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Research Article

Trends and Status of Zero Budget Natural Farming in Andhra Pradesh, ZBNF Impact in District of Visakhapatnam

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ABSTRACT

Agriculture peasants lost their agricultural economic power of agricultural labor due to some short of adverse effect on agriculture labor, like privatized seeds, privatized inputs and inaccessibility credit, overwhelmingly corporate controlled farming. The agriculture economic power slips from hands of peasants to corporate body. Indian agriculture system transforming towards conventional farming to organic natural farming, not even Indian agrarian society most of the developing and developed economies approximately more than 154 countries switching from conventional to organic natural farming. Natural farming is certainly much superiority than conventional farming. Simply we can say less expansive, it saves energy, conservation of bio diversity, fewer residues in food and many others. Hence, a comprehensive study dealing with the economics of organic farming and conventional farming covering different agro-climatic conditions is felt necessary. As such, the present Study addresses itself to fill in this gap by examining the Economics of Natural Farming vis-à-vis Conventional Farming in A.P. In recent years, it is moving towards "Natural farming" with growing consciousness on health and environment damages. It is not viable yet. In this backdrop, the study seeks to address economic viability of organic and natural farming and it's empirically, to examine the status and trends of ZBNF in Andhra Pradesh. to assess and analyze the economic feasibility and economic efficiency of zero budget natural farming.

Keywords: *Zero Budget Natural Farming, Agroecology, Agriculture crises.*

INTRODUCTION

India has experienced many economical evils especially in agriculture such as drought, famines etc. All these make dent on destitution, starvation etc. Now India is the second largest productive food country in the world. Not merely India become a self-sufficient food grains, India is also can export marginal agriculture product particularly after initiation of a new strategy in agriculture i.e. green revolution.

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Agriculture peasants lost their agricultural economic power of agricultural labor due to some short of adverse effect on agriculture labor, like privatized seeds, privatized inputs and inaccessibility credit, overwhelmingly corporate controlled farming. The agriculture economic power slips from hands of peasants to corporate body. Indian agriculture system transforming towards conventional farming to organic natural farming, not even Indian agrarian society most of the developing and developed economies approximately more than 154 countries switching from conventional to organic natural farming.

Need for the Study

Natural farming is certainly much superiority than conventional farming. Simply we can say less expansive, it saves energy, conservation of bio diversity, fewer residues in food and many others. Hence, a comprehensive study dealing with the economics of organic farming and conventional farming covering different agro-climatic conditions is felt necessary. As such, the present Study addresses itself to fill in this gap by examining the Economics of Natural Farming vis-à-vis Conventional Farming in A.P.

Zero Budget Natural Farming

The zero-budget natural farming is unique farming method i.e. popularly known as Subash Palekar's Zero Budget Natural Farming. This method of farming does not require high monetary investment for purchase of agriculture inputs like seeds, fertilizers and pesticides for plant protection from the market. The farmer can easily grow the local varieties of crops without using conventional farm techniques. Hence the ZBNF does not require much institutional credit and it minimizes the dependence on hired labor (Yogendhra babu, 2008). This method of farming requires in native breed of cattle. Some of ZBNF organization believes that one cow is enough to cultivate this method of farming on the thirty acres of land (Priscilla Jebraraj, 2019 July 28, what is Zero Budget Natural Farming? The Hindu).

The main characteristic features of ZBNF

Subhash Palekar advocated that four wheels of farm techniques of ZBNF. The basic aim of this system is to avoid monetary expenditure like purchases of seeds, synthetic fertilizer and plant protection chemicals in the market. The farmer can use his own seeds or he can barrow from other farmers. The whole philosophy of ZBNF is to make the farmer self-reliant and to get out from the exploitative, commercialized private agriculture inputs and caught in the clutches of money lenders.

