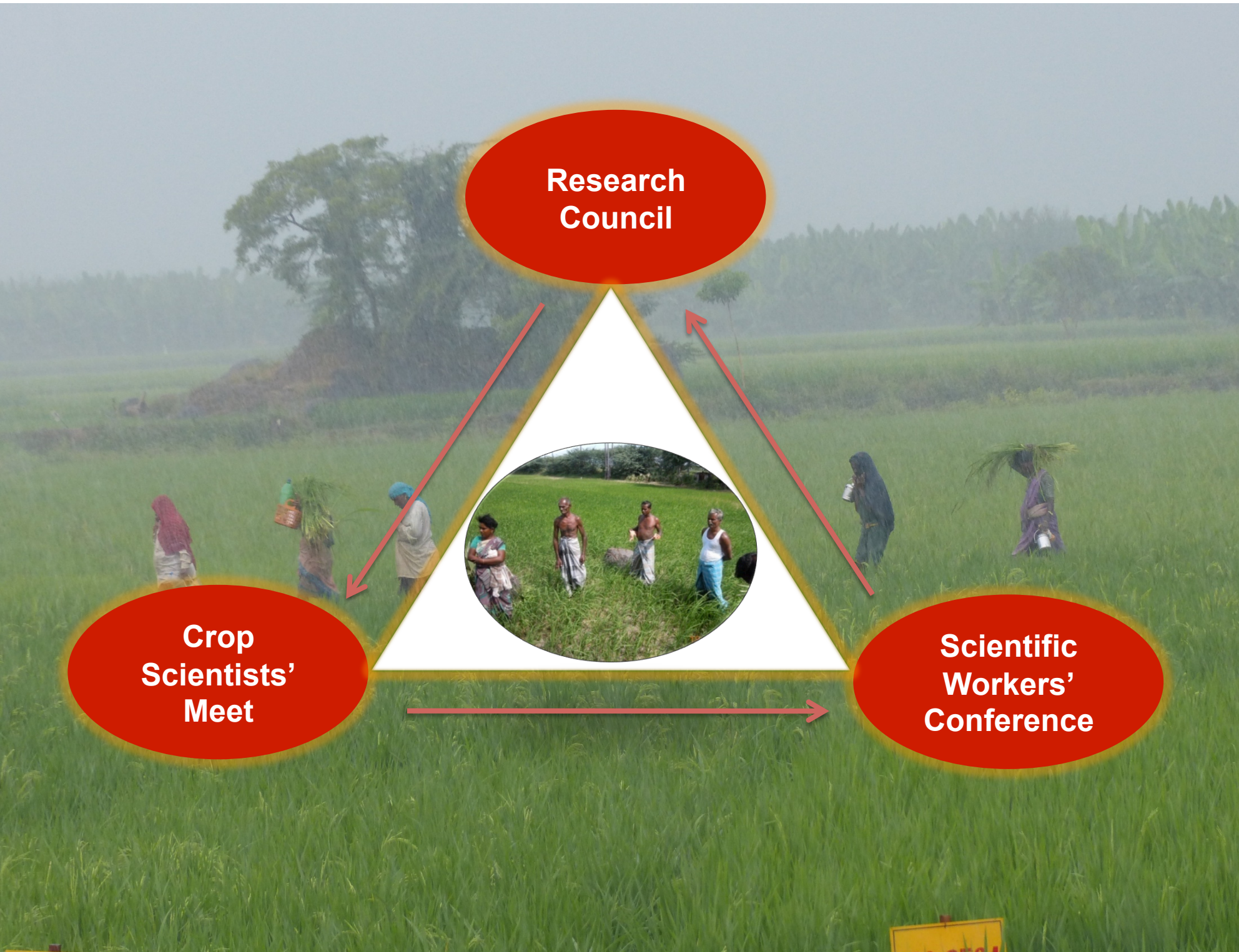
# Increased crop productivity and sustainability

- ❑ Sustainable agriculture integrates three main goals: environmental health, economic profitability, and social and economic equity.
- ❑ Research in Agriculture should identify critical technologies that contribute towards increased crop productivity, and therefore, sustainability.

