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NATURAL FARMING IN INDIA

This summary document provides an overview of the state of natural farming in India. And also covers a literature review of impact studies conducted on natural farming in India. **It is a part of the larger CEEW study,** *Sustainable Agriculture in India 2021: What We Know and How to Scale Up*

Sustainable Agriculture in India 2021: What We Know and How to Scale Up, is a handbook on the prevalence, practices and state of affairs of the 16 most promising sustainable agriculture practices in the country. It presents the economic, social and environmental impacts of these practices with recommendations on their potential to scale-up sustainable agriculture in India.

The study is available at: https://www.ceew.in/publications/sustainable-agriculture-india-2021

Image: Atul Loke for Panos Pictures/Food and Land Use Coalition

Natural farming in the Indian context (including zero-budget natural farming – ZBNF; Subhash Palekar natural farming; and community-managed natural farming) is a local low-input climate-resilient farming system that advocates the complete elimination of synthetic chemical agro-inputs. Instead, it encourages farmers to use low-cost, locally-sourced inputs such as natural mixtures made using cow dung, cow urine, jaggery, pulse flour, mulch, crop covers, and symbiotic intercropping to stimulate the soil's microbial activities.[1] The main emphasis of natural farming is on "enhanced soil conditions by managing organic matter and soil biological activity; diversification of genetic resources; enhanced biomass recycling; and enhanced biological interactions."[2] A set of principles guides natural farming execution on the farm: (i) farms should be based on poly-cropping, where trees are integrated with various arable and perennial crops; (ii) no synthetic agro-inputs – fertilisers, pesticides, or herbicides – should be applied; (iii) soil should remain covered at all times and for the entire year using cover crops or mulch; (iv) local seeds, which are less costly and more resilient than hybrids, should be used; (v) bio-stimulants, should be used as a catalyst agent to enhance microbial activities of the soil, and botanical extracts for pest management; (vi) minimal tillage; and (vii) integration of livestock with crops for biological and economic synergies. Natural farming allows for a wide range of agroecological practices – composting, mulching, green manuring, crop rotations, intercropping, tree intercropping, livestock integration – and takes a holistic approach to farming systems.

Image: Atul Loke for Panos Pictures/Food and Land Use Coalition

What are bio-stimulants?

The use of bio-stimulants for microbial soil enhancement is integral to natural farming. These include *beejamrutham* (microbial coating of seeds using cow dung and urine-based formulations) and *jeevamrutham* (a concoction of cow dung, cow urine, jaggery, pulse flour, water, and soil to multiply soil microbes). Two other core elements are mulching (applying a layer of organic material to the soil surface to prevent water evaporation and contribute to soil humus formation; and *waaphasa* (aeration through a favourable microclimate in the soil). For insect and pest management, natural farming encourages various farm-made pesticides like *kashayams* (decoctions) and *neemastra*.

Natural farming's linkages to FAO's agroecological elements

In principle, natural farming adheres to and promotes most of the agroecological elements as defined by the FAO

Elements	Description of agroecological linkages
Diversity	Natural farming models such as Subhash Palekar poly-crop models, 36 x 36 models, five-layer models, tree intercropping, and crop rotation combine complementary species in the field. They have great potential to increase spatial and temporal diversity.
Co-creation and sharing of knowledge	Natural farming is a knowledge-intensive farming system. While a set of principles guide its implementation, it is also an iterative process, where farmers practice natural farming based on resources available in their area.
Synergies	The use of low-cost local resources with an emphasis on resilience indicates a synergy with the social-ecological system. Integrating livestock, trees, and crops creates symbiotic biological synergies between various elements. The Andhra Pradesh case study of pre-monsoon dry sowing of *Navdhanya* (a crop mix containing a combination of nine cereals and millets) with mulching and seed treatment using natural inputs to harness water vapor in the air and restoration of soil biodiversity showcases how careful attention to the design of a diversified system by combining annual and perennial crop can build synergies in the climate change adaptation context.
Efficiency	Resource efficiency is crucial to natural farming. Zero usage of chemical fertilisers and natural materials for fertilisers and pesticides ensures optimum use of on-farm resources. Bio-inoculums increase soil microbes; organic mulch prevents water evaporation and contributes to soil humus formation. Soil aeration creates a favourite microclimate to enhance ecological functions, which can result in greater resource-use efficiency and resilience.[3]
Recycling	The practice promotes using straw mulch and the dried biomass waste of previous crops, decomposing it to humus through the soil biota activities activated by the microbial cultures.[4]
Resilience	Low input costs decrease farmers' exposure to credit risks. Diversified cropping increases the net income and cash flow of small and marginal farmers, which improves their ability to deal with economic shocks. Reduced resource-dependence and improved soil quality may help farmers adapt better to extreme climate events.
Human and social values	Natural farming in India started as a grassroots movement and spread across the country by empowering farmers to escape from high-cost chemical-intensive farming. Programs on

