Tamil Nadu Precision Farming Project

2004-05 to 2006-07

(A turn key project by Tamil Nadu Agricultural University)

1. Project Profile and products: Part I

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http://www2.lse.ac.uk/newsAndMedia/videoAndAudio/research/theSecondIndianGreenRevolution.aspx.

The Second Indian Green Revolution

Independent of British rule, the Indian economy expanded rapidly – but as the population also expanded, fears grew that the land would not be able to feed the rising numbers. The government took action and, during the 1960s, 70s, and into the 80s, impending famine was successfully averted through a series of agricultural policies designed to increase crop yields. This became known as the "Green Revolution."

As part of a major project investigating how well facts travel, LSE economic historians Peter Howlett and Aashish Velkar travelled to southern India in search of a case study to see what had made those policies so successful. But when they arrived, they found a second green revolution was underway – presenting them with a unique research opportunity.

Following a team from Tamil Nadu Agricultural University, Dr Howlett and Dr Velkar were able to study firsthand how knowledge was transmitted between policy makers, scientists, and farmers, and how a very different model was emerging – one which emphasised a two-way flow of information and which has so far produced startling results.

Their findings are in a new book collected on the "How Well Do 'Facts' Travel?" project, due out mid 2010.

Plan of Work:

- 400 ha @ one ha / farmer in Dharmapuri /Krishnagiri Districts
- **1 st crop was raised by Scientist of TNAU**
- Offered technical support for 2nd to -5th crop raised by by the farmer

Scale up:

Year	Dept Hortic	Comm. Agric	TNAU	Total (ha)
2004-06:	-	-	400 ha	400
2005-06 :	735 ha	-	-	735
2006-07:	-	-	560 ha	560
2007-08	6100 ha	6100 ha	600 ha	12800
2008-09 :	4480 ha	4280 ha	640 ha	9400
2009-10 :	6940 ha	4000 ha	-	10,940
2010-11	4000 ha	8500 ha	-	12,500
Kavunji	1000 ha	-	-	1000
IAMWARM-		-	-	6000
G. Total	23255 ha	22,800 ha	2200 ha	53,255

Measurable out puts:

1. Enhanced the productivity of crops by 60 – 80 %
2. 95 percent marketable produce with less unmarketable produces
3. High end quality parameters and 30 % premium price in the market
4. Water economy 30 to 40 %
5. Electricity economy 50 %
6. Extended period of harvest to match lean season in the market
7. Less labor dependence
8. Extended shelf life
9. 25% more weight per unit volume for the produce
10. Empowerment of farmers
    (Technical, Economical and social empowerment)

Transform Agriculture .....?

From Productive to Profitable agriculture?

From Sustainable to Competitive agriculture?

From Production driven to Market driven?

From Localised to Globalised Agriculture

Yes , Here is the Precise Model..

What cripples agriculture?

- Labour shortage(Newer avenues for rural workforce and unwillingness of next generation to opt for agriculture)
- Dictated contract system which doubles the cost of production (Individual operation contract demanded by the local labour)
- Polluted and in adequate irrigation water
  (Borewell supported irrigation is on the lead)
- Resource poorness of the farm family

Input Cost escalation rate Vs Produce cost
(Total mismatch of Cost hike for inputs vs Cost hike for the produces)

- Incapability to handle advanced technologies
  (Advanced technologies require hands on training and no other TOT)

The way out is the Precision model…

Dimension of Precision …..

