
COW-BASED ORGANIC FARMING PROCESSES FOR POOR FARMERS

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ABSTRACT

The significance of consuming healthy and chemical-free meals is constantly rising. Consumers are ready to pay extra for high-quality food. To attain economic emancipation, farmers must embrace this entrepreneurial potential. In this context, one such effort by a farmers' interest organization was studied. In the article, the creation as well as conduct of the group, as well as the group dynamics of the group members, were studied and discussed. Using the case study method, first-hand information was collected via a well-planned interview schedule, in-depth interviews with community members, and the researcher's key findings. The Group Dynamics Index (GDI) was developed to evaluate the dynamics of a group of individuals. This article attempts to disclose a better agricultural technique for poor and marginal land owners in order to improve their earnings. Farmers are being encouraged to spend less and produce more under the zero-budget natural farming program. Jivamrut and Dashparniark, which are produced from cow dung and urine, are utilized by farmers. This has resulted in enhanced soil beneficial micro and macro flora and fauna, as well as a 40 to 45 percent decrease in agricultural expenses. Farmers earn a lot of money when they go to the store to sell their goods. This has revived the traditional mixed-cropping technique and decreased farmers' dependence on the demand for seeds and inputs.

KEYWORDS: *Agricultural Technology Management Agency(ATMA), Cow Farming, Farmer Interest Group (FIG), Group Dynamics, Organic.*

1. INTRODUCTION

People prefer organic food because of the significance of living a healthy life and reports of numerous negative effects from the use of harmful pesticides in processing, artificial ripening agents, and preserving food items. Consumption of organic goods is increasing, nevertheless, product expansion and improvements in registration; production, labelling, and packaging are needed to further drive demand. He also revealed that 39 percent of respondents think the extra cost of organic food is reasonable. Farmers have a great capacity to create products that are in high demand and sell at a profit. Agricultural specialists are unable to incorporate the most research information on sustainable farming and organic agriculture because it is not included in the agricultural sciences curriculum(1,2).

Several non-profit organizations, social entrepreneurs, hobbyists, and fishers, all depending on ITK, offer such valuable information on organic agriculture at the same time. On these kinds of information sources, farmers are frequently preferred. Farmers' common sources of intelligence, include community leader's/family members (84.25 percent) and friends/neighbors/group

members (52.25 percent). He went on to explain that newspapers, television, and radio are both important and trustworthy sources of information for farmers. Motivated farmers have experienced major improvements in their life as a consequence of adopting such natural farming techniques(3).

With the help of ATMA, they had established their own bazaar channel as well as were transmitting entire produce to the closest municipal cities. ATMA helped them by introducing them to different non-pesticide management activities and financially supporting (given four thousand rupees to each member) the construction of concrete platforms to bind the desi cow (cows indigenous to India) on it and for easier collecting of cow's urines. ATMA also made efforts to find a market in order to offer its pesticide-free natural food product at the best feasible price. Farmers in this community are now trying to establish a farmer's business to sell cow-based insecticides and fertilizers to needy farmers in order to encourage natural farming among farmers who do not own a desi cow(4).

Kamalnayan Jamnalal Bajaj Foundation (KJBF) classified Wardha as a distress area in Maharashtra's Vidarbha region. Wardha's economy is mainly centred on agro-based livelihoods, especially agriculture. Today's farmer confronts difficulties such as low productivity, high production prices, crop loss owing to bad weather conditions, disease and insect assaults, and damage from wild animals. Higher dosages of artificial fertilizers and pesticides, as well as growing a single crop every year, were mentioned by farmers as reasons for the poor agricultural situation. To relieve the strain, KJBF developed a zero-budget natural farming intervention and encouraged climate-resilient cropping patterns(5).

