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A comparative study on adoption level of paddy growers about natural farming and conventional farming practices

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Abstract
The study involved 120 sample respondents and was conducted in natural and conventional crop fields in the Nellore district of Andhra Pradesh. Sixty farmers engaged in natural farming practises, and the other sixty engaged in conventional farming. Using a purposive sample strategy, 30 farmers were chosen from each hamlet. With the main objective of identifying the adoption of natural and conventional farming methods by paddy growers, the data were gathered using a well-structured interview schedule. Paddy is a crucial crop in the Naidupeta block. The study discovered that the majority of respondents (50.70%) adopted natural farming practises to a medium extent, followed by high and low levels of adoption, and that the majority (48.30%) had a medium level of knowledge about conventional farming practises, followed by low and high levels of knowledge. The development of appropriate measures to strengthen the practises would be aided by farmers' understanding of natural and conventional paddy farming techniques.

Keywords: adoption level, disease management, field management, inter-cultural operations, manures and seed type

1. Introduction
The purpose of this study is to look into current farming practises in the region's Nellore district. There is no budget. Natural farming is a newer practise in Andhra Pradesh, where it is widely used for important crops like paddy, sugarcane, groundnuts, and vegetable crops. Natural farming adheres to the values of ecology, care, and health for all, including the land, with the goal of promoting human happiness while minimising environmental impact. With its innovative programme on climate-resilient, natural farming, the Andhra Pradesh government hopes to reach more than 6 million farmers by 2024. With its innovative programme on climate-resilient, natural farming, the government of Andhra Pradesh hopes to reach more than 6 million farmers. Paddy is the most widely grown crop, with farmers employing both natural and conventional farming methods. As a result, the current study was conducted among paddy growers. The level of adoption of natural and conventional paddy farming approaches by farmers would aid in the development of appropriate measures to strengthen the practises. With this in mind, the current study was carried out in Andhra Pradesh's Nellore district as a pioneering effort to examine paddy farmers' understanding of approved natural farming and conventional farming practises. The Andhra Pradesh government established the Rythu Sadhikara Samtha (RYSS) in 2015, a state-owned, non-profit organisation dedicated to introducing ZBNF practises to all farmers in the Indian state of Andhra Pradesh (Amitendu and Paraparakath, 2019).

2. Materials and Methods
To accomplish this goal, an ex-post facto research design was used in this study. The study was carried out in the Andhra Pradesh district of Nellore. Four villages from the Naidupeta block, namely Annamedu, Chilamaturu, Kuchivada, and Kapuluru, were chosen for this study using the same criteria as the other 46 blocks. The study included a total of 120 farmers, with 60 using natural farming practises and the other 60 using conventional agricultural practises. Using a deliberate purposive sample, we chose 30 farmers from each hamlet. Data was collected using a well-structured interview schedule. Descriptive statistics in the form of frequencies and percentages were used to provide a meaningful interpretation of the results (Hejase and Hejase, 2013). The cumulative frequency approach was also used based on respondents' adoption levels (low, medium, and high).

3. Results and Discussions

Adoption is the process of fully utilising the technology requested by clients. As a result, an effort was made to determine how far farmers were implementing the recommended natural farming practises in paddy. The results of the respondents' use of suggested natural paddy farming methods are presented in the following two categories.

3.1. Overall adoption level of the respondents under Natural Farming

3.2. Overall adoption level of the respondents under Conventional Farming

3.3. Practice -wise adoption level of the respondents under Natural Farming

3.4. Practice -wise adoption level of the respondents under Conventional Farming

3.1. Overall Adoption Level of the Respondents under Natural Farming

Table 1: Distribution of respondents according to their overall adoption level on the recommended natural farming practices in paddy (n = 120)

S. No.	Category	Number	Per cent (%)
1.	Low	23	38.20
2.	Medium	30	50.70
3.	High	07	11.10
	Total	60	100.00

According to Table 1, the majority of respondents (50.70%) adopted the recommended natural farming practises for paddy at a medium level, with low adoption (38.20%) and high adoption (11.10%) levels. Natural farming methods, according to respondents, increase soil microorganisms, improve soil organic enrichment, preserve soil physical qualities, promote cost-savings on cultivation, and recycle farm resources.

The respondents' medium level of adoption may be attributed to their greater knowledge of recommended natural farming practises, good experience in natural farming practises, higher education status, greater number of trainings undergone, and higher perception of natural farming. These are the most likely explanations for the study's medium to high (50.70%) level of adoption. They would have been more likely to adopt natural farming practises if they had a medium to high level of extension agency contact, innovativeness, training received, livestock ownership, and risk orientation. The vast majority of respondents had farm animals. Farmers' medium to high perception of natural farming practises is another reason for increased adoption. The findings above are consistent with those of Lichtfouse (2020), who reported that the majority of respondents adopted natural farming practises at a medium level, followed by low and high levels.