1. **Beejamrutha:** the term Beejamrutha is mixture that is used to seed treatment. The Beejamrutha composition of a) water (20 litres), b) Desi cow dung (5 kg), c) Desi cow urine (5 litress), d) One handful of soil from the surface of field, e) Lime (50gm). The Beejamrutha aim to preserves the crop from harmful soil borne and seed borne pathogens during the beginning stage of germination and establishment (FAO and La Via Campesina, 2016, Zero Budget Natural Farming in India).
2. **Jeevamrutha:** this is mixture of six components, a) water (200 litre), b) Desi cow dung (10 kg), c) Desi cow urine (5 to 10 litre), d) Jaggery (2 kg), e) Flour of any pulse (2 kg), f) Handful of soil from farm field or forest. The Jeemrutha is used to promote immense biological activity in soil and makes nutrients available to the crop. (FAO & La Via Campesina, 2016, Zero Budget Natural Farming in India).
3. **Mulching:** as Palekar suggests there are three types of mulching they are a) soil mulching b) straw mulching c) live mulching. a) Soil mulching: Soil mulching protects the top soil during cultivation and it enriches the aeration and water retention in the soil. b) Straw mulching: it can be composed of the dead material of nay living being (plants, animals etc) c) live mulching: according to Palekar, it is essential to develop multiple cropping patterns of monocotyledons and dicotyledons (FAO & La Via Campesina, 2016, Zero Budget Natural Farming in India).

4. **Whapasa:** according to Palaekar, what root need is water vapour. Whapasa is the condition where there both air molecules and water molecules (FAO & La Via Campesina, 2016, Zero Budget Natural Farming in India).
5. **Plant protection:** the farmer can himself prepare homemade pesticides and use it on the crops from insects and diseases. Fungicides and insecticides can prepare by the farmer himself and used either as prophylactic or as curative measure for control of crop pests (Yogendhra babu, 2008).

The above techniques are Jivamrita, Bijamrita, and Acchadana (natural mulch) which enriches the microbial activity, seed health and protection of soil respectively.

Objectives of the study

In recent years, it is moving towards "Natural farming" with growing consciousness on health and environment damages. It is not viable yet. In this backdrop, the study seeks to address economic viability of organic and natural farming and its affordability empirically, to examine the status and trends of ZBNF in Andhra Pradesh. to assess and analyze the economic feasibility and economic efficiency of zero budget natural farming.

MATERIALS AND METHODS

The methodology of the study involves frequent visit to farm field where Zero Budget Natural Farming has been practicing, regular interaction with the APZBNF officials, field observers, trainers. Interactions with farmers to gather information of adoption of natural farming method crop cultivation, economies of cultivation and returns. Necessary information taken from field agency and APZBNF, Experts, trainees, ZBNF coordinators shared their experience. The study is completely empirical in nature and emphasizes on frequent visit and regular observation in the farm field. The primary and secondary data collected from various sources to find out the above objectives. The primary data drown from the respondent in deferent natural farming field. The Secondary data was taken from the Rythu Sadhikara Samstha, Government of Andhra Pradesh. The conclusions drown based on the data and shown meaningful inferences based personal experience and observation over a period of time in the field of natural farming.

ZBNF Status in Andhra Pradesh

The ZBNF is a counter-hegemonic movement in the agrarian society. Now the ZBNF became institutionalized and state led agro ecology, training, women led social organization, employing youth. We can observe the initial movement in Karnataka and gradually extend in other states of India, especially southern India. As on today states governments are showing their interest toward ZBNF. the six different states of India progressively practicing ZBNF Andhra Pradesh, Chhattisgarh, Himachal Pradesh, Uttarkhand, Kerala, Karnataka. The Ministry of Finance Nirmala Sitharaman in her budget speech urged to ZBNF, government will promote ZBNF to doubling farmer's income and reduce the cost of production in time for on 75^{th} year of independence. As per government record this program being implemented in 131 covering 704 villages, under RKVY and 1300 clusters covered 268 villages under PKVY. Nearly 1,63,034 farmers are practicing ZBNF in India (Economic Survey 2018-19, volume 2).

The government of Andhra Pradesh is attempted to initiation of ZBNF across the state through comprehensive policies on a large scale. This program was started in the September 2015 and the field implementation in kharif season 2016. As of 2018 this program has achieved 160,000 farmers are practicing ZBNF in around 972 villages across the 13 districts of Andhra Pradesh in 63000 hectors out of 274.40 lack hectors of farm land. The ZBNF was program institutionalized and implemented by agriculture department of Andhra Pradesh, and funded from RKVY, PKVY and Government of India, monitored by the Rythu Sadhikaraka Samstha. The Government of Andhra Pradesh extensional model is based on the group approaches though Self Help Group and special emphasis

on landless labor and women farmers. This program implementation process commenced during the year 2016-17 in 704 villages, 131 clusters, in 13 districts of Andhra Pradesh (Socio Economic Survey 2018-19, Government of Andhra Pradesh).