2. LITERATURE REVIEW

A. Amareet al. developed to cooperate with nature to create nutritious food, keep ourselves well, and maintain the land healthy via natural farming. Because of its simplicity and economic effectiveness, the traditional technique of natural farming is ideally suited for farming. Natural farming adds to the health, prosperity, and long-term sustainability of agricultural ecosystems. The four pillars of ZBNF are Bijamrit application, Jiwamrit application, Mulching, and Wafasa condition creation. Bijamrit protects young roots from fungus, as well as soil-borne and seed-borne illnesses that typically afflict plants after the rainy season. Jiwamrit not only provides nutrients, but it also acts as a catalytic agent in the soil, promoting the activity of beneficial microorganisms(6).

I. *Badgley et al.* mulching creates the perfect environment for microorganism development. It also manufactures Wafasa, which maintains the necessary moisture level for plant development. Since these formulations are produced from manure, urine of indigenous cows, jaggery, pulses starch, and bitter plant leaves available in the farm's proximity, natural farming reduces the cost of inputs. There has been a lot of discussion recently regarding natural farming. This was repeated when India's Finance Minister responded to farmers' dissatisfaction during the budget session in July 2019 by stating, "We will go back to fundamentals on one count: zero budget farming." It isn't a brand-new idea. This ground-breaking model must be replicated." SubhashPalekar, a Padma Shri awardee, has advocated for Zero Budget Natural Farming (ZBNF) with no external inputs of any sort, including money, for decades(7).

Y. Singh Bagalet al. during 2015-16, the government of Andhra Pradesh has been testing it in chosen blocks of 13 districts, where rice is the main meal and accounts for 30 percent of the cultivated land. Ghanamrutham and Jeevamrutham (liquid) are the two major natural inputs that are termed chemical fertiliser substitutes under ZBNF. By the end of 2018, approximately 1.6 lakh farmers have adopted it, with the government aiming to reach five lakh farmers by 2024. Scaling it up to the entire state in the next five years will cost an additional 15,000 crore. A study was conducted in this respect to examine how the method has reduced development expenses and boosted farmer earnings. When compared to non-adopter lands, ZBNF was shown to have partly

improved soil quality, presumably owing to the quick growth of heterotrophic microbial communities and flora(8).

Research Question:

1. What are the factor Cow-Based Organic Farming Processes for Poor Farmers?

3. METHODOLOGY

3.1 Design:

The Joint Director of Agriculture (JDA) gave inputs for the selection of mandalas at the district level, and Mandal Agricultural Officers helped in the selection of one village from each mandala (MAO). Farmers are chosen at random from a list of ZBNF adopters obtained from MAO. The initial study sample comprised 65 respondents, five ZBNF farmers from each of Andhra Pradesh's 13 districts; however, due to the survey, an additional 32 respondents were included in the sample, bringing the total sample size to 97. The study's main objective is to evaluate the impact of Jeevamrutham / Ghanamrutham on output, cultivation costs, and net returns. To investigate their chemical characteristics, four Ghanamrutham samples (two each from East Godavari and West Godavari districts) and two Jeevamrutham samples (one each from East Godavari and West Godavari districts) were collected. Similarly, four soil samples from treated plots and four soil samples from control plots where paddy is the primary crop and Ghanamrutham has been added were selected for chemical analysis. The dirt is obtained from the same East and West Godavari villages where Ghanamrutham was taken and applied(9).

3.2 Sample:

The community leader was an alumna, moreover the founders were much engaged in the assembly since founders viewed broadcasters as the next uttermost essential medium of leeway communication afterwards radical farmers. The community leader was a graduate, and the founders were extremely interested in this group. This group attracted the founders' interest since, after radical growers, they regarded mass media as the second most important method of extension communication(10).

3.3 Instrument:

The city delegate was a graduate, and the founders were excited about the group. In this article, Fig. 1 and Fig. 2 illustrate the details of educational credentials and their chosen way of extended contact. Agriculture is the primary occupation of all members, and fourteen of the twenty-six members have desi cows. In this category, only three farmers own land of 4.9 to 9.9 in acre. Just 5 acres of land was owned by the remaining farmers. And half of the participants are small-scale farmer (maintain cows of desi breed, obtain 2.9 to 3.9 litres on average of milk per day, and, sell the remainder of the milk to make additional money after satisfying self-daily requirements) (keep cows of desi breed, get 2.9 to 3.9 litres on average of milk per day, and, sell the rest of the milk to earn extra money after fulfilling self-daily needs). The group dynamics were evaluated using the researchers developed group dynamics index (GDI) (Fig. 3).

