Organic Vegetable (Tomato) Production – Sustainable agriculture for food security.

G. Muthiah s/o Ganesan belongs to a small farmer from T.Pudupatti village, Reddiarchatram block, Dindigul district, Tamilnadu. His family income is depending only farming from 3.0 acres of land. He was cultivated Vegetables like Tomato, Chilli and Cauliflower in last 20 years. He was doing conventional farming like other farmers, following the trends of Chemical usage for Integrated Nutrient Management (INM) and Integrated Pest Management (IPM). Due to the uncertainty in farming and increasing the cost of cultivation, they were not able to get the expected earnings from conventional farming. In fact his family had to borrow the loan from the money lenders for farming and their family running.

This year he has adopted the Non Pesticide Management (NPM) practices in Tomato cultivation with technical support M.S. Swaminathan Research Foundation and other support of Christian Aid. In NPM practices chemical fertilizer can applied and chemical pesticide was not used to control the pests. In our first approach, he refused for NPM practices, he was not confident of the NPM/ Organic farming before this Project approaches He received information about Organic farming through various training trainings, continuous monitoring, exposures organised by MSSRF and SAAL. After he got convinced by the concept and practices, then he convinced. He was followed the NPM practices in 25 cents for Tomato (variety -5005). He applied cow dung and bioinputs are biofertlizer (*Azospirillium*, Phosphobacteria, VAM and Potash mobilishing bacteria) biofungicide (*Trichoderma viride* , *Pseudomonas flourocens* and *Bacillus subtilis*) and he used *Beauveria bassina* and *Verticillum* for control of pests. He got yield of 2.0 tonnes of Tomato from 25 cents. He was happy, but the cost of fertilizer was increased so the profit was decreased. He reached a self reliance to control pest and disease by organic methods, so he was planned to able to convert fully organic farming.

He practices organic farming in 1.0 acres of land in Tomato crop in the variety of 5005. He applied 10 tonnes of cow manure with addition of biofertlizer (*Azospirillium*, Phosphobacteria, VAM and Potash mobilishing bacteria) biofungicide (*Trichoderma viride* , *Pseudomonas flourocens* and *Bacillus subtilis*) as a basal and done three times of ploughing and finely ridging was done. Tomato seedlings (Variety name: 5005) was transplanted with support of family members and three labours. On 22nd, 25th and 45th day weeding was done, in that time 3% of (30 ml/lit) Panchakavya and Boon (organic micronutrient mixture prepared from sea weeds) was sprayed.

The plants infected by Fusarium wilt. Then he sprayed 10% solutions of *Bacillus subtilis, Bacillus amylolificans* and *Pseudomonas fluorescens.* Then he has done foliar spray of Panchakavya and Biofungicides with regular interval. The leaves affected by sucking pests like whiteflies. He applied 10% solution of *Verticillum lecani* and 5% mixture of three types of Botanical extract oils (Pungam oil- *Pongamia pinnata*, Neem oil- A*zadirachta indica* and Eluppai oil- *Madhuca longifolia*). This therapy continuously followed by him in once in fifteen days. He also used yellow stick traps to adsorb the sucking pest. Simultaneous fruits affected by *Helicoverpa armigera*, he controlled by the application of mixed neem oil *and Beauveria bassina*

He reduced the dropping of flower due to spray of panchakavya and Boon. He got good yield and good quality of the products. He obtained 11800 Kgs

of tomato in 95 % of the first quality remaining were second quality and borer affected fruits. He earned Rs.75000 from an acre. Availability of inputs like suitable quality of seed material organic manure, good quality of bio fertilizer and bio pesticides, organic pesticide, yellow sticky traps etc. were the major concern for success of his Organic farming, because other conventional farmers got 10 tons of Tomato yield in the same season and variety. He marketed his vegetable through local sandy market, Veg shops in nearby villages and veg. market in nearby town. So he got good prices for his vegetables.

Key observation:

Control of Pest and disease is one of the most important problem for all the farmers by organic way. Therefore the factors like crop tolerated from 5- 6 days in low irrigation potential, mono cropping and highly tolerable to pest and disease by crops, also beneficial insects like *Crysoperla* and *Cryptolaemus* (beetle) alive in his field, (it feeds sucking pest), these were lead to organic farming was a successful practices for sustainable agriculture.

Income and expenditure

Expenditure

Particulars	Quantity (Kg)	Cost (Rs)/ kg	Total (Rs)
Manure cost	10 tons	750	7500
Bioinputs	10	60	600
Ploughing	3 times	1200	3600
Ridging	2 times	900	1800
Seed	8 pockets	300	2400
Seedling transplantation	5 member	120	600
Panchakaya	20 lit	75	1500
Mixture of oil	3 lt	300	900
Boon	1 lit	400	400
Yellow stick traps	20	5	100
Harvest by family members and labour	120	100	12000
Travel and other expenses			1500
Total			31400

Income:

Yield	Quantity (kg)	Cost (Rs)
First quality	11000	66000
Second quality	200	800
Borer affected	600	0
Total		66800

Profit: Rs. 66800- 31400 = Rs. 35400

Here, it is mainly observed that usually her cost of cultivation exceeds Rs.35,000/- to 40,000/- in conventional farming and income was same. But organic agriculture, the package of practices are non dependant mainly over fertilizers, pest control measures like chemical pesticides etc.

Strategy Adopted:

He was trained in organic farming practices, field visits, exposure visits . He has adopted all practices of organic agriculture like application of organic manure, Intergrated nutrient management practices like application biofertilizer, seed treatment by

Panchakavya, Integrated pest management practices like biofungicide, biopesticide, botanical extract spray like neem , pungam and eluppai , beneficial organism like crysoperla and Cryptolaeumus, yellow sticky traps and proper method and time of harvesting, cleaning, grading, packing periodical monitoring and hard working to his success. For cross learning, other farmers visited his farm during critical stages of best practices. Other farmers and himself planned to adopt the organic practices in future.