	natural farming in states like Andhra Pradesh, Karnataka, Himachal Pradesh are designed around socio-economic principles and are highly inclusive. Women farmers, tribal farmers, and youth are included in the program structure and given the agency to improve their socio-economic conditions.
Culture and food traditions	Crop diversification complements the genetic diversity of varieties and species and could further contribute to the macro-nutrient, micro-nutrient, and other bio-active compounds to the human diet.

A brief context in India

Natural farming was first popularised by the Japanese scientist and philosopher Masanobu Fukuoka. In India, noted agriculturalist Subhash Palekar has helped popularised the practice across the country. At scale, the practice first started in Karnataka. It gained grassroots momentum due to a collaborative effort between Mr. Palekar and the state farmers' association Karnataka Rajya Raitha Sangha (KRRS) – a member of La Via Campesina (FAO unpublished manuscript).

Since then, many farmers and civil society organizations have been working together to adopt natural farming in their regions. Training and demonstration are playing a huge role in natural farming knowledge dissemination. An estimated 200 workshops have been organised in Karnataka over the last 15 years.[5]

In the past few years, however, natural farming in India has transitioned from a grassroots movement in many states to a more state-led program initiated by the Andhra Pradesh government, which is now the frontrunner in implementing natural farming at scale. The state took the lessons from their 10-15 years' experience of the non-chemical pest management (NPM) program and Community managed sustainable agriculture (CMSA) program to scale-up natural farming in the state. The CMSA program incorporated many principles of natural farming and reached thousands of farmers in AP.

In 2015, Andhra Pradesh instituted the Rythu Sadhikara Samstha (RySS), a state-owned, non-profit organisation aiming to scale up natural farming practices to cover all six million farmers, spanning an area of eight million hectares by 2027. In July 2018, the National Institution for Transforming India (NITI Aayog) discussed the scope for promoting ZBNF in the entire country along the lines of Andhra Pradesh. Other states – Himachal Pradesh, Gujarat, Haryana, Karnataka, and Kerala – also take up natural farming in various districts. The Central Ministry of Agriculture and Farmers Welfare has recently used *Bharatiya Prakritik Krishi Paddhati (BPKP)* to promote natural farming and is proposing to add it to the *Paramparagrat Krishi Vikas Yojana* scheme.[6]

Natural farming: acreage, geographies, and cultivation details

How much area in India is under natural farming? There is no information on the area under natural farming at a national level, but some information is at the state level. In Andhra Pradesh, about 651,952 hectares were under natural farming across all 13 districts as of November 2020. In May 2018, Himachal Pradesh implemented a state-funded scheme, *Prakritik Kheti Khushal Kisan*. As of present, 6,377 ha are covered under natural farming through the scheme as per stakeholders consulted at the SPNF, Himachal Pradesh. Karnataka has initiated pilot implementation on 2,000 hectares of each state's ten agro-climatic zones.[7] CSOs from Maharashtra, Odisha, Chhattisgarh,

Punjab, Jharkhand, and Uttar Pradesh reported natural farming practices, although at a smaller scale (ranging from 200-4,000 hectares).