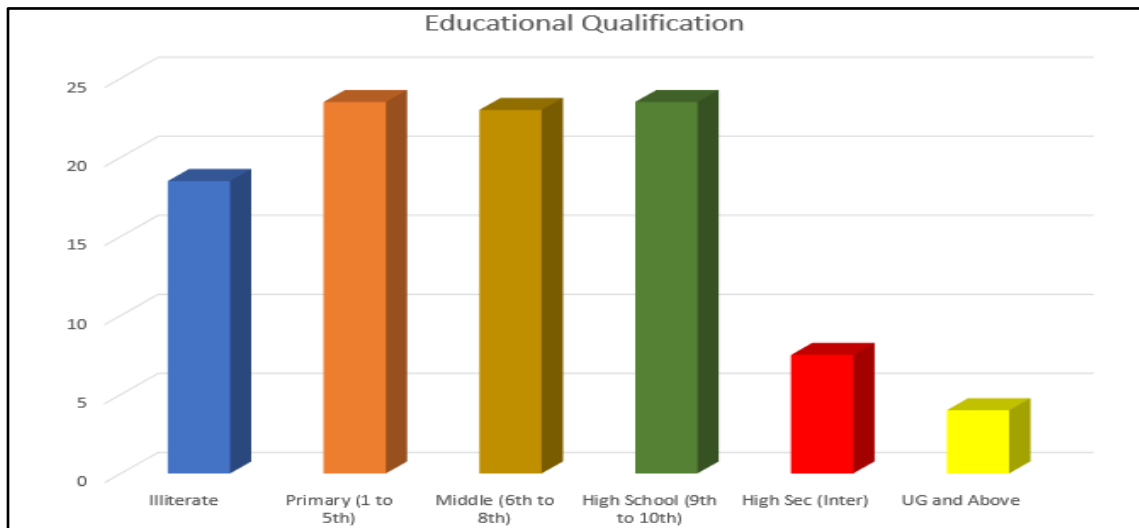


Fig. 1: Members of the Party Have Varying Levels of Education

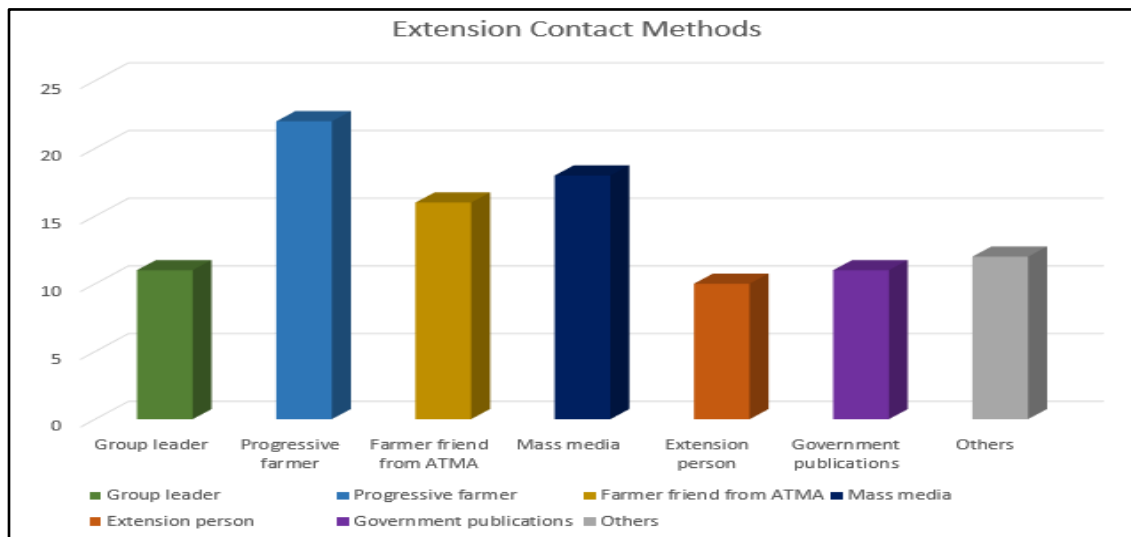


Fig. 2: Defendants Favorite for Leeway Interaction

3.4 Data Collection:

The 10 aspects of the group dynamics index created for this research are: involvement in the group, collaboration, decision-making process, group cohesion, group leadership style, group contact, interpersonal confidence, role structure, adherence to group norms, and goal achievement. A number of indicators were added beneath each dimension following the relevance assessment. Each GDI dimension has a distinct amount of measurements and thus a separate set of total scores. As a consequence, the cumulative score for each dimension was converted to a unit score using the method below.

Where,

$MaxY_j$ = minimum score upon j^{th} dimension