Table 1: The number of villages covered under ZBNF

Year	No. of villages covered
2016-17	704 villages
2017-18	268 villages
2018-19	1000 villages (approximately)

Source: APZBNF

During the year 2016-17 the no. of villages covered under the ZBNF 704 villages and slightly decreases during the year 2017-18 no. of villages covered under ZBNF just 268 and during the year 2018-19 increases approximately 1000 villages covered under the ZBNF. The results are outreached 40656 farmers during the year 2016-17 and 138993 farmers in the year 2017-18.

Table 2: Status of ZBNF by District as on 31-03-18

District	**Mandals**	**Clusters**	**No. of ZBNF Farmers**
Srikakulam	25	26	8109
Vizianagaram	20	35	9145
Visakhapatnam	26	30	9536
East Godavari	36	36	13759
West Godavari	23	23	20353
Krishna	20	25	16766
Guntur	25	26	12249
Prakasam	26	27	17714
Nellore	23	27	8863
Chittoor	29	29	7610
Cuddapah	36	37	14018
Ananthapuramu	26	28	9964
Kurnool	28	50	14948
Grand Total	**343**	**399**	**163034**

Source: APZBNF

The Table no: 2 which is given above table shows that the status of ZBNF by district wise as on march 2018. The East Godavari and Cuddapah districts has most number of mandal covered under the ZBNF with 36 number of clusters and 37 number of clusters respectively. and the East Godavari district has 13759 farmers and Cuddapah diastric has highest number of farmers are practicing the ZBNF method of cultivation. The Vizianagaram and Krishan districts has least number of mandals covered under ZBNF. these districts are covers just 20 mandals in each district. But the district of Vizianagaram has 35 cluster with 9145 farmers and the district of Krishna has 25 clusters with 16766 farmers are practicing the ZBNF technique of farming.

The above no. of farmers was achieved by involving Women SHGs in the

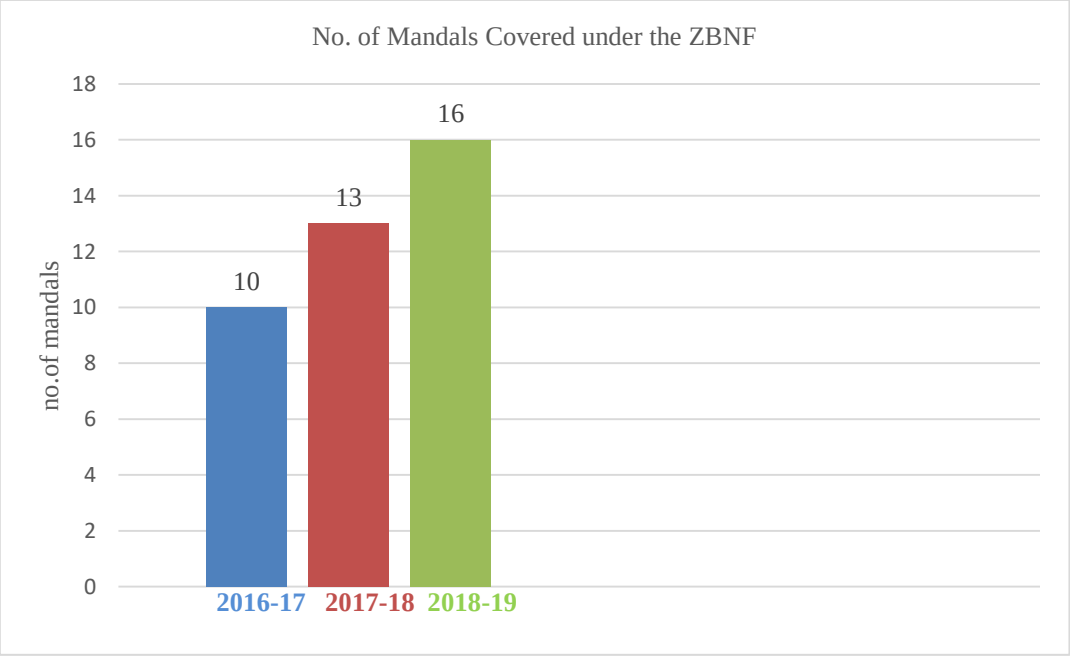
villages and by formation mirror men SHGs. There was a more importance and spaces for women. Nearly half of the master farmer trainers were women farmers, who were also teaching to men farmers (Ashlesha Khadse, & Peter M. Rosset, 2019). Farmer SHG consists of 10-12 male and female farmers with homogenous composition adopting six principles 1.Regular Saving, 2.Regular Lending, 3.Regular Group Meeting, 4.Regular repayment, 5.Regular Book Keeping, 6.Regular Motivation of non ZBNF farmer for adopting of ZBNF farm technique.

