



NATURAL FARMING: A WAY FORWARD TO REGENERATIVE AGRICULTURE

ASHA SAHU*, A B SINGH, SUDESHNA BHATTACHARJYA, NISHA SAHU, KOLLAH BHARATI, A K PATRA

ICAR-Indian Institute of Soil Science, Bhopal, Madhya Pradesh

*Corresponding author, E-mail: asha.sahu@icar.gov.in



Natural Farming (NF) refers to the indigenous traditional farming totally based on low cost, naturally available inputs like desi cow dung-urine and other plant-based formulations. In this system no externally purchased inputs namely synthetic, chemical, or organic fertilizers are used, thus, it reduces the input cost of farming and improves economic benefits of farmers. Recently in 2020-21, as per the report submitted by 17th Loksabha standing committee on

agriculture, a scheme called “*Bhartiya Prakritik Krishi Padhati*” was introduced for the promotion of NF nationwide by the Ministry of Agriculture & Farmers Welfare. At present, about 4.09 lakh ha area from 8 states viz. Andhra Pradesh, Chhattisgarh, Kerala, Himachal Pradesh, Jharkhand, Odisha, Madhya Pradesh and Tamil Nadu have been covered under NF. The state wise details of area and major crops covered under NF in India are given in Table 1.



Table 1. State wise area and major crops grown under Natural Farming in India

States	Area (ha)	Crops under natural farming
Andhra Pradesh	100000	Maize, groundnut, cashew, citrus, palm oil, tomato, cotton, paddy
Chhattisgarh	85000	Paddy, wheat, pulses
Kerala	84000	Paddy, banana, leafy and cool season vegetables, cucurbits, solanaceous plants, bhindi, tuber crops, spices and plantation crops
Himachal Pradesh	12000	Wheat, maize, peas, apple, stone fruits, pulses, paddy, coriander and other leafy vegetables
Jharkhand	3400	Paddy, wheat, vegetables, pulses, oilseeds
Odisha	24000	Rice, turmeric, ginger and pulses
Madhya Pradesh	99000	Wheat, rice, pulses, soybean,
Tamil Nadu	2000	Vegetable crops
Total	409400	

(Source: <https://pib.gov.in/PressReleasePage.aspx?PRID=1813682>)

NATURAL FARMING VS. ORGANIC FARMING VS. CONVENTIONAL FARMING

The primary difference between natural, organic and convention farming approaches lies in its input use though these three systems differ in many other aspects too (Table 2). When natural farming recommends use of on-farm resource based nutrient inputs and traditional crop seeds, organic farming make

use of off-farm resources as well especially organic nutrient inputs like compost and vermicompost, and bio-formulations as a nutrient source as well as for plant protection purpose. On the other hand, Conventional Farming (CF) allows use of hybrid or improved cultivars, synthetic fertilizers, plant protection chemicals and herbicides. NF is not the replacement of any other farming system but, just an option to reduce the negative impacts of agriculture on environment.

Table 2. Difference between conventional farming, organic farming and natural farming

Parameters	Conventional Farming	Organic Farming	Natural Farming
Input required/nutrient source	Chemical based fertilizers, FYM	Chemical-free FYM, vermicomposting, biofertilizers, panchgavya	Chemical-free indigenous cow dung and cow urine, jeevamrit, ghanjeevamrit, beejamrit
Seeds used	High yielding variety or hybrid seeds	High yielding variety or hybrid seeds	Local cultivar seeds
Cropping system	Mono-cropping systems	Mono/mixed	Inter/mixed/poly crops
Pest control	Chemical pesticides	Biological management	Neemastra, brahmastra, etc
Marketability	Well-established	Assured market for contract farmers	No established market/certification
Yield	High yield potential	Yield reduction during conversion period	Possibility of lower yield

(Source: Kumar et al., 2020)



MAIN PILLARS OR MODELS OF NF

There are major four pillars of NF. They are beejamrit, jeevamrit, mulching and waafsa

Beejamrit: Seed treatment by using dung and urine of indigenous cow is important in natural farming as it protects seeds from seed born and soil born diseases and promotes healthy seed germination. Small farmers can maintain native cows easily as they are economical and have better adaptability to the local conditions. The following are the steps of making beejamrit:

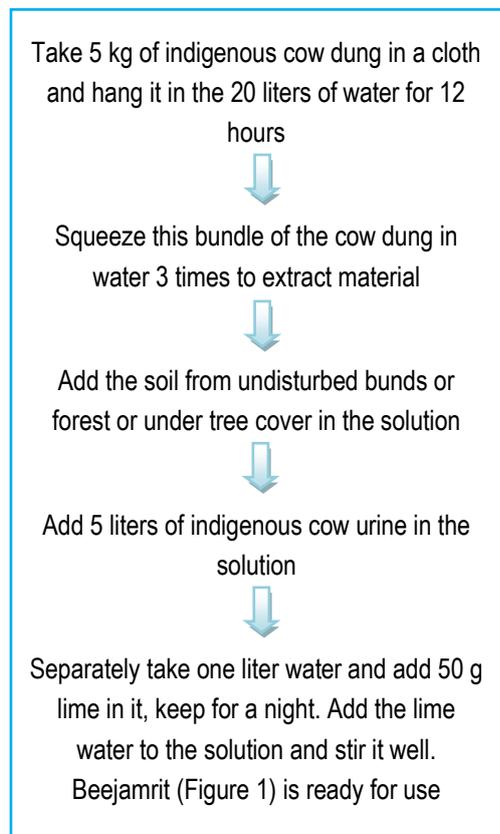
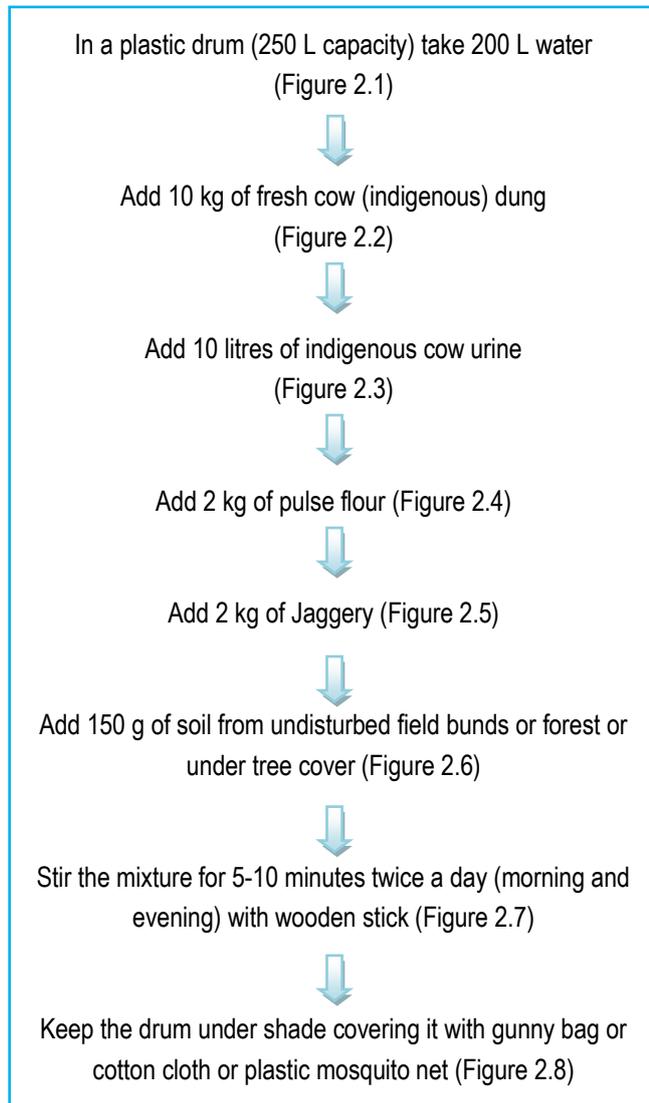


Figure 1. Beejamrit preparation

Jeevamrit: Cow dung is the factory of millions of beneficial microorganisms. This makes jeevamrit prepared out of dung from indigenous cow, as the key nutrient source for healthy plant growth in natural farming. It is the fermented microbial culture prepared by mixing cow dung, cow urine, jaggery, pulse flour and undisturbed soil. Jeevamrit can be prepared in solid as well as liquid forms. Upon application it acts as catalytic agent to promote better microbial and earthworm activity in the soil. Along with increasing soil carbon content its application improves the soil physical properties and ability of plants to resist the attack of soil borne pathogens. The following are the steps of making jeevamrit:



Jeevamrit prepared in this way will be ready for application on 9th day and it can be used for field application up to 12th day from its preparation. However, the solid form of jeevamrit known as Ghanjeevamrit, prepared using similar ingredients with significantly low amount of water (Figure 3) can be stored for a period of 8 months.



Figure 2. Steps of making jeevamrit



Figure 3. Preparation of Ghanjeevamrit

Mulching: In natural farming, mulching the farm field using crop waste, organic waste or cover crops acts an important pillar (Figure 4). It not only protects topsoil from erosion but upon decomposition produces humus which conserves topsoil, reduces evaporation loss, improves water retention capacity, enriches soil nutrient status and controls weed growth.



Figure 4: Mulching with crop waste

Waafsa: It refers to the good soil aeration and soil moisture required for the healthy growth and development of plants.

WAY FORWARD

Some Indian state governments like Andhra Pradesh, Chhattisgarh, Gujarat, Karnataka, Kerala, Madhya Pradesh, etc are supporting this concept. NITI Aayog is also promoting the adoption of NF nationwide. The Indian Council of Agricultural Research (ICAR) has also started research on NF method for evaluation of its impact on soil health, crop productivity and overall economics. Moreover, it is high time to reduce dependence of agriculture on chemicals not only due to environmental concerns but also to reduce the cost of cultivation. NF is one of the cost-effective solutions to practice chemical free farming in India. Adoption of this farming approach wherever possible will ease the ride of the country towards regenerative agriculture. At the same time we should not forgot about food security of the populous country like India. Hence, long-term impact and viability of NF system has to be validated scientifically.

REFERENCE

Kumar, R., Kumar, S., Yashavanth, B.S., Meena, P.C., Indoria, A.K. Kundu, S. and Manjunath, M. 2020. Adoption of Natural Farming and its Effect on Crop Yield and Farmers' Livelihood in India. ICAR-National Academy of Agricultural Research Management, Hyderabad, India.
