

The push for Zero Budget Natural Farming

What is zero budget natural farming? What are the pros and cons of this method?

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The story so far: Zero budget natural farming (ZBNF) is back on top of the Government's agricultural agenda, with Prime Minister Narendra Modi set to highlight it at a national conclave in Gujarat on Thursday. At an event in Varanasi on Tuesday, he called for the method to become a mass movement. The Centre has sanctioned support for converting four lakh additional hectares of crop land in eight States to using ZBNF techniques this year. This is meant to provide a showcase for their benefits although scientific studies on the method have not yet been completed, according to Agriculture Secretary Sanjay Agarwal.

What is it and how did it come about? Zero budget natural farming is a method of chemical-free agriculture drawing from traditional Indian practices. It was originally promoted by agriculturist and Padma Shri recipient Subhash Palekar, who developed it in the mid-1990s as an alternative to the Green Revolution's methods driven by

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chemical fertilizers, pesticides and intensive irrigation. He argued that the rising cost of these external inputs was a leading cause of indebtedness and suicide among farmers, while the impact of chemicals on the environment and on long-term fertility was devastating. Without the need to spend money on these inputs – or take loans to buy them – the cost of production could be reduced and farming made into a “zero budget” exercise, breaking the debt cycle for many small farmers.

Instead of commercially produced chemical inputs, ZBNF promotes the application of *jivamrita* – a mixture of fresh cow dung and aged cow urine, jaggery, pulse flour, water and soil – on farmland. This is a fermented microbial culture that adds nutrients to the soil and acts as a catalytic agent to promote the activity of microorganisms and earthworms in the soil. About 200 litres of *jivamrita* should be sprayed twice a month per acre of land; after three years, the system is supposed to

become self-sustaining. Only one cow is needed for 30 acres of land, according to Mr. Palekar, with the caveat that it must be a local Indian breed – not an imported Jersey or Holstein.

A similar mixture, called *bijamrita*, is used to treat seeds, while concoctions using neem leaves and pulp, tobacco and green chillies are prepared for insect and pest management.

The ZBNF method also promotes soil aeration, minimal watering, intercropping, bunds and topsoil mulching and discourages intensive irrigation and deep ploughing. Mr. Palekar is against vermicomposting, which is the mainstay of typical organic farming, as it introduces the most common composting worm, the European red wiggler (*Eisenia fetida*) to Indian soils. He claims these worms absorb toxic metals and poison groundwater and soil.

Is it effective?

A limited 2017 study in Andhra Pradesh claimed a sharp decline in input costs and improvement in yields. However, reports also suggest that many farmers, including from Mr. Palekar's native Maharashtra, have reverted to conventional farming after seeing their ZBNF returns drop after a few years, in turn raising doubts about the method's efficacy in increasing farmers' incomes.

ZBNF critics, including some experts within the central policy and planning think tank NITI Aayog, note that India needed the Green Revolution in order to become self-sufficient and ensure food security. They warn against a wholesale move away from that model without sufficient proof that yields will not be affected. Sikkim, which has seen some decline in yields following a conversion to organic farming, is used as a cautionary tale regarding the pitfalls of abandoning chemical fertilizers.

In 2019, soon after Prime Minister praised ZBNF while addressing a United Nations conference on desertification, the National Academy of Agricultural Sciences wrote to Mr. Modi warning against promoting the method without sufficient research to assess its long-term impact. “We are worried about the impact on farmers' income, as well as food security,” said then National Academy of Agricultural Sciences president Panjab Singh. “As agricultural scientists, we do feel the need to move away from 100% chemical-based farming, but there needs to be proper scientific validation first. You



cannot just drop [existing technologies] for an unproven method which makes unscientific claims about one black cow's dung being enough for 30 acres...Some trials have been started, but a one-year experiment is too short to judge the long-term impact,” he had said at the time.

Which are the States with big plans?

The Centre has sanctioned the proposals of eight States for support under the Paramparagat Krishi Vikas Yojana scheme this year. Andhra Pradesh has the biggest ambition to bring one lakh additional hectares of land under ZBNF under the scheme, followed by Chhattisgarh, with 85,000 additional hectares and Gujarat, with 71,000 additional hectares.

The Agriculture Secretary said the proposals being implemented under the scheme would be used to showcase the benefits of the method. “Because it is unproven does not mean it is not good. Scientific studies have not been completed, but in the field it is being proven. It is the

farmers' own practices which are showcasing this,” he said.

What lies ahead?

The Prime Minister is set to promote ZBNF's benefits and provide more details on the strategies to implement it at Thursday's valedictory session of a three-day national summit on agro and food processing, with a focus on natural farming, which is being held in Anand, Gujarat. Over 5,000 farmers are expected to be present in person.

So far as scientific validation is concerned, all eyes are focussed on the Indian Council of Agricultural Research, which is conducting studies on the ZBNF methods practised by basmati and wheat farmers in Modipuram (Uttar Pradesh), Ludhiana (Punjab), Pantnagar (Uttarakhand) and Kurukshetra (Haryana), evaluating the impact on productivity, economics and soil health including soil organic carbon and soil fertility. The Agriculture Secretary said such studies needed at least three years to arrive at a conclusion.

At work: ZBNF farmers in Prakasam district, Andhra Pradesh, 2018

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THE GIST

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