3.2. Overall Adoption Level of the Respondents under Conventional Farming.

Table 2: Distribution of respondents according to their overall adoption level on the recommended conventional farming practices in paddy (n = 120)

S. No.	Category	Number	Per cent
1.	Low	16	26.40
2.	Medium	29	48.30
3.	High	15	25.30
	Total	60	100.00

According to Table 2, the majority of respondents (48.30%) adopted recommended natural farming practises in paddy at a medium level, followed by low (26.40%) and high (25.30%) levels of adoption. Natural farming practises are environmentally friendly, increase soil microorganisms, improve soil organic enrichment, maintain soil physical properties, reduce cultivation costs, and recycle farm resources, according to respondents. The respondents' pronounced medium adoption rate may be attributed to their higher level of familiarity with the advised natural farming techniques, solid background in natural framing techniques, higher educational status, more trainings they have taken, and higher perception of natural farming. These are probably the causes of the study's medium adoption rate (48.30%). If they had experienced a medium to high level of extension agency contact, ingenuity, trainings received, livestock ownership, and risk orientation, they would have been encouraged to adopt natural farming practises. The vast majority of respondents had farm animals. Farmers' medium to high perception of natural farming practises is another reason for increased adoption.

The respondents' medium level of adoption could be attributed to their higher knowledge of recommended natural farming practises, good experience in natural framing practises, higher education status, greater number of trainings completed, and higher perception of natural farming. These are most likely the reasons for the study's medium level of adoption (48.30%). They would have been motivated to adopt natural farming practises if they had had a medium to high level of extension agency contact, innovativeness, training received, livestock ownership, and risk orientation. The vast majority of respondents had farm animals. Farmers' medium to high level of perception of natural farming practises is another reason for increased adoption.

3.3. Practice wise adoption level of the respondents under natural farming.

The results of an effort to determine respondents' practice-wise adoption levels were analysed.

Table 3: displays the distribution of respondents based on their practice-wise adoption levels

S. No.	Practices	Number	Per cent (%)
1.	**Seed type**		
a)	Certified organic seeds used for sowing	47	78.33
2.	**Field management**		
a)	Applying farm yard manure @ 12.5 t/ha	41	68.33
b)	Incorporation the crop residues after the harvest of the previous crop	38	63.33
3.	**Seed treatment**		
a)	Seed treatment with beejamruthum	39	65.00
b)	Seed treatment with panchagavya	37	61.66
c)	Seed treatment with phosphorous solubilizing bacteria & Azo-spirillum before transplanting	31	51.66

4.	**Inter cropping**		
a)	Paddy +Black gram	36	60.00
b)	Paddy +Green gram	32	53.33
c)	Paddy +Sesame	25	41.66
d)	Paddy +Finger millet	24	40.00
5.	**Manures & Fertilizers**		
a)	Application of 2 tonnes of farm yard manure per acre during last ploughing	41	68.33
b)	Application of 2 tonnes of vermicompost per care during last ploughing	35	58.33
6.	**Inter cultural operations**		
a)	Following inter-cultivation once 45 days after sowing & hand weeding twice for weed control	40	66.66
7.	**Pest management**		
a)	Spraying neem seed kernel extract to control yellow stem borer damage in paddy	36	60.00
b)	Applying neem cake to nursery to control green leaf hopper damage in paddy	33	55.00
8.	**Disease management**		
a)	Spraying 20% of fresh cow dung to control bacterial leaf blight in paddy	47	78.33
b)	Spraying of neem oil 3% to control sheath rot in paddy	36	60.00

3.3.1. Seed type

In accordance with Table 28, 78.33% of respondents firmly believe that using certified organic seeds for sowing is essential for reducing the need for harmful chemicals, preventing the spread of disease, and controlling pest populations.

3.3.2. Field management

The results show that 12.5 t/ha of farm yard manure was applied to paddy grown using organic farming practises by 68.33% of respondents. Given that farmyard manure contains all of the macro and micronutrients necessary for plant growth, this clearly shows that respondents understand the importance of spreading it on paddy. 63.33% of respondents said they continued to use crop residues in the same field after harvesting the previous crop. This unequivocally proves that the respondents are aware of the importance of adding crop residues to the field. This lessens soil particle separation, which lessens wind and water erosion.

3.3.3 Seed Treatment

As a result, 65.0% of respondents used beejamruthum seed treatment to shield plants from diseases that are spread through the soil and seeds. With jeevamuruthum, which encourages the activity of soil microorganisms and boosts the activity of soil earthworms, about 61.66 percent of respondents treated their seeds. 51.66 percent of respondents treated their seeds with Azo-spirillum and phosphorus-solubilizing bacteria before transplanting. Beneficial bacteria are able to distinguish between insoluble compounds and inorganic phosphorus.

