LINKING FARMERS WITH SCIENTISTS : APPROPRIATE MODE FOR TECHNOLOGY GENERATION AND TRANSFER OF TUBER CROPS TECHNOLOGIES

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“ Placing the focus on technology was difficult to resist. The Green revolution was at its height and its result seemed almost miraculous . Even so, problems are emerging that raised important questions about the effects of technology on the environment and health , and the extent to which it was reaching poorer farmers who worked in complex, marginal farming systems”

CIP 2002

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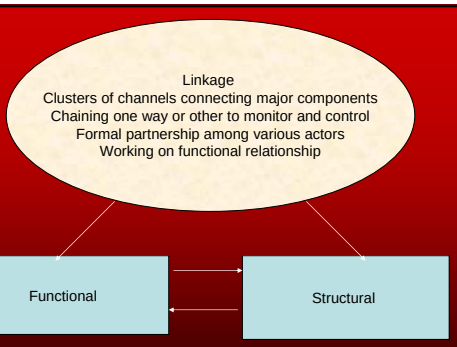

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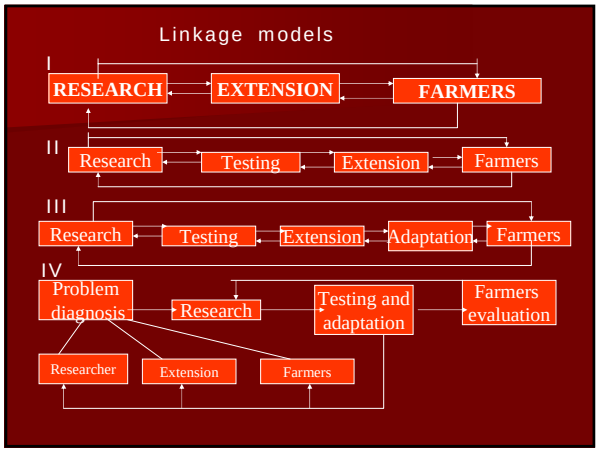

A CHRONICLE OF FRONT LINE TOT

Technology transfer

National demonstration (1971-74)

Operational research project (1976-80)

Lab to land programme (1979- 1996)

Technology generation and transfer

Testing and Popularising Tuber crops technologies(1998-2004)- *Nominal participation*

Farmers participatory evaluation(1994-2002)-*Consultative participation*

Institution-village linkage programme (1995-2005)- *Decision making*

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Testing and Popularising Tuber crops technologies(1998-2004)-

Farmers preference

Irrigated production System- Puthrigoundanpalayam

Sl.No.	Varieties	Rank			
		Farmers	Traders (consumption)	Traders (Factories)	Remarks
1	H-97	6	10	3	Starchy variety, not competent with H226
2	H-165	5	9	2	Good for factories
3	H-226	1	8	1	Appropriate for peeling in factories, consistent in yield
4	H2304	4	4	4	Tubers unwieldy
5	CI 649	3	2	5	Preferred for consumption
6	CI 731	2	1	10	Catching up for consumption purpose
7	TCH 1	10	3	6	Yields well but not starchy
8	TCH 2	8	5	7	Good for consumption and yellow flesh
9	TCH 3	7	6	8	Yield not good
10	TCH 4	9	7	9	Establishment not uniform

Cassava Variety Attributes

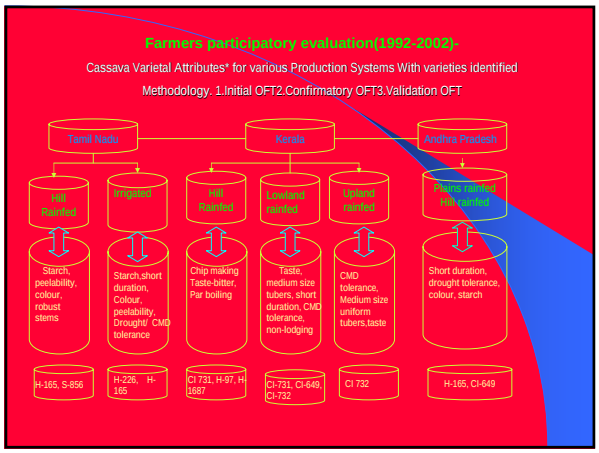
Scientists' Assumptions	Farmers expectations
Yield	Yield
Taste,	Plant architecture
Short duration	Short duration
Pest and disease resistance	Pest and disease resistance
Plant type	processing qualities
Shade tolerance	planting materials quality
	quantity of planting materials
	drought tolerance
	leaf quality
	profitability
	marketability

