



Organic Farming: The New Success Mantra for Sustainable Agriculture

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Organic farming avoids investment in costly chemicals and pesticides. Mrs Neerukonda Satyanarayana adopted organic farming from the year 2015-16. He attended various trainings organized by the Department of Agriculture and Krishi vigyan Kendra, Venkataramannagudem. After that he prepared 14 types of organic inputs, bio fertilizers, bio pesticides on his farm. Banana, Papaya, Vegetables (Brinjal, Tomato, chilli and Spine gourd) and Black gram crops were cultivated in 10 acres area by using the organic inputs. He got a net income of Rs.3 lakhs /ac from Vegetable cultivation. In the case of bananas, he got 1.5 lakhs /ac net income. For Black gram, Rs. 35000/ac net income, and for papaya, 1.5 lakhs.

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1. INTRODUCTION

The rising cost of cultivation can trap farmers in inescapable debt. Organic farming is a method of agriculture that avoids using synthetically compounded fertilizers, pesticides, growth regulators and livestock feed additives. Instead, it relies on natural processes and inputs such as crop rotation, compost and biological pest control. Organic farming is gaining popularity as it is seen as a sustainable and eco-friendly food production method[1]. It also helps conserve soil health, reduce pollution, and promote biodiversity. India is home to many organic farmers and is slowly increasing its organic cultivation area. Organic farming systems rely on crop rotation, crop residues, animal manures, legumes, green manures, off-farm organic waste, and biological pest control to maintain soil productivity and tillage to supply plant nutrients and control insects, weeds and other pests[2,3-5]. According to the World of Organic Agriculture 2018 report, India is home to 30 per cent of the total organic producers in the world. However, it accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares [6].

Mrs Neerukonda Satyanarayana was a successful organic farmer residing in Dommeru village of Kovvur Mandal, West Godavari District. He belongs to the farming community and completed his Master of Science in Chemistry in 1986. After that, he worked in a private company for a period of ten years. He has not getting satisfaction from that job so he left the job & started farming from 1996. He gradually learned the advantages of organic farming and also learned the disadvantages of chemical farming. He believed organic farming reduces the cost of cultivation, improves soil health and achieves sustainability in the cultivation of various crops. Then he attended a training programme on organic input preparation at rythu nestam foundation, kornapadu, Vijayawada and Krishi Vigyan Kendra, Venkataramannagudem also participated in exhibitions, Kisan melas and kisan kalyan karyasala organized by the Department of Agriculture. He learned and gained knowledge on organic inputs preparation and organic cultivation. With this experience, he started organic farming on his 10 acres of land. He grows Banana, Papaya,

Vegetables (Brinjal, Tomato, chilli and Spine gourd) and Black gram crops since 2015-16 in organic methods. He has four cows, six buffalos and 130 poultry birds. During the year 2020, he attended Indian Science Congress held at UAS, Bengaluru, with the support of KVK, venkataramannagudem.

Table 1. Cultivation of crop

S.No	Crop	Area (acres)
1	Banana (Grand nain, Karpura and Tella chakkarakeli)	8
2	Papaya (Red lady)	1
3	Vegetables (Brinjal, Tomato, chilli and Spine gourd)	1
4	Blackgram (PU -31) as an intercrop in papaya	-
Total		10 acres

2. SUCCESS POINT/ RESULTS

Mrs. Neerukonda Satyanarayana has prepared 14 types of organic inputs (Beejamrutham, Ghanajivamrutham, Dravajivamrutham, panchagavya, Agniastam, Neemastram, vavilaku, Panchapatra, Dasaparni, Sonti pala, Saptankura kasayam, Fish amino acids, Egg and lemon amino acids, Starch liquid) in the farm. He has prepared and used biofertilizers like PSB, zinc and sulphur solubilizing bacteria, Azospirillum and biopesticides Beauveria bassiana, Verticillium lacanii, Metarhizium anisopliae, Trichoderma viride and pseudomonas fluorescence. Farm waste is converted into manure and applied in the field, and vermicompost is produced by own. Crop residues (paddy straw, dry leaves of banana and black gram husk) are being used for mulching in Bananas and Papaya, followed by a drip Irrigation System in papaya, vegetables, and bananas applied organic inputs through fertigation [7-10]. He has followed the Intercropping of Brinjal and chilli in banana.

2.1 Special Innovation(s)

He developed a low-cost semiautomatic poultry egg Hatcher unit Used to incubate eggs into chicks in 21 days, and the Incubator capacity is 50 eggs .it costs around 4000 rupees.