3.3.4. Intercropping

Sixty percent of respondents, followed by fifty three percent of respondents, have adopted the practise of intercropping paddy with Black gramme and Green gramme, respectively. This increases the soil's fertility. The practise of intercropping paddy with sesame and finger-millet has been adopted by roughly 41.66 percent and 40.00 percent of respondents, respectively, to reduce the risk of yield reduction or crop failure.

3.3.5. Manures & Fertilizers

The findings in Table 28 indicate that 68.33 percent of respondents agreed that applying 2 tonnes of farmyard manure per acre during the most recent ploughing would add humus and allow nutrients to slowly release into the soil. The majority of respondents (58.33%) agreed to spread 2 tonnes of vermicompost per acre during the most recent ploughing because earth worms turn the soil fertile by releasing nutrients when they turn the field.

3.3.6. Intercultural Operations

Results from Table 28 indicate that 66.66% of respondents practised inter-cultivation once 45 days after sowing and hand weeding twice for weed control, which keeps the soil moist during the dry season and cool during the hot and dry season.

3.3.7. Pest management

The results from Table 28 show that neem seed kernel extract was sprayed on paddy fields to prevent yellow stem borer damage. 60% of those surveyed claimed it was effective. A little over 40% of those surveyed thought spreading neem cake around nurseries could lessen the harm that green leaf hoppers do to paddy fields.

3.3.8 Disease Management

In order to prevent bacterial leaf blight, rice fields are sprayed with 20% fresh cow dung, as shown by the data in Table 28, which reveals that 78.33% of respondents have adopted this practise. About 60% of respondents used a 3 percent neem oil spray to prevent paddy sheath rot.

3.4. Practice wise adoption level of the respondents under conventional farming

The level of practice-wise adoption of the respondents was investigated, and the findings were analysed. Table 4 displays the distribution of respondents based on their levels of practice-wise adoption.

Table 4: Practice wise adoption level of respondents on the recommended conventional farming practices in paddy

S. No.	Practices	Number	Per cent (%)
1.	**Seed type**		
a)	Uncertified organic seed used for sowing	47	78.33
2.	**Field management**		
a)	Keeping the land as fallow after harvesting of the crop	41	68.33
b)	Harvesting the crop closer to ground level.	44	73.33
3.	**Seed treatment**		
a)	Seed treatment with Thiram	32	53.33
b)	Seed treatment with Carbendazim	36	60.00
c)	Seed treatment with Tricyclazole 75WP.	21	35.00
4.	**Manures & Fertilizers**		
a)	Application of inorganic fertilizers	40	66.66
b)	Application of inorganic manures to meet nutrient requirement.	22	36.66
5.	**Inter cultural operations**		
a)	Application of Butachlor 400 -600 litres /ha, for weed control	35	58.33
b)	Weeds are controlled using a cono- weeder in paddy crop.	31	51.66
6.	**Pest management**		
a)	Soaking root seedlings in 0.02% chlorpyriphos for 12-14 hours before transplanting to control yellow stem borer damage in paddy.	38	63.33
b)	Spraying of Phorate 10G to control green leaf hopper damage in paddy.	30	50.00
c)	Spraying of Methyl Parathion to control ear head bug damage in paddy.	34	56.66
d)	Spraying of Phosphamidon 100EC @1.5ml/litre of water to control Rice Hispa damage in paddy.	27	45.00
7.	**Disease management**		
a)	Spraying of Agrimycin 100+Fytolon to control bacterial leaf blight in paddy.	48	80.00
b)	Spraying of Edifenphos 1litre /ha to control sheath rot in paddy.	37	61.66
c)	Spraying of Tricyclozole 0.6g /litre.	36	60.00

3.4.1. Seed type
In Table 4, it is evident that (78.33%) of the respondents firmly believed that non-organic seeds had been genetically modified using a variety of conventional farming techniques.

3.4.2. Field management
The findings indicate that 73.33% of farmers harvested their crops at or very near ground level. It is clear from this that the respondents understand how important it is to control soil-borne diseases and remove all crop residue. The vast majority of respondents (68.33%) preferred to leave the land fallow after the paddy crop, which was grown using traditional agricultural methods, was harvested. This demonstrates categorically that those who are responding are aware of the importance of disrupting the life cycles of soil-borne diseases and pests.

3.4.3. Seed Treatment
As a result, 60.0% of respondents began applying carbendazim to their seeds, which helps to shield seedlings from the Blast disease for up to 40 days. Thiram was applied to seeds to prevent germination and seedlings from diseases that are soil- and seed-borne in nearly 53.33 percent of respondents, and Tricyclazole 75WP was applied to seeds to prevent leaf blast in rice crops in 35.0% of respondents.