# Key factors influencing crop production

- ❑ Growing and diversified demand
- ❑ Technologies
- ❑ Resource availability
- ❑ Societal influences

Each in isolation, and also in combination influences crop production

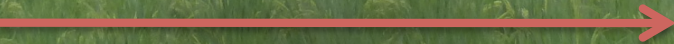


**Research Council**



**Crop Scientists' Meet**

**Scientific Workers' Conference**



## Agenda from TNAU

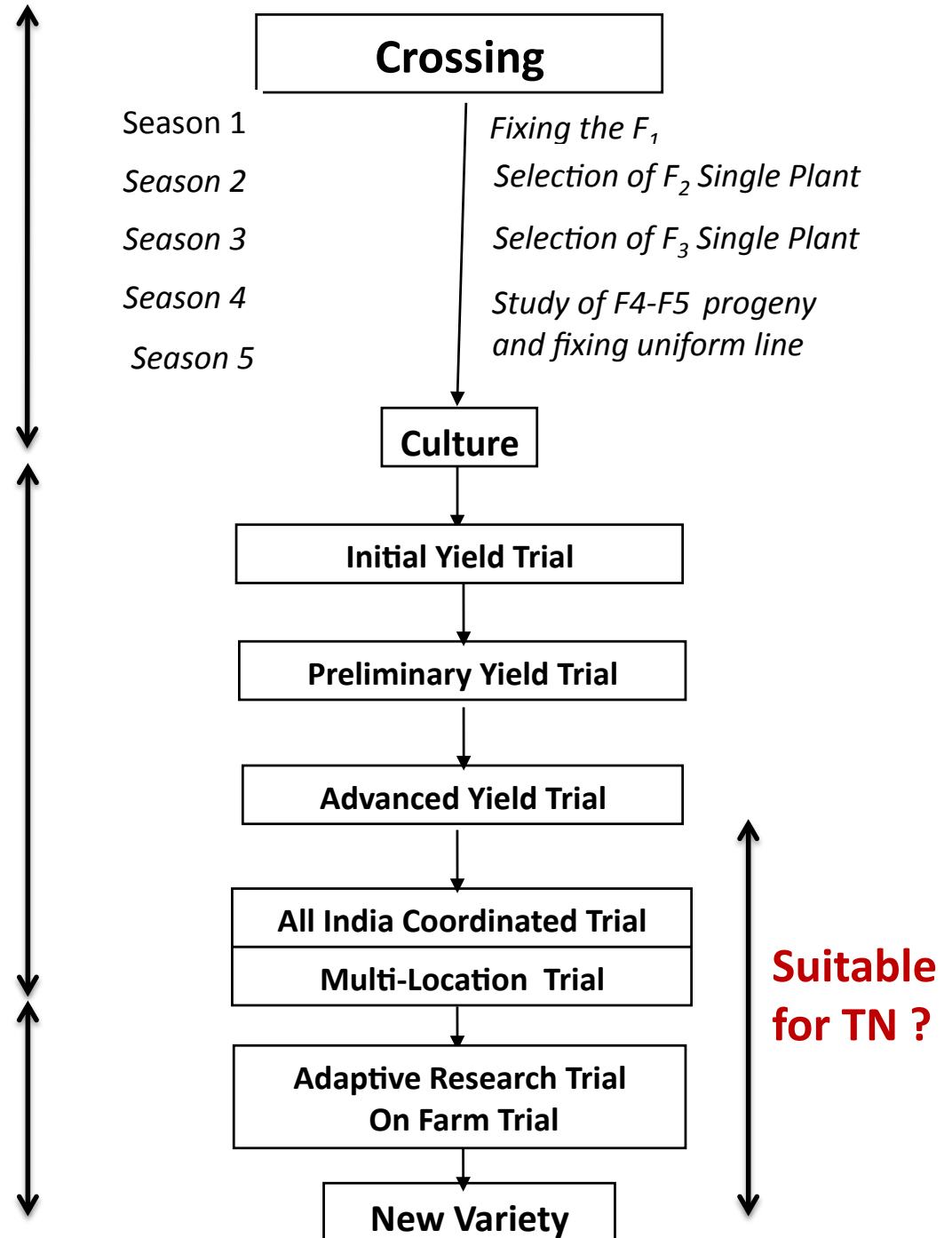
- ❑ Agricultural Crops: Variety Release and Breeder Seed Production
- ❑ Improvement and Management of Horticultural Crops
- ❑ Crop Management Technologies
- ❑ Soil Health Management
- ❑ Crop Protection Strategies
- ❑ Reinvigorating Extension System in Tamil Nadu
- ❑ Farm Mechanization
- ❑ Water Management Strategies
- ❑ Post Harvest Management and Marketing
- ❑ Socio-economic conditions of Tamil Nadu Farmers
- ❑ Research Support needed for executing time oriented research projects for the benefit of Tamil Nadu farmers

