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Assessment of relationship between farmers socio-economic profile characteristics with perception, adoption and future outlook towards natural farming in Tamil Nadu

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Abstract

Natural farming has emerged as a key force driving India's sustainability agenda, offering an alternative option to the resource - intensive conventional practices used for Green Revolution. While government schemes such as the National Mission on Natural Farming (NMNF) address the supply side through support and training, actual uptake depends on demand-side factors namely farmers' perception, extent of adoption and future outlook. The present study examines the relationship between farmers' profile characteristics and the selected three cognitive dependent factors to determine the decision making among natural farming practitioners in Tamil Nadu. Primary data were collected from 120 respondents from three districts namely Tiruvannamalai, Tiruchirappalli and Ramanathapuram, possessing the highest acreage under natural farming, using a pre-tested interview schedule using simple random sampling through household surveys, interviews and focus group discussions and field observations. The collected data was subjected to data analysis through Karl Pearson's coefficient of correlation. Results showed that nine of nineteen profile characteristics, including experience in natural farming (0.259, 0.482, 0.241), trainings undergone (0.318, 0.317, 0.398), social participation (0.256, 0.277, 0.274), extension contact (0.476, 0.515, 0.282), innovativeness (0.258, 0.244, 0.304) and risk orientation (0.249, 0.265, 0.264) significantly influenced perception, adoption and future outlook, respectively. Demographic characteristics like age, education and land holding showed no significant association. Experiential and institutional characteristics, rather than demographic characteristics, drive adoption and highlighting the importance for need-based training and stronger community platforms to sustain farmer-driven uptake scheme like the NMNF.

Keywords: Adoption, future outlook, Karl Pearson's coefficient of correlation, natural farming, perception, profile characteristics

Introduction

The roots of Natural Farming lie in the work of Japanese farmer-philosopher Masanobu Fukuoka, whose ideas later reshaped to suit India's ecological diversity by pioneers such as Dr. Pratap C. Aggarwal, who developed "Rishi Kheti" and Padma Shri Subash Palekar, who popularised Zero Budget Natural Farming rooted in traditional Indian practices. "Natural Farming (NF) is a chemical-free farming, involving livestock (preferably local breed of cow) integrated farming methods and diversified crop systems rooted in Indian traditional knowledge. It recognises the interdependence of the natural ecosystem amongst soil, water, microbiome, plants, animals, climate and human requirements (National Mission on Natural Farming, 2026) [8]." It includes five critical components: Jeevamrit, Beejamrit, Mulching, Whapasa and Plant protection (MANAGE, 2023) [7]. Jeevamrit serves as a natural growth-boosting solution, Beejamrit protects seeds from soil and seed borne disease and

Whapasa maintains air-moisture balance in soil. The Green Revolution transformed our country from a food-deficient nation into a largely self-reliant, however this achievement came with significant trade-off, including soil degradation, groundwater depletion and biodiversity loss as water-intensive rice and wheat displaced indigenous millets, pulses and rice varieties. This has positioned Natural Farming as central to India's sustainability agenda. NITI Aayog (2022) describes NF as a shift: "A New Paradigm for Indian Agriculture: from Agroindustry to Agroecology" and FAO (2022) [2] linked it to contributing to 169 SDG targets. UNEP also highlighted the progress in addressing soil degradation, groundwater decline and monocropping through natural farming in "How natural farming is transforming food production in southern India" (UNEP,2026) [11]. Tamil Nadu was among the early adopters of the Green Revolution, driven by widespread adoption of hybrid seeds, mechanisation and borewell irrigation to boost agricultural

production and productivity. However, growing dependence on purchased seeds and chemical inputs pushed many farmers into a debt trap and gradually eroded the notion of practicing farming is profitable. (Anugula,2024) ^[1]. In response to this growing distress, Dr. Nammalvar's grassroots work laid the foundation for the state's natural farming movement, inspiring farmers across the state to this day. Furthermore, this momentum has been reinforced by central government schemes such as the Paramparagat Krishi Vikas Yojana (PKVY), the Tamil Organic Farming Policy (2023) and the National Mission on Natural Farming (NMNF), driving the state's policy shift towards natural farming.

However, government schemes such as the National Mission on Natural Farming (NMNF) address the supply side through support and training, while actual uptake depends on demand-side factors namely farmers' perception, extent of adoption and future outlook. Existing studies have examined these dimensions in isolation, with limited region-specific evidence for Tamil Nadu linking farmer characteristics to these cognitive factors. This study addresses this gap by examining the statistical relationship between farmers' profile characteristics (socio-economic, psychological, communicational, and institutional) and their perception, extent of adoption, and future outlook towards natural farming. Examining these relationships are important to study because these three dependent variables form a connected sequence: perception shapes the decision to adopt, and the experience of adoption shapes farmers' future outlook. Identifying the characteristics that influence each stage can guide the design and targeting of extension strategies, inform ongoing and upcoming schemes such as the

NMNF and support the wider adoption and upscaling of natural farming among Tamil Nadu farmers.