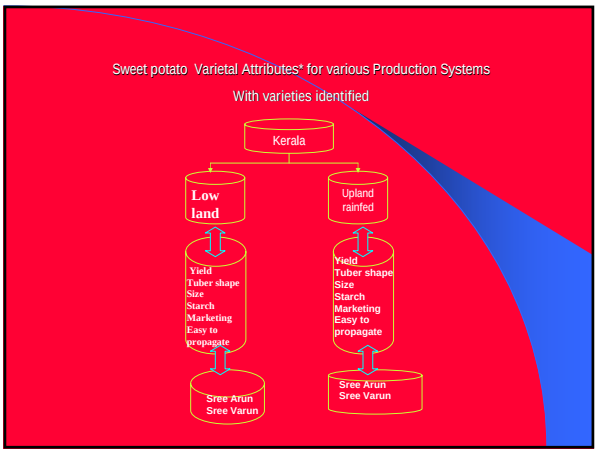
Farmers Participatory Evaluation (1994-2002)-

Methodology followed :

Production System and the methods used

Cassava Varietal evaluation			
OFT-Mode	Consultative participation of farmers		
Production Systems	Kerala-Upland,Lowland and Hill agriculture	b.TamilNadu 1.Plains Irrigated 2.Hill agri. Rainfed	Andhra Pradesh. 1.Plains Rainfed 2.Hill agri. Rainfed
Steps followed in conducting the OFT		PRA techniques used	
Selection of farmers and evaluation group		Key informant. Sociometry,Direct observation	
Initial OFT and evaluation by user groups		Observation, semi structured interview Ranking , diagramming	
Confirmation OFT& evaluation by user group		Semi structured interview paired ranking, matrix ranking, triad techniques	
Validation OFT and evaluation by user group		Semi structured interview, Direct observation,	
Popularisation of most preferred cassava varieties		Field days demonstration by the User group ,seed production	





Institution-village linkage Programme

GENESIS

- **The major cause for non/low adoption lies not with farmers, but with technology**
- **Most of the technologies developed under ideal conditions are unsuitable to CDR system which form the major share**
- **Farmer never a monocrop farmers but multiple linked enterprises**
- **Need for assessment and refinement of technologies under agro-eco system**

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INSTITUTION-VILLAGE LINKAGE PROGRAMME (IVLP)

- A holistic programme with emphasis on research through farmers participation
- Employs agroecosystem analysis for problem diagnosis by using various PRA tools and techniques
- Assessment and refinement of technologies by farmers and multidisciplinary team of scientists

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STEPS INVOLVED IN IVLP

SELECTION OF VILLAGE
CONSTITUTION OF MULTIDISCIPLINARY TEAM
AGRO ECOSYSTEM ANALYSIS
PROBLEM DIAGNOSIS WITH FARMERS PARTICIPATION
ACTION PLANS WITH FARMERS PARTICIPATION
FIELD IMPLEMENTATION WITH FARMERS PARTICIPATION
ASSESSMENT WITH FARMERS PARTICIPATION
VERIFIACTION WITH FARMERS PARTICIPATION

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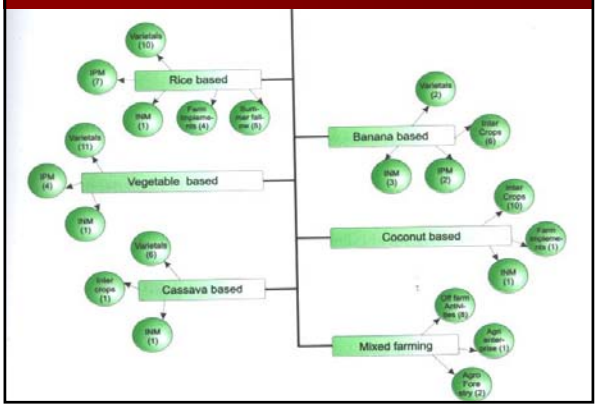
Production system wise technological interventions



TUBER CROPS TECHNOLOGIAL INTERVENTION- 12

I.Varietal intervention

1. Cassava Upland- 10 OFT
2. Cassava Low land – 20
3. Yams-15
4. EFY-20
5. Sweet potato- 50

II. Intercropping

1. EFY in Banana- 30
2. White yam in Banana-25

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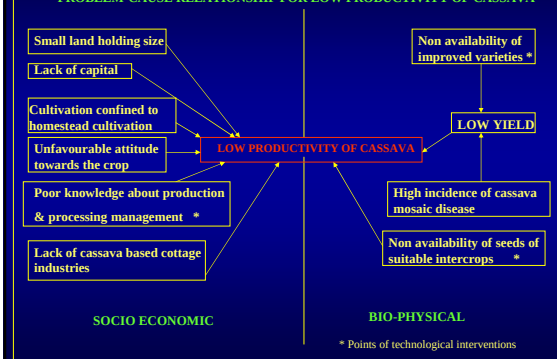
PROBLEM-CAUSE RELATIONSHIP FOR LOW PRODUCTIVITY OF CASSAVA



* Points of technological interventions

TECHNOLOGICAL ASSESSMENT

BIOLOGICAL

- Biometrical, yield attributes etc.

ECONOMICAL

- Yield, income, net returns, BC ratio etc.

SOCIAL

- Resource availability, marketability, cultural compatibility, relative advantage etc.