3.4.4. Manures & Fertilizers
According to Table 29, 66.6 percent of respondents used inorganic fertilisers to increase ground cover, reduce water runoff, and reduce the risk of soil erosion. Inorganic manures were used by 36.66% of respondents to meet their nutrient needs. These nutritional salts dissolve quickly, releasing the nitrogen, phosphorus, and potassium they contain to the plants that rely on them for vital nutrition.

3.4.5. Intercultural Operations
According to the findings, 58.33% of respondents used butachlor applications of 1.25 kg/ha for weed control. About 51.66 percent of respondents used a cono-weeder to control weeds in paddy crops.

3.4.6. Pest management
According to the findings, 63.33 percent of respondents agreed to soak root seedlings in 0.02 percent chlorpyriphos for 12-14 hours prior to transplantation to prevent yellow stem borer damage to paddy. Approximately 50.0 percent of respondents used Phorate10G to prevent damage from green leaf hoppers in paddy fields, 56.66 percent used Methyl Parathion to prevent damage from ear head bugs in paddy fields, and 45.0 percent used Phosphamidon 100EC @1.5ml/lit of water to prevent damage from Rice Hispa in paddy fields.

3.4.7. Disease Management
According to Table 29, 80.00% of respondents used spraying Agrimycin 100+Fytolon to prevent bacterial leaf blight in paddy fields. About 61.66 percent of respondents used spraying Edifenphos 1 lit/ha to prevent sheath rot in paddy, while about 60.00 percent used spraying Tricyclazole 0.6g/lit.

4. Conclusion
According to the findings, the vast majority of paddy growers had a medium level of knowledge about natural farming and conventional farming methods. They are highly skilled in the procedures for growing green manure crops, spraying Neem seed kernel extract, and applying Agnistra to combat yellow stem borers. Seed treatment with Beejamrutha is one of the procedures. Hand weeding and inundation are two methods of weed control. Neem and Datura extracts are frequently used to control sucking pests.

Pulse crops like Black-gram and Green-gram, which have a medium level of expertise, were frequently intercropped. When paddy was grown alongside finger millet as an intercrop, techniques like Panchagavya Sesamum seed

treatment were used. They knew very little about the common practise of field preparation known as premonsoon dry sowing.

In methods like mechanical harvesting, cypermethrin 10EC is used to control sucking pests. They were more knowledgeable about carbendazim seed treatment. Field preparation techniques to restore soil fertility include the application of ferrous and zinc sulphate. The most popular weed control technique is butlachlor (400-600 lit/ha). Carbofuran 6 percent G controls yellow stem borers. Pendimethalin 2.5 lit/ha is frequently used to control weeds. They are literate to a moderate degree. One of the methods is Pretilachlor + Safner 0.3kg/ha for weed control.

Captan is used to treat seeds. Using Chloropyripos 2ml/lit of water to control yellow stem borers. They were unfamiliar with Imidacloprid, which is used to control sucking pests at a concentration of 1 mL per 2.5 litres of water. Field visits and demonstrations of the aforementioned techniques, in which respondents with less knowledge are identified, would help to close the knowledge gap. The current investigation was limited by a lack of literature because there have been very few previous studies in this dimension with a focus on Natural Farming and Conventional Farming. As a qualitative study, the farmers' responses to questions about their knowledge and feelings were very important. As a result, the responses' validity and generalisations may be applicable in similar situations.

5. References

1. Adnan N, Nordin SM, Bahruddin MA, Tareq AH. A state-of-the-art review on facilitating sustainable agriculture through green fertilizer technology adoption: Assessing farmers behavior. Trends in Food Science & Technology. 2019;86:439-452.
2. Awotide BA, Karimov AA, Diagne A. Agricultural technology adoption, commercialization and smallholder rice farmers' welfare in rural Nigeria. Agricultural and Food Economics. 2016;4(1):1-24.
3. Musshoff O, Hirschauer N. Adoption of organic farming in Germany and Austria: an integrative dynamic investment perspective. Agricultural Economics. 2018;39(1):135-145.
4. Mzoughi N. Farmers adoption of integrated crop protection and organic farming: Do moral and social concerns matter? Ecological Economics. 2019;70(8):1536-1545.
5. Si R, Lu Q, Aziz N. Does the stability of farmland rental contract & conservation tillage adoption improve family welfare? Empirical insights from Zhangye, China. Land Use Policy. 2021;107:105486.
6. Wididana G, Wigenasantana M, Higa T. Application of Effective Microorganism (EM) and Bokashi on Natural Farming. Bulletin Kyusei Nature Farming. 2017;3(2):47-54.
7. Wilbois KP, Schmidt JE. Reframing the debate surrounding the yield gap between organic and conventional farming. Agronomy. 2019;9(2):82.
8. Wollni M, Andersson C. Spatial patterns of organic agriculture adoption: Evidence from Honduras. Ecological Economics. 2017;97:120-128.