Materials and Methods

An exploratory research design was followed, where the selection of Tamil Nadu as the study area was purposive owing to the researcher's familiarity with the region and its language. In this state, three districts with the highest acreage under natural farming (according to NMNF,2025) ^[9], namely Tiruvannamalai, Tiruchirappalli and Ramanathapuram, were selected. From each district, one block with predominant natural farming was selected to make a total of three blocks. Eight villages were randomly selected from these blocks and 120 respondents were finalized through simple random sampling (@15 farmers per village). A pre-tested structured interview schedule formed the main tool for primary data collection, supported by focus group discussions and field observations. Detailed schedules conforming to validity and reliability were formulated to understand the perception, extent of adoption and future outlook towards natural farming along with 19 profile variables. Data analysis was carried out in Microsoft Excel and IBM SPSS, applying Karl Pearson's coefficient of correlation to establish the relationship between respondents' profile characteristics with their perception, adoption and future outlook towards natural farming.

Results and Discussion

From the total scores obtained from each profile variables and the perception, adoption and future outlook of natural farming relationship was ascertained and displayed in Table 1.

Table 1: Relationship between profile characteristics and farmers' perception, extent of adoption, future outlook of natural farming

S. No.	Profile characteristics	Correlation coefficient (r) of farmers' perception	Correlation coefficient (r) of extent of adoption	Correlation coefficient (r) of future outlook
X ₁	Age	-0.044	0.056	-0.055
X ₂	Education	0.151	0.009	0.098
X ₃	Land holding	0.067	0.136	0.023
X ₄	Family type	0.109	0.015	0.031
X ₅	Family size	0.100	0.010	0.105
X ₆	Livestock possession	0.217*	0.245**	0.143
X ₇	Occupation	0.234*	0.260**	0.249**
X ₈	Annual income	0.483**	0.088	-0.056
X ₉	Overall farming experience	-0.167	-0.056	-0.077
X ₁₀	Natural farming experience	0.259**	0.482**	0.241**
X ₁₁	Resource utilization behaviour	0.076	0.193*	0.123
X ₁₂	Trainings undergone	0.318**	0.317**	0.398**
X ₁₃	Social participation	0.256**	0.277**	0.274**
X ₁₄	Extension contact	0.476**	0.515**	0.282**
X ₁₅	Mass media utilization	0.272**	0.253**	0.195*
X ₁₆	Innovativeness	0.258**	0.244**	0.304**
X ₁₇	Risk orientation	0.249**	0.265**	0.264**
X ₁₈	Economic motivation	0.258**	0.148	0.159
X ₁₉	Environmental consciousness	0.496**	0.470**	0.212*

NS – Non-significant, * Significant at 5% level, ** Significant at 1% level

As shown in Table 1, six profile characteristics such as innovativeness (0.258, 0.244, 0.304), trainings undergone (0.318, 0.317, 0.398), experience in natural farming (0.259, 0.482, 0.241), social participation (0.256, 0.277, 0.274), extension contact (0.476, 0.515, 0.282), risk orientation (0.249, 0.265, 0.264) exhibited a positive and highly

significant relationship with all three dependent variables. These findings highlight the combined influence of these characteristics across all three dependent variables. Among these extensions contact and trainings undergone emerged with the highest correlation values. These results align with the results reported by Kumar (2023) ^[6], Gamit (2024) ^[3] and

Harini (2021) ^[4], Kaoser (2022) ^[5] with perception and adoption, respectively.

Experience in natural farming allows farmers to first recognize its benefits through direct involvement, then adopt recommended practices with greater confidence and eventually develop long-term conviction from witnessing sustained results. Trainings undergone build the knowledge and skills that shape a favourable perception, support fuller adoption and keep farmers updated on future developments. Social participation and extension contact work through peer exchange and technical guidance, respectively by first building awareness, then enabling adoption and finally sustaining confidence through continued support. Innovativeness and risk orientation reflect an underlying openness to change that makes farmers more receptive to perceiving, adopting and anticipating future opportunities in natural farming.