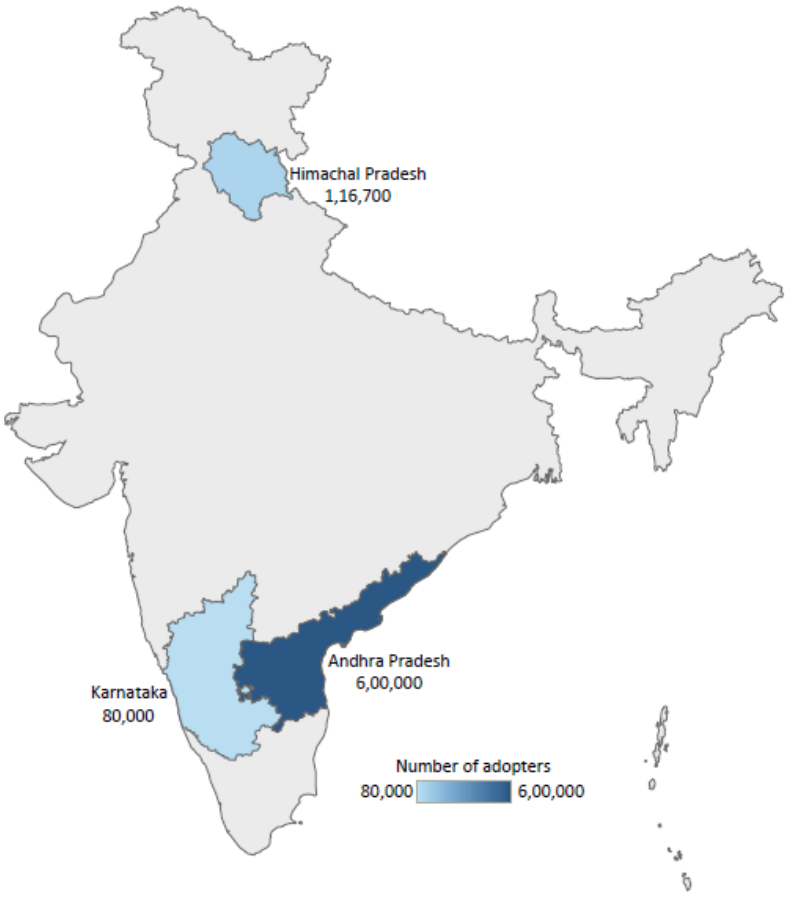
At what farm size is natural farming practised? Mostly small, medium, and tribal farmers are practising natural farming.

How many farmers in India are practising natural farming? There are no official data on the total natural farming practitioners in the country. Some stakeholders claim the number to be more than 3,000,000 (Jebaraj 2019). As of November 2020, in Andhra Pradesh 594,899 farmers were enrolled in the state program for natural farming. The state aims to reach all 6,000,000 farmers by 2026. In Himachal Pradesh, stakeholders consulted at the SNPF, indicated about 1,16,700 farmers who have adopted the practice under the *Prakritik Kheti Khushal Kisan* scheme.

Many CSOs across Rajasthan, Odisha, Jharkhand, Uttar Pradesh, Gujarat, Maharashtra also work with hundreds and thousands of farmers to take-up natural farming methods. In Karnataka, an estimated 60,000–100,000 farmers have attended 60 training camps organized over the last decade.[8] (ZBNF leader cited in Khadse et al. 2018).

Where in India is natural farming prevalent? Andhra Pradesh is the leading state for natural farming, and it is also taken up in a few other states, including Maharashtra, Karnataka, Himachal Pradesh, Gujarat, and Kerala. However, the coverage is inconsequential (figure 1).

Figure 1. Geographical coverage of natural farming based on adopters



Source: SNPF HP 2021, RYSS Andhra Pradesh; Khadse et al. 2017

Which are the major crops cultivated under natural farming in India? All types of crops, cereals, millets, and cotton to fruits, vegetables, and spices, are cultivated under natural farming.

Impact of natural farming

This section considers the economic, social, and environmental impacts of natural farming.