$MinY_j$ = maximum score upon j^{th} dimension

Y_{ij} = value upon j^{th} dimension of i^{th} defendant

U_{ij} = Unit score upon j^{th} dimension of i^{th} defendant

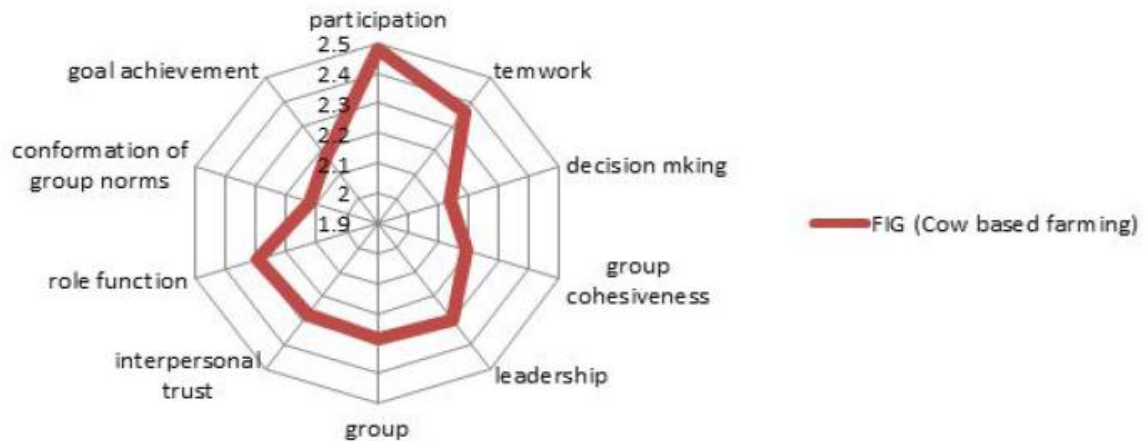


Fig. 3: This Group's Group Dynamics Index Is Compared Across Dimensions

3.5 Data Analysis:

As a consequence, each dimension's score varies when Y_{ij} is lowest from 0.01 to 0.99, i.e., the Y_{ij} is greatest, the score is 0.09 and when the score is 0.01. After that, each respondent's unit score was compounded by the matching scale value of every dimension, besides the total was computed. The observed score was then split by the number of scale value to produce index score value for every defendant. Table 1 displays the results of each respondent's ratings. The group's group dynamics rating is 0.637.