Progressive changes of ZBNF in Visakhapatnam

The geographical Combination of delta region and hilly tribal areas are naturally endowed In Andhra Pradesh. The cropped areas divided in to seven zones based on the agro climatic conditions in Andhra Pradesh, the classification is mainly focus on the range of rainfall received, types and topography of the soil. The northern costal districts Srikakulam, Vizianagaram, Visakhapatnam are covers tribal areas and high altitude areas. This zone receives 1000-1100 mm rainfall and tribal hilly areas are high altitude areas which receives more than 1400 mm. The important crops are horticulture crops, millets, pulses chilies, turmeric and pepper. The Srikakulam district covers 616 km of forest area, Vizianagaram district covers 747 km of forest area, and Visakhapatnam covers 3439 km of forest area (Socio Economic Survey of Andhra Pradesh 2018-19, P34).

There are 43 mandals in Visakhapatnam district. Out of these 43 mondals 39 mandal covered under ZBNF only 4 urban mandals not covered, and there are 10 agriculture sub divisions, 51 clusters covered 236 villages in Visakhapatnam both tribal and plain areas.

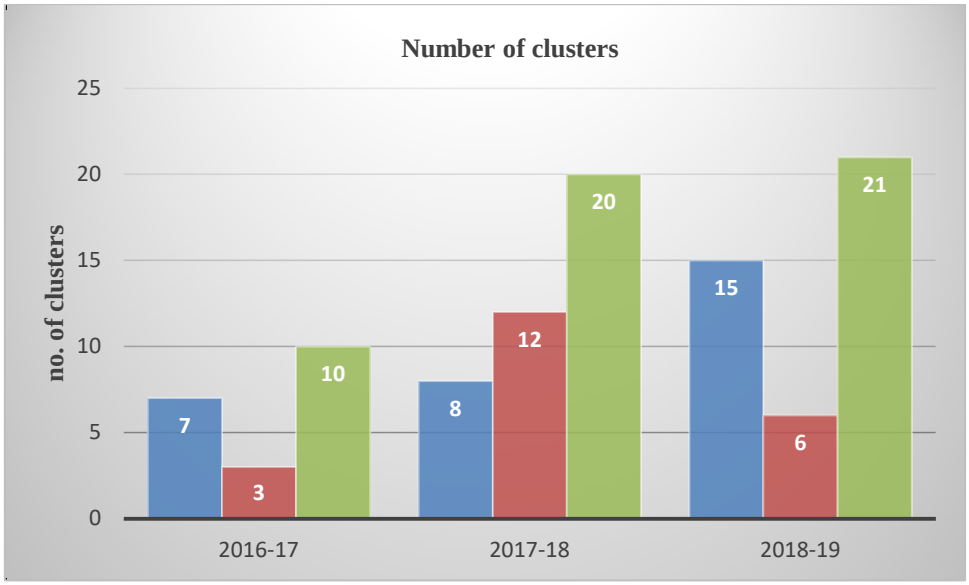
Table 3: The number of Mandals covered under the ZBNF



Source: APZBNF

The above graph shows that the number of mandals gradually increases. The first phase commenced during the year 2016-17 total 10 mandals which consist 7 plain and 3tribal area mandal are covered under the ZBNF. the second phase during the 2017-18 covered 13 mandal which consist 6 tribal mandals and 7 plain area mandals covered under ZBNF. in third phase commenced during the year 2018-19 total 16 mandals are covered under the ZBNF. Only 3 mandals they urban area mandals Gajuwaka, Pedagantyada, Anakapalli are not covered under the ZBNF out 43 mandals.