# Release of improved varieties involve evolution and evaluation

5 years of variety evolution

5 years of evaluation at research stations

2 years of evaluation at Farmers' fields



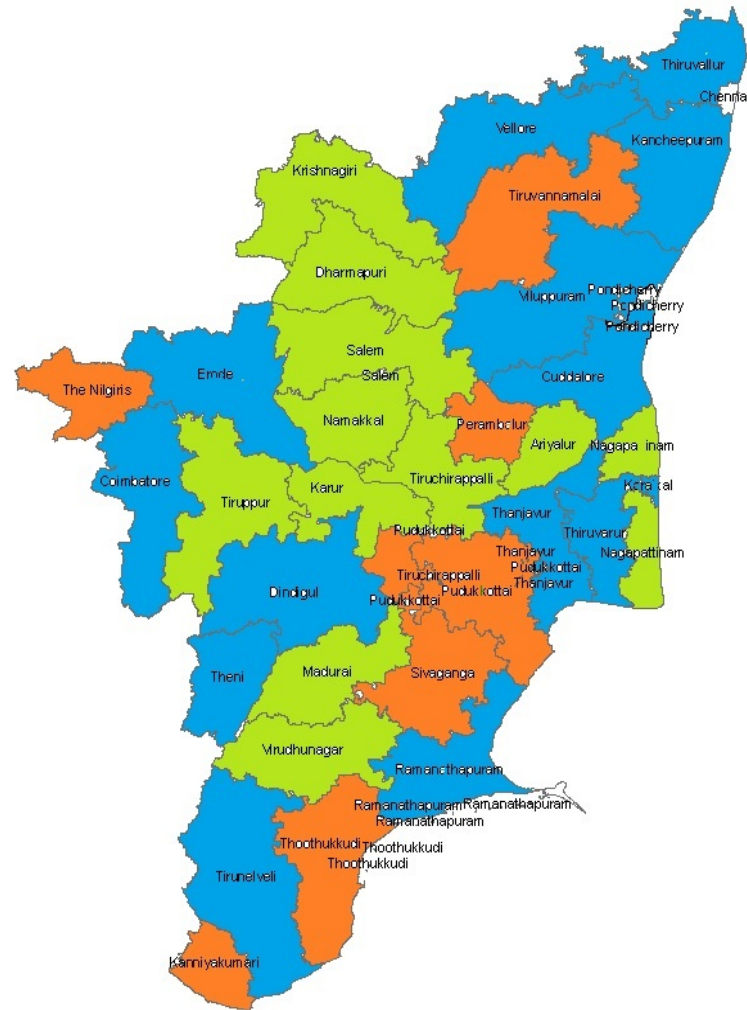
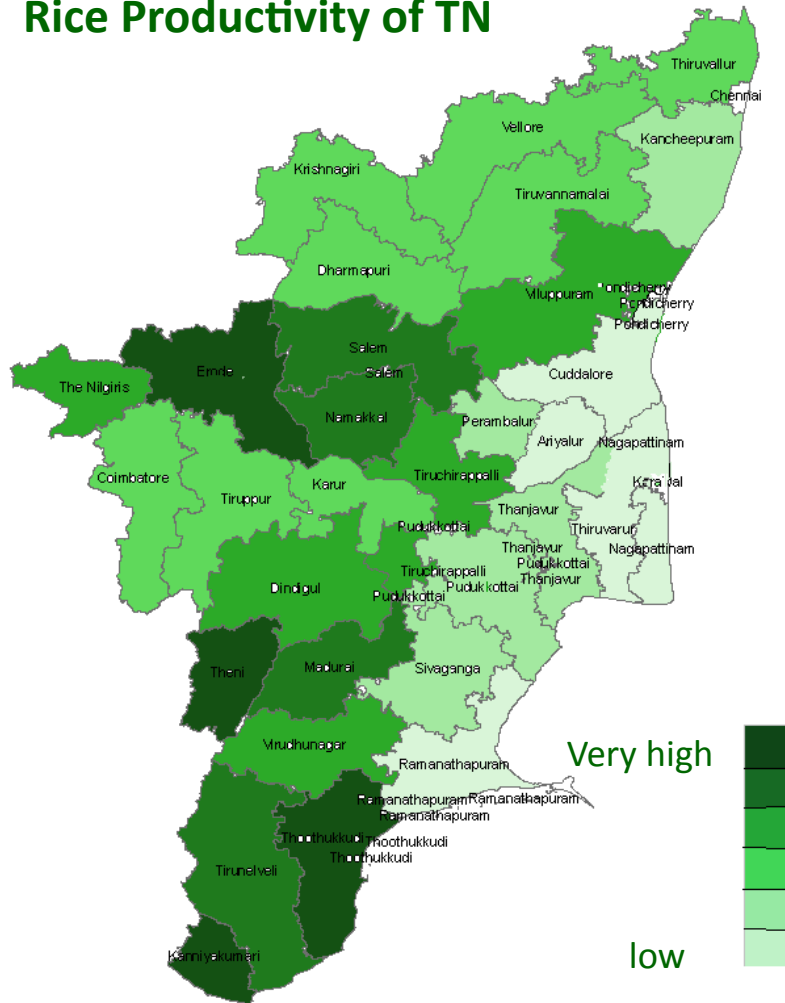
# Rice CO 51 – A Variety in demand