Temperate Countries

- GIS and Sub cubic cm soil grid level
- Uniform Nature of Soil (Sensor based)
- Single Crop Cycle system (excluding winter and autumn)
- Highly mechanized Farming system

Tropical Countries

- Prohibitive GIS Cost
- Diverse and heterogenous nature of Soil
- Multi cropping system
- Manual Farming system

Precision elements in tropical farming system

1. Soil Preparation : Humus level, microbial load, aeration & drainage, fertility restoration
2. Nursery : Physically, physiologically uniform seedlings with intact roots
3. Crop geometry : Single ,double ,triple and tetra rows (straight and alternate)
4. Fertigation : Nutrients at critical stages, subsoil moisture regime
5. Growth management: Regulation of flowering, training the canopy,
6. Plant protection : Monitoring System , IPM and IDM
7. Field Level PHM : Harvest Index, handling, sorting and grading and labeling crates
8. Cluster Approach : Operation thru Registered Precision Farmers Associations at Cluster level
9. Market linkage : Buyer seller Meet and Supply Chain workshops for marketing
10. Producer Companies: Precision Farmers Producers Company Ltd.,

Cultivated Crops

Agriculture: Sugarcane, Cotton, Maize, Sunflower, Ground nut, Sesame, Finger millets, Sorghum, Pearl Millet

Horticulture: Tapioca, Banana, Tomato, Brinjal, Chilli, Curry leaf Watermelon, Papaya, Bitter gourd, Bottle Gourd , Snake gourd , Lab lab, Turmeric, Yam, Onion ,Musk melon Potato, Carrot, Cabbage, Radish, Beet, Cucumber Cauliflower, Coriander, Chow chow, Beans, Paprika, Ash gourd, Rose, Chrysanthimum, Limoniums Marigold, Aester,


Hybrid Chilli , 20 days after planting
10.01.2005 13:53


Main Field 60th day

Mr.N.Chinnasamy of Chinnamittahalli , was able to cultivate Hardly one acre this far, but now cultivates one ha twice with the same water available in the well


90% plus first grade on sorting
35 tonnes against 22 tonnes/ha (60 % increase)

Hybrid Tomato : Staking in Progress

Tomato at Somanahalli: Examination for pest and diseases

Farmer Vs Scientist Mode of TOT


Absorbed in work….owners pride…..


Attention is our order…to yield 150 MT/Ha against 50 MT /ha


Ignorant farmer to begin with ……now ..
CEO of the farmers owned ltd company


Tomato Hydrid … First grade fruits
06/01/2006


Marigold in Tomato to trap Nematodes
24/07/2007

- Farm Women add quality always….by sorting, grading and labeling


Impeccable quality and market appeal…….
Weight for unit volume is 25% higher than conventional produce


Less weeds and less pathogens……


Minimal flower drop and no fruit drop

1.15 acre , recorded 170 MT (against 60 MT) Bought one Green Scorpio;


Exceptional performance of Brinjal:500MT/ha
Mahindra and Mahindra National Award Winner


Continued production
Beyond 12 months


100 % crop stand and 100 productive plants….


Bhendi again in winter amazing…..
(16 MT against 10 MT during winter season)


Scientist and farmer hand in hand……

Gherkin under buy back contract……


Gherkins on buy back
(35 MT against 20 MT)


Coriander 35 days ….nearly Rs.1.35 lakhs…..in store….
29/06/2006


Beet nothing to beat…..
50 MT against 20 MT


Potatoes…..
50 MT against 17.5/ha
02/01/2006


Paprika made the farmer crazy .never ending harvest….for months


Striking uniformity of marketable produces

60 MT against 37 MT

45 th day after planting


44,000 flowers against 32,000
தமிழ்நாடு வேளாண்மைப் பல்கலைக் கழகம்
தமிழ்நாடு துல்லியப்
பண்ணைத் திட்டம்

Cabbage from 350 bags / acre to……


650 bags…..
02/07/2006

The scientists , Vice Chancellor , farmer and the happy crop


Agricultural Production Commissioner
and the turmeric crop……


Rhizome…. rhizome all the way……
118 qtl dry against 75qtl/ ha


Pole beans
11/12/2006


Pole beans: 20 Mt against 10 Mt /ha
17/11/2006


60 Mt against 40 MT / ha


Abundant production….
25 MT against 20 MT/ha


Chrysanthimum....


Thanks
Pl continue Presentation : 3
21/01/2006