Where,

S_j = the j^{th} component for Scale value

U_{ij} = upon j^{th} dimension Unit score of i th respondent

GDI_i = i th defendant for Group dynamics index score

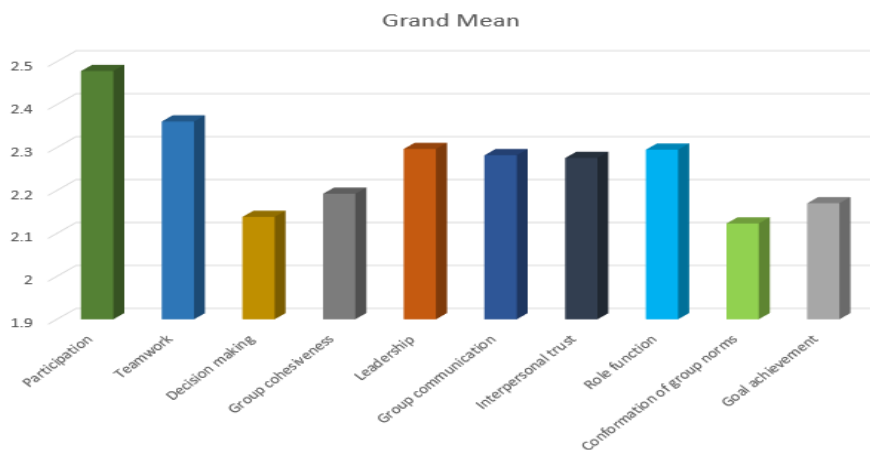


Fig. 4: Group Score for Each Dimension

TABLE 1: MEMBERS OF THE GROUP AND THEIR GROUP DYNAMICS INDEX (GDI) SCORE

Respondents	GDI score
1	0.497946
2	0.538485
3	0.77726
4	0.763525
5	0.53364

6	0.789735
7	0.676573
8	0.598652
9	0.521173
10	0.503007
11	0.692568
12	0.726786
13	0.77709
14	0.672127
15	0.594566
16	0.525616
17	0.51155
18	0.68848
19	0.724226
20	0.740857
21	0.686912
22	0.589433
23	0.516039
24	0.501962
25	0.68848
26	0.733805

4. RESULT AND DISCUSSION

According to the study, the highest score given to members of the party is 2.478, followed by coordination (2.360), leadership (2.296), and so on. The scores obtained for each dimension are presented in Fig. 4. Farmers have been inspired in many areas, according to the study, including their participation in development programmes, improved communication and leadership skills, and the active maintenance of their engaged party. Farmers learned to seek help from the extension system, and they found that service providers responded to their concerns. Enrolment in this group improved their social status. Finally, the cheap cost of cultivation and high returns from the agricultural method they adopted were the sole elements that enabled these small and marginal farmers to attain economic empowerment.

It was a tried and tested agricultural method that they had been employing for more than five years. Farmers were keen to share their agricultural techniques with the rest of the farming world as a consequence of their adaptive experiments. This article covers a few key methods and economics. Natural farming relies on cows: These seasoned farmers claim which one cow of desi breed is sufficient to maintain up to land of 59.9 acres. Farmer helps co-farmer who are unable to keep cows of desi breed. They work together as a team, sharing contributions and effort, helping one another and achieving the desired results. They sell to adjacent metropolitan cities after merging all of their goods. Farmers who pursue such activities would spend no more than four thousand rupees on agriculture, which is a reasonably cheap expenditure (with synthetic fertilizers plus pesticides in their area the cost of cultivation is Rs 19,999 to 24,999 per acre).

In terms of field mechanisation, manual weed control, transplanting, and harvesting, this type of farming would be comparable to conventional farming. They produce their own fertilizers, insecticides, fungicides, and growth boosters using locally accessible resources such as cow manure, cow dung, as well as the other natural contributions. Fertilizers that they keep besides usage include: Ghana jeevamrutam (solid fertiliser) and Drava jeevamrutam (liquid fertiliser) are two types of fertilizers that they usually utilize (liquid fertilizer). They created and utilized a range

of insecticides.

Decoction prepared with Aeglemarmelos, Asafoetida, as well as the fermented buttermilk were sprayed on any illness that needed to be treated. Table 2 includes the details of insecticides and fungicides, as well as their applications. Both major components are naturally available and frequently free of charge, such as weeds, forest tree species, and so on. Farmers that adopt these techniques won't have to spend any more money on crop security. These chemicals are sprayed by community members according to the stage of the crop to prevent pests and illnesses from infecting the rice crop. The Farmer is very positive about the product, plus their fame has simply aided to encourage co-farmer to connect them.