Occupation was significant at 1 per cent level with both adoption (0.260) and future outlook (0.249) and at the 5 per cent level with perception (0.234). Occupation, where agriculture is primary livelihood hold a more favourable perception, adopt practices more fully and remain more invested in the long-term prospects of natural farming. Mass media utilization (0.272, 0.253, 0.195) and environmental consciousness (0.496, 0.470, 0.212) were significant at the 1 per cent level with perception and adoption and at the 5 per cent level with the future outlook. Mass media utilization builds awareness through success stories, keeps farmers informed during adoption and sustains future expectations through ongoing schemes and research, while environmental consciousness moves from shaping ethical perception to motivating adoption and to anchoring natural farming as a long-term path to sustainability.

Livestock possession was significant with perception (0.217) at the 5 per cent and adoption (0.245) at the 1 per cent level, but not for future outlook. This is because farmers who own livestock have direct access to essential natural farming inputs like cow dung and cow urine, which shapes a favourable initial perception and enables fuller adoption but ownership alone does not necessarily influence how farmers view the practice's long-term prospects. Annual income and economic motivation (0.483, 0.258) were significant only with perception at the 1 per cent level as financially secure farmers are better positioned to explore natural farming initially and those driven by profitability tend to view its low-cost, input-saving nature favourably, together enabling positive perception. However, this alone does not translate into actual adoption and sustained future commitment. Resource utilization behaviour (0.193) was significant only with adoption at the 5 per cent level as efficient use of available resources helps farmers implement natural farming practices on the ground.

Age, education, land holding, family type, family size and overall farming experience showed no significant relationship with any of the three dependent variables as these demographic characteristics have limited bearing on farmer's receptiveness to natural farming compared to experiential characteristics. Overall farming experience was also insignificant, as farmers are more accustomed to conventional practices; they are less inclined towards adopting new farming practices like natural farming.

Conclusion

The study confirms that natural farming, rooted in indigenous knowledge and central to India's sustainability agenda. Adoption among Tamil Nadu farmers driven less by socio-demographic characteristics and more by experiential and institutional characteristics such as experience in natural farming, training, extension contact and social participation, which together shape perception, adoption and future outlook. Strengthening need-based training tailored to region-specific conditions, offering field-level hands-on guidance in preparing and applying bio-inputs and building community-based platforms such as FPOs, clusters and SHGs can help translate government schemes like the NMNF into sustained, farmer-driven adoption of natural farming. Beyond training and institutional support, targeted measures such as awareness campaigns on indigenous cattle breeds, paired with subsidies for high milk-yielding indigenous cows, could help rebuild the livestock base essential to natural farming. Digital marketing and value addition of natural farming produce would improve farmers' returns and redirecting subsidies from chemical fertilizers to natural inputs would strengthen the incentive to shift. A dedicated section for natural farming produce across all markets from farmers' markets to supermarkets, would further improve visibility and market access.

References

1. Anugula H. Natural farming movement of Tamil Nadu. Rajiv Gandhi Institute for Contemporary Studies; 2024. <https://www.rgics.org/employment/natural-farming-movement-of-tamil-nadu/>
2. Food and Agriculture Organization of the United Nations. Building farm resilience through natural farming – reflections from field. 2022. Available from: <https://www.fao.org/family-farming/detail/en/c/1638022/>
3. Gamit RA, Kumar VHM. Perception of farmers about natural farming. Gujarat Journal of Extension Education. 2024;38(2):195-200.
4. Harini N. Zero budget natural farming in Vizianagaram district of Andhra Pradesh – a critical study. Hyderabad: Professor Jayashankar Telangana State Agricultural University, College of Agriculture, Rajendranagar; 2021.
5. Kaoser S. A study on adoption of natural farming practices in Northern Transition Zone of Karnataka. Dharwad: University of Agricultural Sciences, College of Agriculture; 2022.
6. Kumar G. A study on perception of farmers about natural farming in Auraiya district of Uttar Pradesh. Kanpur: Chandra Shekhar Azad University of Agriculture and Technology; 2023.
7. National Institute of Agricultural Extension Management (MANAGE). Study material for master trainers on natural farming. Hyderabad: MANAGE; 2023.
8. National Mission on Natural Farming. Department of Agriculture & Farmers Welfare, Government of India; 2026. Available from: <https://naturalfarming.dac.gov.in/>
9. National Mission on Natural Farming. Number of farmers and area covered under NMNF. Department of

- Agriculture & Farmers Welfare, Government of India; 2025. Available from: <https://naturalfarming.dac.gov.in/>
10. Patel N, Dorin B, Nagaich R. A new paradigm for Indian agriculture: from agroindustry to agroecology. New Delhi: NITI Aayog, Government of India; 2022.
 11. United Nations Environment Programme. How natural farming is transforming food production in southern India. 2026.
<https://www.unep.org/news-and-stories/story/how-natural-farming-transforming-food-production-southern-india>