- ❑ Released in 2014
- ❑ Short duration (110 days)
- ❑ >100 Kg/day/ha (main field) productivity
- ❑ Resistance to blast, bacterial blight and BPH
- ❑ Good grain quality
- ❑ High rice recovery

# Spread of Rice CO 51

## Rice Productivity of TN





# New paddy variety becoming popular

Karthik Madhavan

**COIMBATORE:** A. Govindarajan is a happy paddy farmer. His happiness has to do with his shifting from the paddy variety ADT 43 to Co 51.

In his farm in Puthagaram in Mannargudi, Tiruvarur district, he was able to harvest more after having saved on fertilizers and water.

“As against 90 bags of 60 kg each a hectare from ADT 43, I harvested 112 bags from Co 51.”

That is not all.

He also says that Co 51 gives higher income as lesser grains go into 1kg — 24 *marakkal* (a measure) make a kg as against 27 *marakkal* for a kg from the ADT 43.

He is not the only one to see success with the variety, though.

Tiruvallur farmer D. Deivasigamani says that he too has seen increase in yield while spending less on

“ I harvested 112 bags from Co 51

**GOVINDARAJAN**  
Farmer, Tiruvarur district

- The TNAU released the Co 51 last year

- It has high pest resistance, require less fertilizers

pesticides and water.

Tamil Nadu Agriculture University Vice-Chancellor K. Ramasamy said that so good has been the reception among farmers that 40 per cent of the Kuruvai season or roughly two lakh ha in the Cauvery Delta came under the Co 51 variety.

The university released the variety more than a year ago.

Another advantage with the new variety is that the rice recovering rate from paddy is 5 per cent to 10 per cent higher compared to a other varieties.

Farmers have reported 65 per cent to 70 per cent rice recovery, he adds.

Head of the Rice Department, TNAU, S. Robin says that studies have shown that the Co 51 variety has better resistance to brown plant hopper pest and paddy blast disease.

The university started developing the variety around 10 years ago to replace the popular ADT 43 and ADT 45 varieties, give a superior variety that was resistant to pest and required less fertilizers.

In the 10 years, the university chose ADT 43 and RR272-1745 varieties as parents to bring out the new variety.

It chose the latter because of its disease-resistant capabilities.

From the 5th to the 10th year, the university developed fifth and sixth filial generation of the variety — fifth and sixth generation plants to study the uniform line of production.

Mr. Ramasamy says that the next stage is to take the new variety to the government for distribution of seeds through the Agriculture Department, across the State.

“ About 2 lakh hectares in Cauvery Delta cultivate Co 51

**K. RAMASAMY**  
Vice-Chancellor, TNAU

## CO 51

### An estimated impact

- ❑ Approximate coverage in 2015 – 5.0 lakh ac
- ❑ Additional yield: 500 Kg /ac
- ❑ Net Production gain : 2.50 lakh tonnes
- ❑ Net accrued income to the farmers : Rs 325 crores

# Variety Release, Post-release monitoring and Withdrawal of Released Varieties

- ❑ The Central or State Variety Release Committee recommends the release crop varieties for the cultivation by farmers.
- ❑ The post release monitoring of the performance of released varieties is very important in the decision making process of quality seed production and future breeding plans.
- ❑ It has to be done by the extension officials of the Department of Agriculture and the agency responsible for the release of varieties.

## Lack of post release monitoring of crop varieties

- ❑ Maintaining some of the released varieties in the seed production chain over a very long period of time (more than 30 years).
- ❑ Problems in eliminating the unwanted crop varieties in the seed production chain since the processes of “**Notification and De-notification**” are not done during the appropriate time.