ECONOMIC IMPACT

The yields and net return from natural farming depend on several factors other than the production system. These include proper knowledge and application of bio-stimulants, types of cropping-trees combinations, botanical extracts for pesticide management, and conversion time. Given that it is essential to look at these other factors while evaluating yield and net return, it is not easy to generalise the overall economic impacts. It is

also not easy to discuss natural farming's contribution to food security at the country level, as its coverage is still small in India.

1. Yields

The short-term studies on natural farming conducted over one or two cropping seasons indicate both increases and reductions in yields for different crops. However, there is a need to generate rigorous longitudinal evidence across different agro-climatic zones and cropping systems. This is also one reason for the polarised views in India's food security discussion on the impact of natural farming. Natural farming is based on poly cropping. New methodologies should be developed to include all the hidden costs in both chemical-based and natural practices to compare the overall productivity in both systems.

Out of 97 farmers surveyed in 2012 in one study in Karnataka, 78.7 per cent stated that their yields had increased, 85.7 per cent reported improvements to income, and 90.9 per cent reported that production costs had decreased.[9] Crop cutting experiments and field surveys in Andhra Pradesh conducted by the Centre for Economic and Social Studies (CESS) in Rabi season 2018-19 reported no statistically significant difference in banana yields bengal-gram, black-gram, green-gram, and groundnut when compared to chemical-based farming. An increase of between 2-38 per cent was reported for these crops. Maize, sorghum, and cashew-nut showed reduced yields (between 1 and 7 per cent).[10]Research by ICAR-IIFSR, Modipuram on Subhash Palekar natural farming in the rice-wheat system in north India shows a 40 per cent yield reduction compared to chemical-based methods.[11]

Another study, not based on any field data, reported that while natural farming could yield benefits for low-input farmers, it could result in yield penalties for crops where higher inputs are needed. The study stated that "even with maximum potential nitrogen fixation and release, only 52–80 per cent of the national average nitrogen applied as fertiliser is expected to be supplied."[12]The study, however, compared the impact on yields against the national average fertiliser rates. In India, the actual application rate is much higher than the reported official figures.

2. Income

Net income and profits from natural farming depend on many factors, including labour costs, availability of natural inputs, market access, and farmers' skills. With the limited number of papers available, it is challenging to build a standard narrative on income. More research is required, looking at the region-specific resource availability, cultural context, market access, etc.

The lower cost of production by eliminating expensive external inputs is the main reason for natural farming's improved net returns. Field surveys conducted in Rabi 2018-19 in Andhra Pradesh for five crops reported an increase in the net income per acre for tomato and groundnut (41 per cent); Bengal-gram (17 per cent); maize (111 per cent) and cotton (45 per cent). The average input costs of biological and chemical fertilisers were 68 per cent lower than for conventional farmers.[13]Another survey of more than 600 farmers,

also in Andhra Pradesh, reported similar findings. The median cost per acre for rice cultivators in natural farming was INR 12,200, compared with INR 14,700 for chemical-based cultivators.[14]

The diversified cropping system ensures a more steady and regular income in natural farming. The adoption of 5-layer models or 36*36 models with different crop varieties enables a farmer to generate additional income from the bund and border crops. In the tribal areas of Andhra Pradesh, the 5-layer model of growing crops instead of existing coffee plantations in the hilly areas has ensured a more continuous income flow to tribal farmers.

Some constraints were also reported. Natural farming is both a time-consuming and labour-intensive system. In areas where labour availability is low, this could add to labour costs and increase farmers' overall production costs. On the other hand, this could also imply more employment generation in these areas. Second, the current incentive structures involving subsidies and insurance are missing for natural inputs. Once incorporated into the cost structure, these incentives could significantly boost farmers' overall profitability. Third, lack of assured procurement is also a constraint for farmers growing multiple additional crops in natural farming. Fourth, the lack of readily available natural inputs discourages some large farmers from taking up natural farming. Finally, being a knowledge-intensive and skill-driven farming method, capacity-building and hand-holding are required in the first few years, especially in the transition phase. Without proper knowledge and understanding of natural farming, it would not be easy to harness its full benefits.