TABLE 2: MEMBERS OF THE COMMUNITY USED NATURAL PESTICIDES AND FUNGICIDES

Pesticides / Fungicides	Use
Neemastram	To control sucking pests and small insects
Agni astram	To control borers, caterpillars
Brahmas tram	To control leave eating larvae
Decoction from Aeglemarmelos	To avoid and control blast diseases
Fermented buttermilk	To avoid and control all type of spots on leaves and fruits etc.
Asafoetida decoction	To avoid and control bacterial diseases and best used for paddy sheath blight.

In addition, the researchers observed a robust crop with a large number of tillers on newly cultivated ground. The researcher noticed the farmers' concern for crop safety and development, as well as their willingness to share their knowledge. The real achievement is in finding the right market for the product, with farmer selling hundreds of rupees more for a single rice bag cultivated organically. Members of the community have established a very strong bazaar channel as well as are exporting the produce to the neighbouring municipal towns with the help of ATMA and a few other outlets. These farmers say that this type of farming produces greater profits at a cheaper cost of agriculture, and that it frequently offers consumers with a better lifestyle because no pesticides are used in the production process.

5. CONCLUSION

This type of case study is extremely unique to the discipline. There has been no scientific study so far to validate this kind of uplift technique for broad spectrum usage. Agricultural practitioners, without a doubt, lack such knowledge. Adaptive trials are the sole method for interested farmers to practice. This article makes a case for legislators to include problems like organic farming, zero-budget natural farming, and other related subjects in agricultural science curriculum. This FIG is a live example of farmers creating their own community with the help of the extension organization ATMA. Farmers' efforts should be acknowledged by extension practitioners, who should assist them by delivering effective service. Farmers would explore cow-based natural farming for the first time after visiting such farms and getting first-hand experience. This type of farming, is anticipated, would flourish in India's ever-green transition, providing food security for customers and economic stability for vulnerable, rural, and impoverished farmers.

REFERENCES

1. Aryal KP, Chaudhary P, Pandit S, Sharma G. Consumers' Willingness to Pay for Organic Products: A Case From Kathmandu Valley. *J Agric Environ*. 2009;10:15–26.
2. Aryal P, Bhuju DR, Thapa-Parajuli RB, Meiners SJ. Economic and ecological comparison of organic and non-organic farming: A case of green economy in Nepal. *Int J Green Econ*. 2015;

3. Neelam HSC, Kadian KS. Cow based natural farming practice for poor and small land holding farmers: A case study from Andhra Pradesh, India. *Agric Sci Dig - A Res J.* 2016;36(4).
4. Sarat Chandra NH, Kadian KS, Baliram Kale R. Identifying the Factors Affecting Coordination among Different Agencies with ATMA in Andhra Pradesh, India. *Int J Curr Microbiol Appl Sci.* 2017;6(11):890–9.
5. Guilford JP. *Psychometric methods*, 2nd ed. Psychometric methods, 2nd ed. 1954. ix, 597–ix, 597.
6. Amare A, Simane B. Determinants of smallholder farmers' decision to adopt adaptation options to climate change and variability in the Muger Sub basin of the Upper Blue Nile basin of Ethiopia. *Agric Food Secur.* 2017;6(1).
7. Badgley, C., Moghtader, J., Quintero, E., Zakem, E., Chappell, M.J., Avilés-Vàzquez, K., Samulon, A., and Perfecto I. Organic agriculture and the global food supply. *Renewable Agriculture and Food Systems* 22. *Renew Agric food Syst.* 2007;22(2):86–108.
8. Singh Bagal Y, Sharma LK, Kaur GP, Singh A, Gupta P. Trends and Patterns in Fertilizer Consumption: A Case Study. *Int J Curr Microbiol Appl Sci.* 2018;7(04):480–7.
9. Sukhdev P, May P, Müller A. Fix food matrix. *Nature.* 2016;
10. Hardeweg B, Waibel H. Economic and environmental performance of alternative vegetable production systems in Thailand. *Sustain Food Secur Manag Nat Resour Southeast Asia - Challenges 21st Century.* 2002;