Withdrawing varieties is as important as recommending varieties and should be recorded.

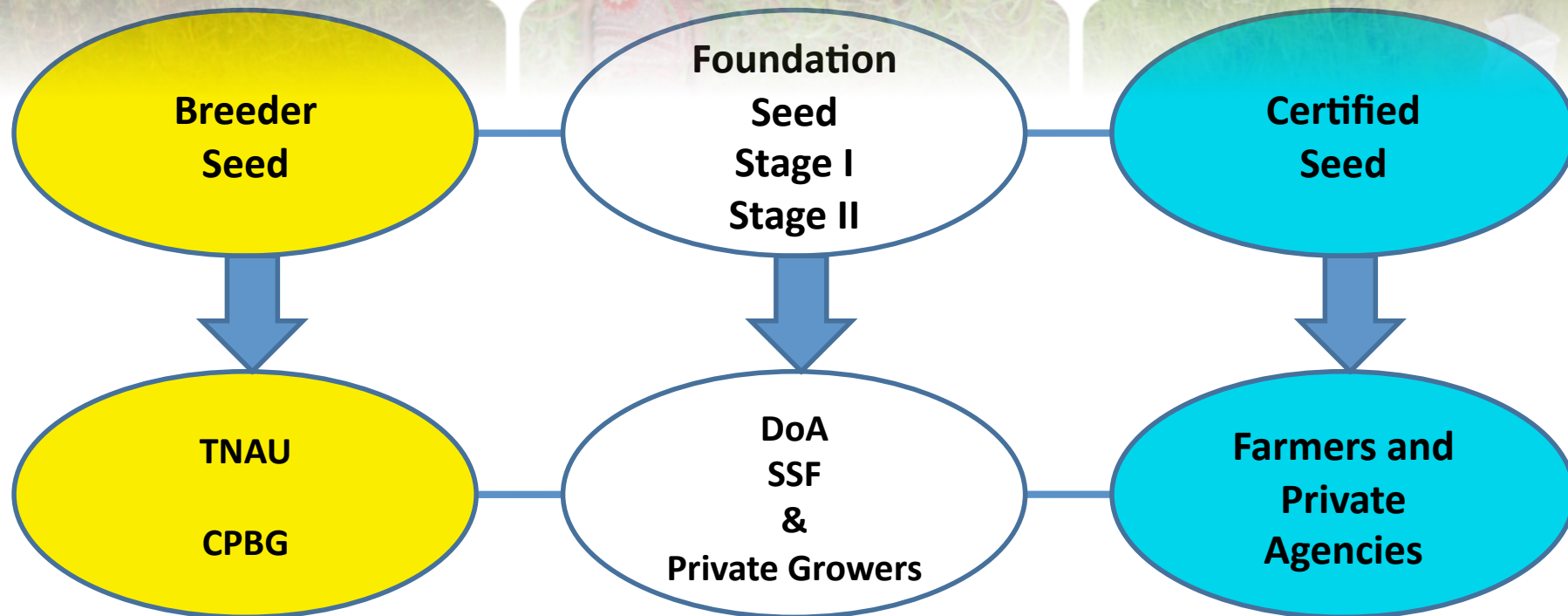
| Crops               | Notified varieties | Provisionally notified varieties | De-notified varieties |
|---------------------|--------------------|----------------------------------|-----------------------|
| Agricultural Crops  | 2763               | 23                               | 209                   |
| Horticultural Crops | 410                | -                                | 5                     |
| Total               | 3173               | 23                               | 214                   |