Table 2. Organic inputs prepared and used in his farm

S.No	Name of the organic input used	Ingredients	Used for	Observations
1	Beejamrutham	Cow urine -2 L Cow dung 5 kgs White lime 50 grams Water 20 L	Seed treatment for black gram, vegetables and banana	Good germination and vigour Controlled seed born diseases.
2	Ghanajivamrutham	100 kg desi dung manure 10 L of cow urine Jaggery 2kg any pulse flour 2kgs Handful fertile soil from the farm.	Soil application (1 tonne/acre)	Soil fertility and water absorption capacity is increased. Earth worms (jeeva nagali) number increased.
3	Dravajivamrutham	Water 200 L Desi cow dung 10kgs Desi cow urine 10 L Jaggery 2 kg Any pulse flour 2kgs Handful fertile soil from the farm,200 L plastic drum	Spraying(25%,50%,75%,100%) and soil application (4000 L/ac) at every 15 days interval.	Plant growth enhanced
4	Panchagavyam	Cow dung - 5 kg, Cow ghee – 1/2 kg, Cow Urine - 5 L Cow milk - 2 L, Cow curd - 2 L Tender coconut water - 3 L, Jaggery - 1 kg Well ripened poovan banana – 12 nos. Kallu -3 L ,white gourd 1kg	Spraying (30 ml/L) at 20 days interval 2-3 times of the crop.	Corrected the micro nutrient disorders
5	Neemastram	10kg neem leaves,2kg cow dung, 5 kg cow urine in 100 L of water	Spraying (100 L /acre)	Prevented insect pest egg hatching
6	Panchapatra kashayam	Neem leaves 2kg Custard apple leaves 2 kg ummetha leaves -2kgs Vavilakulu -2kg Jilledu 2kgs 5 L cow urine in 100 L of water	Spaying (100liters/acre)	Controlled Sucking pests and corrected the calcium, iron and boron
7	Dasaparni	2 kg Leaves of each of the following plants	Spaying (100liters/acre)	Controlled insect pests

S.No	Name of the organic input used	Ingredients	Used for	Observations
	kashayam	Neem, tutikada, maredu, castor, pongamia, Papaya, teak, attakodaluku, Custard apple-, <i>ummeta</i> 5 liters cow urine Water 100 liters		Improved quality
8	Controlled insect pests Improved quality	5kg neem leaves 1/2kg Garlic 1kg tobacco powder 1kg chilli 15 L cow urine	Spraying (250ml/16 L of water)	Controlled Spodoptera pests.
9	Sonti pala kasayam	Sonti 200 gram Cow milk 2 L 100 L water	Spraying (100 L /acre)	Controlled viral diseases in chilli papaya and brinjal
10	Fish amino acids	Waste fish material 1kg Jaggery 1kg 10 L of water Prepared in ceramic container (5 L)	Spraying (10 L /100 L of water)	Growth promoter and controlled the viral diseases in vegetables and papaya
11	Egg and lemon amino acids	Eggs -10 Lemon -150 no. Plastic container -5 liters 250 gram jaggery	Spraying (50ml/16liters)	corrected the calcium & iron deficiencies Improves the pollination of crops. Growth promoter and immunity power is also increased .
12	Starch liquid	Rice flour 1 kg, 250 grams inguva (asafoetida) 500 gram soap nut Water 5 L	Spaying (10liters/100 liters of water)	Controlled the mealy bug in papaya
13	Saptankura kasayam	2kgs Powders of following material Groundnut, sesamum, mustard, red gram, cow pea, green gram, maize	Spaying (2 kg/32 L of water)	Increased the yields
14	Waste decomposer solution	Jaggery -2kg, Waste decomposer -1 bottle Water 200 L	Soil application (4000 L/acre)	Soil fertility and earth worms increased.



Pic. 1. Director of extension, Dr YSRHU visited the organic field of Mrs. Neerukonda Satyanarayana

Table 3. Economic aspects of crops

Economic details prior to organic farming				
Crop	Yield/ac	Cost of cultivation (Rs/ac)	Gross income (Rs/ac)	Net income (Rs/ac)
Banana	25 tonnes	80,000	2,00,000	120000
Spine gourd	4 tonnes	50,000	1,50,000	1,00,000
Buffalos	250 L/month	30000	40,000	10,000
Poultry	130 birds	10000/year	1,20,000+4,000 (1,24,000)	1,14,000

Table 4. Economic aspects with organic farming

Economics with organic farming				
Crop	Yield/ac	Cost of cultivation (Rs/ac)	Gross income (Rs/ac)	Net income (Rs/ac)
Banana	25 tonnes	60,000	2,00,000	1,40,000
Vegetables (spine gourd, chilli & brinjal)	4 tonnes	40,000	3,50,000	3,10,000
Black gram	5 quintal	5000	40,000	35,000
Papaya	16 tonnes	50,000	200000	1,50000

Maintenance and cultivation of 14 Desi varieties of vegetables under the department of Agriculture (cauliflower, tomato, red amaranthus, purple carrot, cabbage, onion, green long chilli, kasi tomato, red okra, chilli, pumpkin and sorrel).

2.2 Horizontal Spread of Technology

- Department of Agriculture, horticulture, and ATMA have conducted exposure visits to the farm.
- Selected as a resource person of the training conducted to the farmers by the department of agriculture and horticulture.
- Attended as a resource person to UNEP (United Nations Environmental Programme), it was organized by the department of agriculture.

- The Success story of Spine gourd and banana farming has been documented by zero budget natural farming government of A.P.
- The Success story has been broadcasted on various news channels of Andhra Pradesh
- He Motivated nearly 100 farmers to adopt organic farming from various mandals of west Godavari, i.e., kovvur, chagallu, and tadepalligudem.

3. CONCLUSION

The organic cultivation method has reduced dependence on external inputs and created high marked demand and additional nutritional value and taste for the produce. He got a net income of

Rs.3 lakhs /ac from Vegetable cultivation of bananas. 1.5 lakhs /ac net income in case of Black gram Rs. 35000/ac as net income papaya 1.5 lakhs Mr Neerukonda Satyanarayana engaged in the production of inputs at their farm. Therefore, cultivation costs are reduced compared to spraying pesticides/fungicides to control pests and diseases. Because of its better taste, flavour, and quality, produce is sold at premium prices in the markets.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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