SOCIAL IMPACT

1. Human health

No systematic research was found on the linkages between natural farming and human health.

However, the findings from focus group discussions conducted in Andhra Pradesh indicated that farmers perceive multiple benefits such as better-quality and nutritious produce from natural farming. Health benefits were noticed due to the consumption of diverse food.[15]

2. Gender

The role of women farmers in natural farming is an under-researched subject. However, many case-studies and YouTube videos highlight women's role in scaling-up natural practices in India.

The existing women self-help groups (SHGs) and federations play an essential role in the knowledge and training dissemination of natural farming practices across states like Andhra Pradesh and Himachal Pradesh. In Andhra Pradesh, the state government intends to use women's SHGs – a network of 730,000 women – to train and scale-up natural farming. The state also encourages women to set up local natural input shops to build socio-economic resilience and give them agency. In Himachal Pradesh, thousands of farmers, particularly women, are adopting natural farming under the state-funded scheme *Prakritik Kheti*

Khushal Kisan to grow more crops, including fruits and vegetables individually and through self-help groups.

ENVIRONMENTAL IMPACTS

In principle, natural farming holds great promise to ensure environmental sustainability in agricultural production systems. However, long-term evaluations of its impact on soil, water, emissions, and biodiversity are yet to be done in India, and more research is required on these indicators.

1. Soil and nutrients

Various natural inoculants in natural farming lead to the fast build-up of soil microbiota and soil aeration. *Jeeavamrutham* helps to improve organic matter and stimulate microbial activity in the soil. *Beejamrutham* treats the seed and alleviates in shielding seedlings from soil-borne diseases and young roots from the fungus. Mulching improves humus formation through enhanced decomposition activity in the soil.

According to a survey, farmers themselves have observed increases in yield, soil conservation, quality of produce, seed autonomy, and a decrease in pest attacks.[16] Several farmers have provided similar anecdotal evidence. But there is limited scientific evidence. Evidence with respect to *dhrava jeevamrita* can be seen in the experiments conducted by Ram, Singha, and Vaish (2018). The study showed that compared to the starting mixture, the levels of nitrogen-fixing rhizobia in the *dhrava jeevamrita* were observed to increase by around 4,400 per cent.[17]These microbial flora can improve the microbiota of the soil and the organic matter. Similarly, a study carried out at the Institute of Organic Farming in India in 2008-09 showed increased germination and increased seedling length for soybean seeds inoculated with bacterial isolates from *beejamrita*. It also showed the presence of beneficial microflora, along with the presence of some free-living N_2 fixers and P-solubilizers.[18]

2. Water

In principle, cover crops, rotation crops, compost, intercrops, and bio-stimulants, directly and indirectly improve the soil and soil cover, encourage water infiltration, and decrease the potential for nutrient runoff and soil erosion. However, there is a lack of systemic studies into the impact of natural farming on India's water use efficiency, and this subject needs more research.

Based on a limited sample, survey findings in four districts of Andhra Pradesh report that compared to chemical-based farming practices, natural farming required 50-60 per cent less water and electricity for paddy, groundnut, chilies, cotton, and maize cultivation. The findings were reported from a survey and not actual water measurements.[19]

Pre-monsoon dry sowing for dealing with drought

Pre-monsoon dry sowing (PMDS) is considered a significant breakthrough in the drought-prone regions of Andhra Pradesh (AP). This involves sowing different crops with mulching and seed treatment using natural inputs to harness water vapor in the air. In scientific terms, the air settles on the mulch cover in the form of early morning dew and supplies the necessary moisture to the soil. Other practices like mulching also generate higher soil humus production, enhancing the water vapor condensation on the soil surface and its water retention capacity. This shows how careful attention to a diversified system's design by combining annual and perennial crops can build synergies in the climate change adaptation context. In 2020, 103,340 farmers on 32,540 hectares in more than 1,800 villages across AP had adopted PMDS.