**“National Catalogue for Notified and De-notified Varieties-1966-2002”**

## List of rice varieties released, notified and de-notified (1966-2002)

| Name of the variety | Parentage                              | Year of Release | Year of Notification | Year of De-notification |
|---------------------|----------------------------------------|-----------------|----------------------|-------------------------|
| ADT27               | Norin8/GEB24                           | 1965            | 1969                 | 1970, 1991              |
| ADT30               | IR262/ADT 27                           | 1974            | 1976                 | 1991                    |
| ADT31               | IR8/Cul.340                            | 1974            | 1976                 | 1991                    |
| ADT32               | IR20/Pusa33                            | 1978            | 1982                 | 1991                    |
| ADT33               | IR8/Cul.340                            | 1979            | 1982                 | 1991                    |
| ADT34               | IR8/Rodjolele                          | 1979            | 1982                 | 1991                    |
| ADT35               | Bhavani/Jaya                           | 1979            | 1982                 |                         |
| ADT36               | Triveni/IR20                           | 1980            | 1982                 | 1991                    |
| ADT37               | BG280-12/PTB33                         | 1987            | 1989                 |                         |
| ADT38               | IR1529-680-3-2/IR4432-52-6-IR7963-30-2 | 1987            | 1989                 |                         |
| ADT39               | IR8/IR20                               | 1988            | 1989                 |                         |
| ADT42               | AD9246/ADT29                           | 1994            | 1997                 |                         |
| ADT43               | IR50/Improved White Ponni              | 1998            | 1999                 |                         |
| ADT44               | IR56/OR142-99                          | 2000            | 2000                 |                         |
| ADT45               | IR50/ADT37                             | 2001            | 2001                 | 1991                    |

An effective seed supply system is necessary to make good quality seeds available to farmers at the right time and at right cost



**Improving the Basic Infrastructures of Seed Production at TNAU and State Seed Farms**

# Education



14 Colleges  
13 Technical Directorates  
37 Research Stations  
14 Extension Centres



# Research

# Extension

Tamil Nadu Agricultural University  
Coimbatore 641 003, India  
[www.tnau.ac.in](http://www.tnau.ac.in)



Agriculture

Horticulture

Agricultural Engineering

Forestry

Home Science

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# Crop Improvement

- More than 770 Crop varieties in various crops



GEB 24: The First Improved Variety from TNAU.  
A potent source in many of the improved rice varieties across the world.



CO 51: 2014 Release with a good spread among the rice farmers



CORH 4 are popular among the farmers

From research gates to farmers' field: Large scale seed production of varieties and hybrid rice



# Revival of millet improvement



Finger millet



Barnyard millet



Kodo millet

## Popularization and Value addition in millets

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# Cotton improvement



**Plant type**



**Rainfed sowing**

## **Evolution of cotton varieties with synchronous maturity and mechanization**

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# Inter cultivation operations



**Weeding**



**Harrowing**



**Earthing up**



**Spraying**

# Hybrids in Horticultural Crops



Tomato CO 3



Chili CO 1



Bottle gourd CO 1



Coccinia CO 1



# Crop Management

## System of Rice Intensification



Large scale adoption of SRI technology  
improved over all rice production in Tamil Nadu