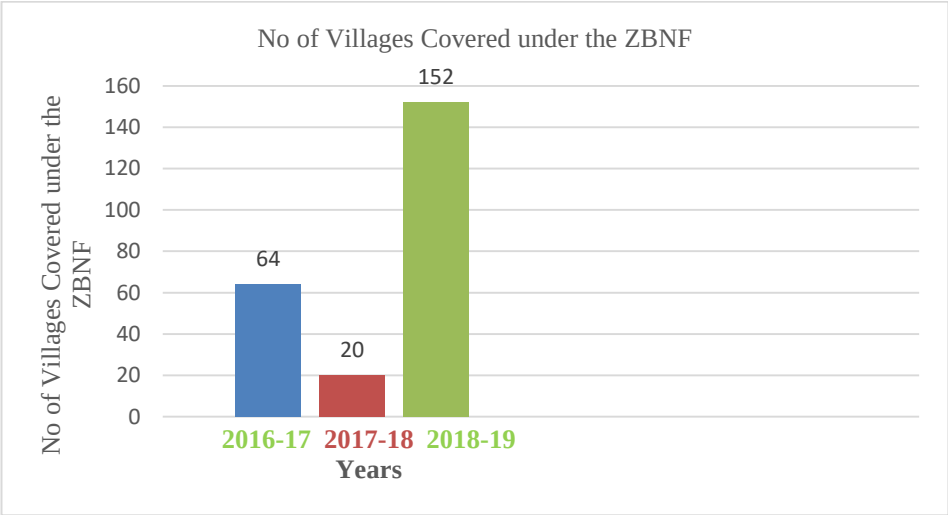
Table 3: Number of ZBNF clusters in Visakhapatnam



Source: APZBNF

The above graph shows the number of clusters covered under ZBNF in three phases. For easy identification of the cluster areas, the bar graph has been showed in three deferent colors. Here in the above bar graph the blue colored bar graph is indicating the number of cluster in the plain areas, where as the orange colored bar graph is showing the number of clusters in the Tribal areas. Finally the gray colored bar graph is the total number of clusters. Each cluster consists of 5 villages. As on today there are 51 clusters in the Visakhapatnam. In the first phase during the year 2016-17 the total numbers of clusters were 10, out of these 10 clusters 7 were of plain area clusters and 3 under tribal area clusters covered under ZBNF program. In the second phase during the year 2017-18 the numbers of plain area clusters were 8 and tribal area cluster were 12 out of 20 clusters were covered. The third phase commenced during the year 2018-19, in which the total clusters were 21, which consisted 15 plain area clusters and 6 tribal area clusters.

Table 4: Number of villages covered under the ZBNF



Source: APZBNF

The above graph shows the number of villages covered under ZBNF in three phases since 2016. There 152 villages were covered under the ZBNF as on the 2018-19 in the 16 mandal

21 clusters. In the first phase 64 villages were covered under the ZBNF in the 10 mandals and 10 clusters. In the second phase during the 2017-18 20 villages covered under the ZBNF in the 20 clusters and 13 mandals.

The overall performance ZBNF in Visakhapatnam

Overwhelmingly the performance of ZBNF in the Visakhapatnam has been gradually increasing. The promotion of ZBNF method of cultivation and regular motivation to convert non ZBNF into ZBNF farmers has been going on in the both tribal and plain areas of Visakhapatnam district. Planning of availability of inputs in the village by creating awareness in village campaigns and meetings by CRPs & CAs. ICRPs and other seed to seed farmers and graduate ZBNF farmers were identified for further expansion and for creating community pool. Best ZBNF practicing farmers Crop Cutting Experiments results are shared among the farmers in the village by conducting Field Days. Crop combinations are to be identified and implemented to break mono- cropping and region specific crops, Promotion of Guli Ragi method of cultivation in agency and plain clusters. ZBNF practices are extended to Coffee, Turmeric, Ginger, Pepper, Mango, Cashew and vegetables and other Horticulture crops.

CONCLUSION

ZBNF is a significant progress in the state of Andhra Pradesh lead by Government of Andhra Pradesh, Rythu Sdhaika Samstha and support from the Azim Premji Philanthropic Initiative (APPI) has been played a pivotal to rise up of ZBNF to 163000 farmers across the all districts of Andhra Pradesh. And the Government targets to cover 6 million farmers in 12924 Gram Panchayats by 2024. The Government of Andhra Pradesh and Rythu Sdhaika Samstha have assured that leverage the social capital for expansion phases of ZBNF in the Andhra Pradesh State. The ZBNF accomplish wide range in the state of Andhra Pradesh and it has created state policy the visible positive state led model with help of local horizontal and collective learning processes by the leadership of women. APZBNF model has inspired many other states of India.

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