

# *Nucleus Estate Model: An Agribusiness Model for Gherkin Cultivation in Tamilnadu, India*

Dr.V.Banumathy, Dr.R.Venkataraman and  
Mr.S.Ravichandran

Department of Agricultural Economics,  
Annamalai University

## *Introduction*

- The condition of farmers continues to be unstable due to uncertainty in crop yields and prices of produce coupled with natural calamities.
- Financial distresses caused by natural disasters.
- Indian agriculture had undergone a phenomenal transformation.
- The change in Indian agriculture is not only in technology but also by institutional innovation.
- Contract farming is one such institutional initiative.

## *Contract Farming*

- It entails relation between growers and agribusiness enterprises.
- It is an exciting way of giving the power of scale to the small farmers.
- It is a system for the production and supply of horticultural/agricultural produce under forward contracts between producer and buyer.
- It involves basic elements like pre agreed price, quality, quantity or acreage and time.

## *Gherkins*

- It is a small green cucumber.
- The crop was introduced in India during the year 1990.
- Popularly known as pickling cucumber.
- It forms three per cent of India's agricultural acreage and it has export value.
- It is a quick cash crop, ready within 70days.
- Labour intensive crop.

## *Objectives*

- To study the direction of trade and changes in export of fresh or chilled or preserved gherkins.
- To work out the economics of gherkin cultivation under nucleus estate model.
- To identify the factors influencing gherkin production under this model.

## *Methodology*

- Ravibala Imports & Exports company is the leading exporter in Tamilnadu.
- It is located in Sivagangai district of Tamilnadu and established in the year 1994.
- Manufactures pickling gherkins and the processed gherkin is exported to various countries.
- It acts as a facilitator and provides all the needed services under a single umbrella.

## *Methodology - Sample Selection*

- Sivagangai district was purposively selected.
- The company selects villages and farmers based on some criteria.
- The list of gherkin growers was prepared and 30 growers were selected randomly.
- The selected farmers are small & marginal farmers and their fields are located nearby the processing plant.

## *Data*

- Present study rely on both primary and secondary data.
- Annual time series data on export of gherkin during the period from 1995-96 to 2004-05 at all India level was collected.
- To analyse second and third objectives, primary data was collected from selected gherkin growers.

## *Tools of Analysis*

- Markov chain analysis : The model can be specified as;

$$X_{jt} = \text{sum of } X_{it-1}P_{ij} + e_{jt}$$

where,

$X_{jt}$  = the share of exports of gherkins from India to  $j^{\text{th}}$  country during the year 't'.

$X_{it-1}$  = the share of exports of gherkins to  $i^{\text{th}}$  country during the year 't-1'.

$P_{ij}$  = the probability that exports will shift from  $i^{\text{th}}$  country to  $j^{\text{th}}$  country.

## *Costs and Returns*

- Percentage analysis was done to work out the cost of cultivation of gherkins.
- Gross returns = yield x unit price
- Net returns = gross returns – total cost incurred in the gherkin cultivation.

## *Garett Ranking Technique*

- Used to analyse the factors influencing gherkin cultivation under this model.

- Per cent position =  $100(R_{ij} - 0.5) / N_j$

where,

$R_{ij}$  = rank given to the  $i^{\text{th}}$  attribute by the  $j^{\text{th}}$  individual

$N_j$  = number of attributes ranked by  $j^{\text{th}}$  individual

## *Major Findings*

### Direction of trade

- principal states producing gherkin are Karnataka, Tamilnadu and Andhra Pradesh.
- the overall annual export of gherkins is in the range of Rs.125-150 crores.
- major destinations
- India occupies 50<sup>th</sup> rank

*Importing Countries of Preserved Gherkins from India, 2004*

S.No	Country	Value ('000US\$)	Percentage share
1.	Russia	12678	35.64
2.	USA	8808	24.76
3.	Spain	5043	14.18
4.	France	2335	6.56
5.	Germany	1791	5.03
6.	Netherlands	1705	4.79
7.	Australia	955	2.68
8.	Switzerland	631	1.77
9.	New Zealand	534	1.50
10.	Latvia	291	0.82

*Transitional Probability Matrix of Indian Gherkin Exports*

Countries	Russia	USA	Spain	France	Germany	Others
Russia	0.2069	0.1100	0.1192	0	0	0.1011
USA	0.1307	0.3418	0	0	0.0411	0.0201
Spain	0.1078	0	0.1151	0.0319	0.1216	0.1100
France	0	0	0.0613	0.0936	0.0300	0.0724
Germany	0	0.1283	0.0312	0.0911	0	0
Others	0.0272	0.0316	0.0946	0.0542	0	0.1192

*Observed and Estimated Shares of Gherkin Exports from India*

Year	Russia		USA		Spain		France		Germany		Others	
	observed	estimated	observed	estimated	observed	estimated	observed	estimated	observed	estimated	observed	estimated
1995-96	25.61	-	19.53	-	10.81	-	3.99	-	3.02	-	37.04	-
2000-01	30.17	30.45	22.91	22.98	13.74	13.90	5.72	5.08	4.01	4.33	23.45	23.26
2004-05	35.64	36.98	24.70	25.06	14.20	15.11	6.56	7.08	5.79	5.03	13.11	10.74

*Economics of Gherkin Cultivation*

S.No	Particulars	Quantity	Amount(Rs./ha)
a.1.	Seed (gm)	990.00	2673.00 (5.51)
2.	FYM (tonnes)	11.64	4978.31 (10.27)
3.	Chemical fertilisers	-	3472.15 (7.16)
4.	PPC	-	1189.76 (2.45)
5.	Staking – sticks(no.)	2900	957.00 (1.97)
6.	Plastic wire & thread	-	781.09 (1.61)
7.	Human labour (man days)	906.77	33142.44 (68.34)
8.	Bullock labour	-	1300.80 (2.69)
b.	Gross return	-	68641.56
c.	Net return	-	20147.01

### *Factors Influencing Gherkin Cultivation*

S.No	Particulars	Mean score	Rank
1.	High profit	75.20	I
2.	Assured market	70.13	II
3.	Suitability of soil	65.54	III
4.	Exemption of market fees	60.75	IV
5.	Supply of quality inputs	52.41	V
6.	Export oriented crop	47.50	VI
7.	Avoiding price risk	41.10	VII

### *Conclusion*

- Exports are concentrated in Russia and USA.
- USA is the stable importer.
- High dependence on these two countries would increase the trade risk in the long run for our country.
- Appropriate export promotion strategies have to be evolved to diversify the direction of trade to other countries.

## *Conclusion – contd.,*



- Overall management skill of the farmer might be improved.
- Gherkin cultivation assures employment opportunities for rural youth and assures income.
- Consequently leads to area shift from other annual crops to gherkin.



*THANK YOU*