Rice transplanting using machines



# Crop management

## Simple Solutions to Complex Problems



Drought mitigation by Pink Pigmented Facultative Methylootrophs Spray

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# Crop management

Simple Solutions to Complex Problems:  
Crop Boosters



**PULSE  
WONDER**



**GROUNDNUT  
RICH**



**MAIZE  
MAXIM**



**SUGARCANE  
BOOSTER**



**COCONUT  
TONIC**



**COTTON  
PLUS**

Timely application of crop boosters improve the crop performance





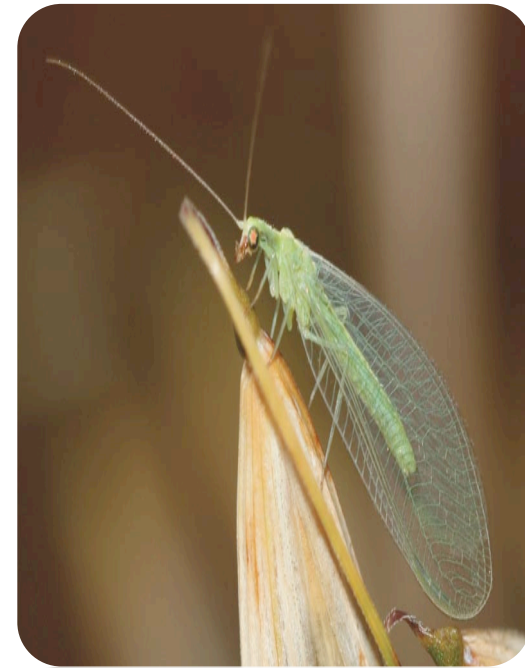
# Crop protection



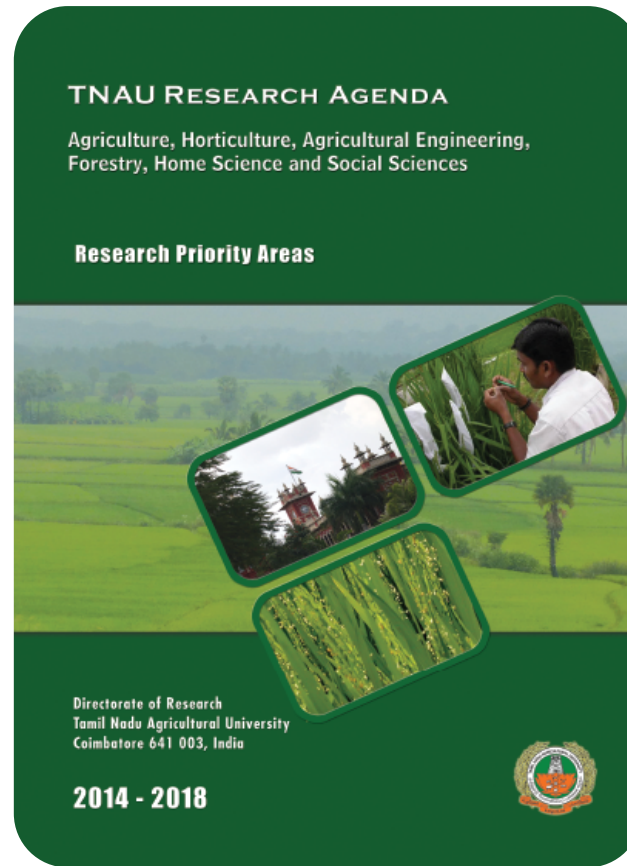
*Trichoderma viride*



Trichogramma egg  
parasite



Chrysopid predators  
for Cotton bollworm

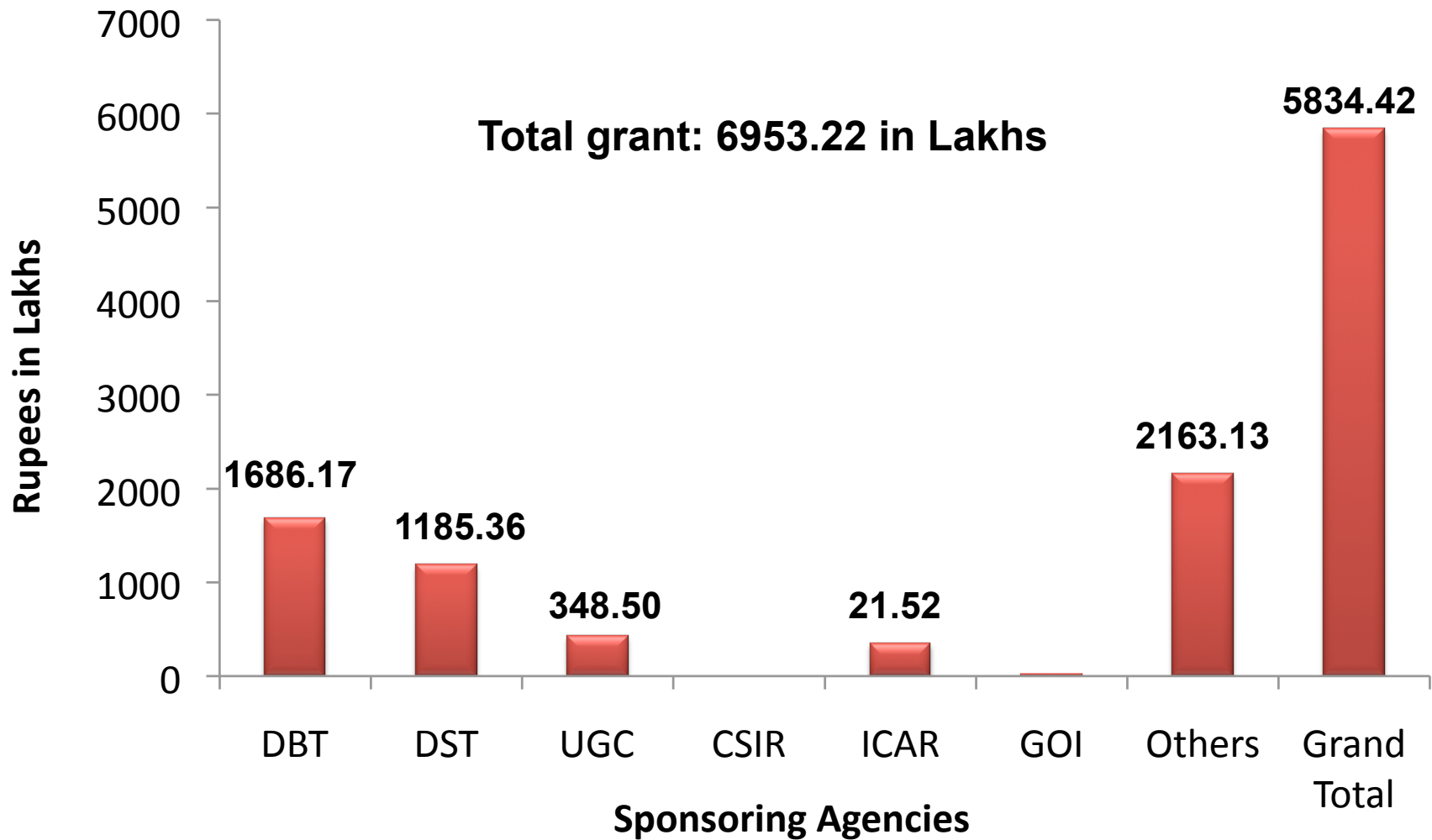


(<http://agritech.tnau.ac.in>)

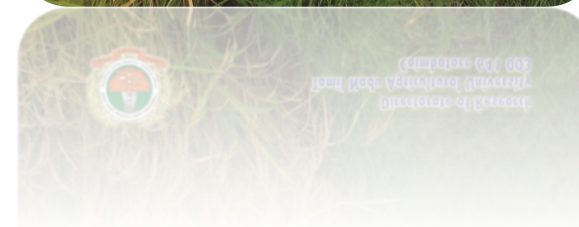
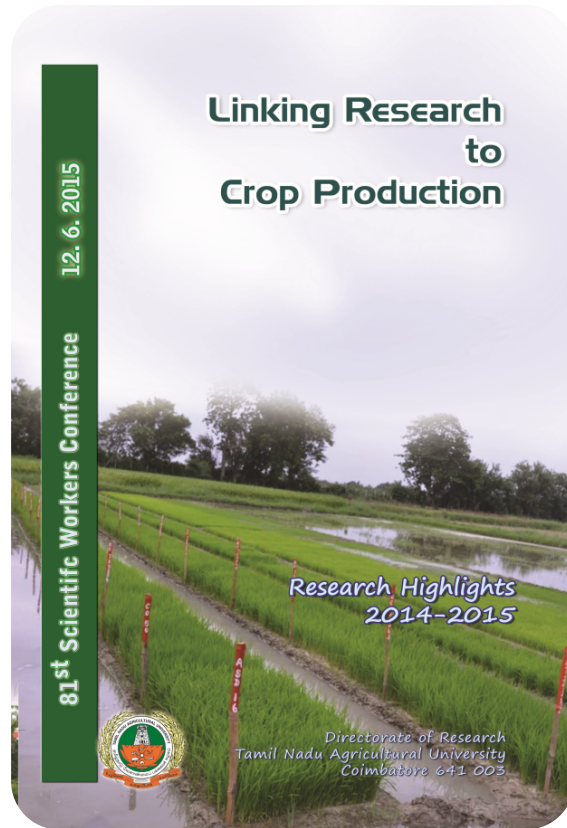
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# Externally Funded Research Schemes (Other than 64 AICRP schemes)



# Source Money for Accelerated Agricultural Research and Technology Development (SMAART)



# Translating Units

| Name of the Extension Centre                | Units |
|---------------------------------------------|-------|
| State Seed Farms                            | 41    |
| State Horticultural Farms                   | 59    |
| Seed Testing Laboratories                   | 29    |
| Soil Testing Laboratories                   | 30    |
| Mobile Soil Testing Laboratories            | 16    |
| Bio-fertilizer Quality Control Laboratories | 10    |
| Bio-fertilizer Production Centres           | 15    |
| Soil Survey Units                           | 04    |
| Fertilizer Testing Laboratories             | 14    |
| Farmers' Training Centres                   | 22    |
| Training Institutes                         | 02    |
| Coconut Nurseries                           | 18    |
| Coconut Crossing Centres                    | 16    |
| Bio-control Agent Production Units          | 10    |
| Parasite Breeding Centre-Sugarcane          | 21    |
| Parasite Breeding Centre-Coconut            | 20    |
| NPV laboratories                            | 04    |



**TNAU**

**Taking up research activities**

**Evolving and Evaluating Technologies**

**Transfer Technologies to the farmers**

**Bringing the field problems to the research platform**

**Researchable Issues**



**DoA**

# Teamwork

is mainly about situational leadership, letting the person with the relevant core competency for a situation take leadership.



leadership  
situation take



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