FARMERS REACTION

- Positive & Negative aspects

Cassava varieties in low land during kharif season (2002-2003)

- Varieties tested

1.Sree Rekha
2.Sree Prabha
3. Sree Vijaya
4. Uliichuvala (local)

Results

- Tuber yield(t/ha)

1.Sree Rekha - 36.9
2.Sree Prabha - 34.5
3. Sree Vijaya - 30.4
4. Sree Jaya - 25.43
4. Uliichuvala (local) - 42.0

Returns

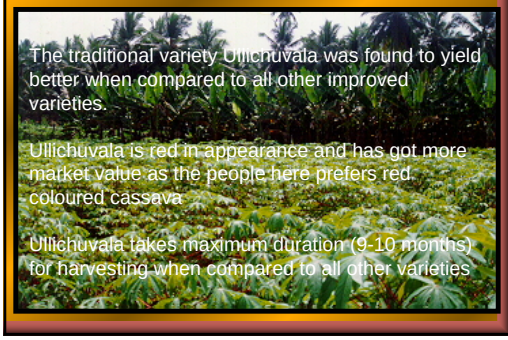
Attributes	Ullichuvala(local)	Sree Rekha	Sree Prabha	Sree Jaya	Sree Vijaya
Net returns (Rs/ha)	1,08,200	92,900	85,700	58,950	73,400
BC ratio	7:1	6.2:1	5.8:1	4.2:1	5.1:1
Yield increase/ decrease over local		-12.1%	-17.8%	-39.45%	-27.6%

Matrix ranking of cassava varieties

Attributes	Ullichulval a(local)	Sree Rekha	Sree Prabha	Sree Jaya	Sree Vijaya
Cooking qulity	1	2	3	4	5
Yield of tubers	1	2	3	4	5
Appearance of tubers	1	3	4	2	3

The local cassava variety Ullichuvala was mostly accepted by the farmers
Majority of tapioca farmers of the village grows this variety only

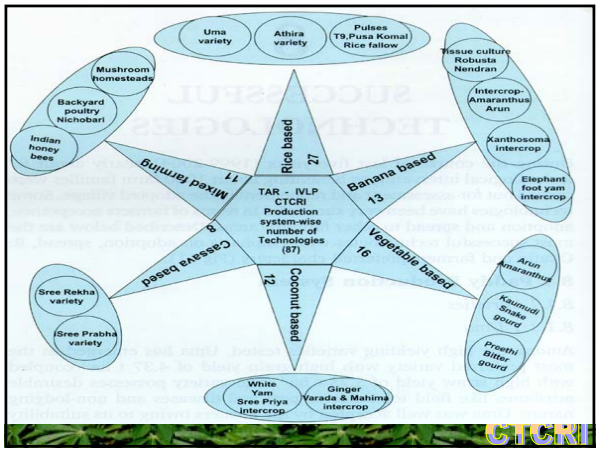
Farmers reaction



The traditional variety Ullichuvala was found to yield better when compared to all other improved varieties.

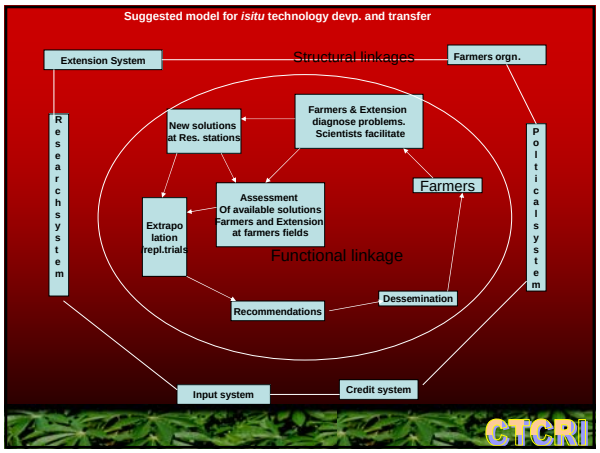
Ullichuvala is red in appearance and has got more market value as the people here prefers red coloured cassava

Ullichuvala takes maximum duration (9-10 months) for harvesting when compared to all other varieties



CONCLUSIONS

- GENERATION OF LOCATION-SPECIFIC TECHNOLOGIES WITH FARMERS PARTICIPATION
- FASTER SPREAD OF TECHNOLOGIES
- TECHNOLOGICAL ASSESSMENT & REFINEMENT TO SUIT CDR SYSTEM
- EXTRAPOLATION OF TECHNOLOGIES TO SIMILAR DOMAINS
- AN ALTERNATE TOT APPROACH ADAPTABLE BY RES. INSTITUTIONS, VOLANTARY AGENCIES WITH ADEQUATE MAN POWER
- A SUPPLIMENTARY EFFORT TO SUPPORT TOT MECHANISM BY DEVE. DEPARTMENTS



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The Indian achievement in wheat production leading to a near doubling of the total harvest serves to illustrate what can be accomplished, provided farmers, scientists, extension and communication experts and political and administrative leaders, all function like members of symphony orchestra. Unless an orchestration of such players is done, a scientific break through may not necessarily lead to a production break through."

Dr. M.S. Swaminathan at presentation ceremony of Ramon Magsaysay Award, 31.8.1971.

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