3. Energy and emissions

Natural farming can reduce emissions and energy requirements since it advocates the elimination of synthetic fertilisers. Simultaneously, since it places significant emphasis on improving soil organic matter, it has great potential to reduce the atmospheric concentration of CO_2 through soil carbon sequestration. This is still an under-researched topic, so more evidence is required to share any insights.

Based on a limited sample, one study reported that for irrigated crops, natural farming requires 45–70 per cent less (compared to conventional) input energy (12–50 gigajoules per acre) and results in 55–85 per cent lower emissions (1.4–6.6 million tonnes of carbon dioxide equivalent - Mt CO_2e). On rainfed crops, natural farming required 42–90 per cent less input energy (1.1–16 GJ per acre) and resulted in 85–99 per cent lower emissions (0.5–11 Mt CO2e).[20]

4. Biodiversity

No systematic biodiversity assessment of natural farming is available, and more research is needed to share insights on this indicator.

However, anecdotes from the field and a few articles note a noticeable increase in wild species, insects, earthworms, ladybugs, and birds in natural farming fields. A rise of bee colonies was noticed in cotton fields. A systematic comparison between natural farming and non-natural farming fields found 232 earthworms per square meter in natural farming fields and 32 in conventional farming fields (RySS, unpublished data as cited in Bharucha et al. 2020).

Impact evidence

State of available research discussing the impact of natural farming on various outcomes.

Evidence Type	Yield	Income	Health	Gender	Soil and nutrients	Water	Energy	GHG emissions	Bio-diversity
Journals	6	1	0	0	9	0	0	0	0
Reports	7	5	1	0	0	1	1	1	0

Articles/ case-studies	6	4	1	4	1	2	0	0	2
Others **	4	2	0	2	0	1	0	0	2
Total	**23**	**12**	**2**	**6**	**10**	**4**	**1**	**1**	**4**

*** Thesis, guidelines, conference papers, etc*

Source: Authors' compilation

Note – The evidence is from the first 75 results examined in Google Scholar Advanced search and the first 30 results from Google Advanced Search. Only those papers which clearly established the evidence for different indicators were selected.

Stakeholder mapping

The following institutions are involved in the research and promotion of natural farming; a few were consulted for this research:

Government institutions	Research/implementation institutions	NGOs/Civil society organisations
Rythu Sadhikara Samstha, Andhra Pradesh	World Agroforestry Centre (ICRAF)	WASSAN
Government of Himachal Pradesh – Prakritik Kheti Khushhal Kisaan	Food and Agriculture Organisation	National Coalition on Natural Farming
NITI Aayog	Center for Study of Science, Technology and Policy	Centre for Sustainable Agriculture
ICAR Modipuram	HP Agricultural University	CSE
The National Academy of Agricultural Research Management (NAARM)	United Nations Environment Programme (UNEP)	Equality Empowerment Foundation
	Centre for Economics and Social Studies (CESS)	Samaj Pragati Sahayog (SPS)
	Council on Energy, Environment and Water (CEEW)	Smallholder Adaptive Farming and Biodiversity Network (SAFBIN)
	HP Agricultural University	JANAPARA Education and Rural Development society

Source: Authors compilation

Note – The stakeholders list is indicative and not exhaustive

Endnotes

[1]Gupta, N., Tripathi, S. and Dholakia, H.H. 2020. *Can Zero Budget Natural Farming Save Input Costs and Fertiliser Subsidies? Evidence from Andhra Pradesh*. New Delhi: Council on Energy, Environment and Water.
[2] Khadse, A, Rosset, P.M, Morales, H, and B.G Ferguson. 2018. "Taking agroecology to scale: the Zero Budget Natural Farming peasant movement in Karnataka, India." *The Journal of Peasant Studies*, Volume 45, 2018 - Issue 1.
[3] Tripathi, S., Shahidi, T. Nagbhushan, S., and N. Gupta. 2018. *Zero Budget Natural Farming for the Sustainable Development Goals*. Council on Energy, Environment and Water (CEEW) and Sustainable India Finance Facility (SIFF). Available at http://apzbnf.in/wp-content/uploads/2018/11/CEEW-ZBNF-Issue-Brief-2nd-Edition-PRINT-READY-20Sep18-min.pdf.
[4] Ibid
[5] Khadse, A, and Rosset, PM. 2019. "Zero budget natural farming in India: From inception to institutionalization". *Agroecology and Sustainable Food Systems*, 43(7–8), 848–871. doi: 10.1080/21683565.2019.1608349.
[6] Khurana, A. and V Kumar. 2020. *State of Organic and Natural Farming: Challenges and Possibilities*, Centre for Science and Environment, New Delhi
[7] Ministry of Agriculture & Farmers Welfare. 2019. *Zero Budget Natural Farming*, 22 November 2019. Press Information Bureau, Available at https://pib.gov.in/PressReleseDetailm.aspx?PRID=1593123. Accessed – 25 Oct 2020.
[8] Khadse, A, Rosset, P.M, Morales, H, and B.G Ferguson. 2018. "Taking agroecology to scale: the Zero Budget Natural Farming peasant movement in Karnataka, India." *The Journal of Peasant Studies*, Volume 45, 2018 - Issue 1
[9] Ibid
[10] Galab, S., P. Prudhvikar Reddy, D. Shree Rama Raju, C. Ravi, and A. Rajani. 2019. *Impact Assessment of Zero Budget Natural Farming in Andhra Pradesh – Rabi 2018-19*. Hyderabad: Centre for Economic and Social Studies.
[11] Khurana, A. and V Kumar. 2020. *State of Organic and Natural Farming: Challenges and Possibilities*, Centre for Science and Environment, New Delhi.
[12] Smith, J. et al. 2020. "Potential yield challenges to scale-up of zero budget natural farming". *Nature Sustainability*, 3(3):247–252. doi: 10.1038/s41893-019-0469-x.
[13] Gupta, N., Tripathi, S. and Dholakia, H.H. 2020. *Can Zero Budget Natural Farming Save Input Costs and Fertiliser Subsidies? Evidence from Andhra Pradesh*. New Delhi: Council on Energy, Environment and Water.
[14] Khurana, A. and V Kumar. 2020. *State of Organic and Natural Farming: Challenges and Possibilities*, Centre for Science and Environment, New Delhi.
[15] Khadse, A, Rosset, P.M, Morales, H, and B.G Ferguson. 2018. "Taking agroecology to scale: the Zero Budget Natural Farming peasant movement in Karnataka, India." *The Journal of Peasant Studies*, Volume 45, 2018 - Issue 1.
[16] Ibid
[17] Ram, R. A., Singha, A., and Vaish, S. 2018. "Microbial characterization of on-farm produced bio-enhancers used in organic farming", *Indian Journal of Agricultural Sciences*, 88(1): 35–40.
[18] Sreenivasa, M.N., Naik, N, and Bhat, S.N. 2009. "Beejamrutha: A source for beneficial bacteria". *Karnataka Journal of Agricultural Sciences*, 22(1), pp. 1038–1040
[19] Center for Study of Science Technology and Policy. 2020. *Life Cycle Assessment of ZBNF and Non-ZBNF: A Preliminary Study in Andhra Pradesh*. CSTEP, Bengaluru.
[20] Ibid

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FOLU Coalition: Established in 2017, the Food and Land Use Coalition (FOLU) is a community of organisations and individuals committed to the urgent need to transform the way food is produced and consumed and use the land for people, nature, and climate. It supports science-based solutions and helps build a shared understanding of the challenges and opportunities to unlock collective, ambitious action. The Coalition builds on the work of the Food, Agriculture, Biodiversity, Land Use and Energy (FABLE) Consortium teams which operate in more than 20 countries. In India, the work of FOLU is being spearheaded by a core group of five organisations: Council on Energy, Environment and Water (CEEW), the Indian Institute of Management, Ahmedabad (IIMA), The Energy and Resources Institute (TERI), Revitalising Rainfed Agriculture Network (RRAN) and WRI India.

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