

**IDENTIFICATION OF NATURAL FARMING PRACTICES ADOPTED BY FARMERS****P. H. Zala<sup>1</sup>, B. N. Kalsariya<sup>2</sup> and T. D. Kapuriya<sup>3</sup>**

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**ABSTRACT**

*Natural farming has always been India's inherent advantage and strength. The shift in the global consumption patterns, health awareness among the consumers and the increasing significance of sustainability is now putting natural products to the forefront locally, nationally and also at international level. A study was conducted in six talukas of Junagadh, Rajkot and Gir Somnath districts of Gujarat state. The number of villages were selected irrespective from each taluka on the basis of available of adopted natural farming farmers. Total 144 farmers selected as sample size. The result of the research finding revealed that majority (97.91 per cent) of the adopted natural farming farmers followed jivamrut practices with first rank followed by neemastra practices which is 95.13 per cent and bijamrut which is 93.75 per cent farmers adopted with second and third rank, respectively.*

**Keywords:** farmers, sustainable, natural farming, pest, nutrient

**INTRODUCTION**

Green Revolution in India was a transformation period, where Indian Agriculture got converted into an industrial system by the adoption of modern methods and technologies (Vinaya *et al.*, 2022). This brought a dramatic increase in the production and productivity of all crops in India. But this was a short period of success and later showed unpleasant effects on natural resources (soil, water, biodiversity and human health). Natural farming is not new to India but it lost its essence due to the era of Green Revolution during the time of crisis and moreover, the Green Revolution was important then but now Natural Revolution is vital.

गेहूँ बाहें, चना दलाये।

धान गाहें, मक्का निराये।

ऊख कसाये।

Wheat by arming, gram from digging, paddy due to frequent watering, maize by weeding and sowing sugarcane after leaving it in water, its crop is good. (Anonymous, 2021).

Natural farming is nature's way of farming with the adoption of our non-synthetic traditional agricultural knowledge i.e. farmer is just creating a composure environment where crops can grow. This farming method can overcome the ill effects caused by over the adoption of chemical farming and it shall increase the agricultural production and

productivity in a healthy way without affecting the ecosystem balance for the growing population. Natural Farming aims to drastically cut down production costs by encouraging farmers to prepare essential biological inputs using on-farm, natural and home-grown resources. Natural Farming, as the name suggests, is the art, practice and, increasingly, the science of working with nature to achieve much more with less. In India, 11 States practicing natural farming and total 6.5 Lakh HA area covered under natural farming (Anonymous, 2022). The present investigation was a careful attempt to have a sharp focus on documentation of natural farming practices with the following objectives.

**OBJECTIVE**

To identify and document natural farming practices followed by farmers

**METHODOLOGY**

The *Ex-post facto* research design was followed for carrying out the study. For drawing the sample for the study, multistage, purposive and random sampling technique were used. The study was conducted in three districts viz., Junagadh, Rajkot and Gir Somnath of Saurashtra region of Gujarat state. Two talukas were selected from each district purposively based on their highest number of practicing natural farming. A total of six talukas were selected for the study. The number of villages were selected irrespective

from each taluka on the basis of available of adopted farmers natural farming. A village wise list of farmers, who have practicing natural farming was available in *i-khedut* portal as well as from state department of agriculture and project director, ATMA of each district. From each taluka twenty four farmers who had adopted natural farming, which was selected by using simple random sampling method. Total 144 farmers were selected as sample size for the study. The data were collected through personal interview of the selected natural farming farmers of selected villages of Saurashtra region.

In this study, natural farming practices were identified and documented with their rationality as perceived

by them in the first stage of investigation, which was carried out during survey from the farmers of the Saurashtra zone. Farmers were asked to answer whether they have adopted the practices or not. The frequency was calculated for each practices and converted into percentage and rank were assigned.

## RESULTS AND DISCUSSION

The natural farming practices identified and documented with their benefit and use as perceived by adopted natural farming farmers in the first stage of investigation, carried out in Saurashtra region of Gujarat state are listed here.

**Table 1: Distribution of farmers based on their identify and documentation of practices followed by adopted natural farming farmers** (n = 144)

Sr. No.	Practices	Frequency	percentage	Rank
1	<i>Jivamrut</i>	141	97.91	I
2	<i>neemastra</i>	137	95.13	II
3	<i>Bijamrut</i>	135	93.75	III
4	<i>Dashparni ark</i>	130	90.27	IV
5	Aak mixture	127	88.19	V
6	Buttermilk + lemon juice mixture	125	86.80	VI
7	<i>brahmastra</i>	119	82.63	VII
8	Neem kernel + jaggery mixture	114	79.16	VIII
9	Solid <i>jivamrut</i>	111	77.08	IX
10	Carom (ajwain) + pepper mint + camphor (kapur) mixture	105	72.91	X
11	Buttermilk store in copper vessel	101	70.13	XI
12	Cow milk + turmeric powder	98	68.05	XII
13	<i>Butea monosperma (kesudo)</i> mixture	93	64.58	XIII
14	Ripened banana mixture	92	63.88	XIV
15	Cow milk+ jaggery mixture	84	58.33	XV
16	Colostrum spray practices	79	54.86	XVI
17	Residual plant crop and leaf cutting compost	71	49.30	XVII
18	Dark moon light time spraying	67	46.52	XVIII
19	Aloe vera juice	61	42.36	XIX

At best of my level, I tried to collect and formed to identify and documentation of natural farming practices. Sequential contribution of respective practices among categories are summarized below:

The perusal of data Table 1 showed that the 97.91 per cent of the adopted natural farming farmers followed *jivamrut* practices. It is used to provide nutrient to plant and increase activity of beneficial microorganism in soil. Farmers make *jivamrut* which contains 10 kg of gir cow dung, 10 liters of cow urine, 1.5-2 kg of jiggery, 1.5-2 kg of chickpea flour, 10 liters of water, 500 gm of soil near tree mixing in barrel of 200 liters and stay in shade. They mix it by shaking it for two minute in clock wise direction with wooden stick 2 times in a day for 3-4 days.

Second rank of the *neemastra* practices which is 95.13 per cent farmers adopted. *Neemastra* is used for control for all sucking pest and all other insect of adult and larva both. *Neemastra* is made by farmers mixing of neem leaf and limbodi pest 5 kg, gir cow urine 5 liters, gir cow dung 1 kg, water 100 liters. Then it is mixed by wooden stick two times in a day. This mixture gets ready to use after one week.

Another natural farming practices adopted by farmers is *bijamrut* which is 93.75 per cent farmers adopted with third rank. *Bijamrut* seed treatment makes the seeds to grow fast and reduces the damage from soil disease. *Bijamrut* is made by farmers by mixing of 5 kg of gir cow dung, 5 liters of cow urine, 20 liters of water and 200 gm of soil from farm. Then it is mixed by wooden stick two times in a day.

This mixture get ready to use for seed treatment after one day. The seeds are dried and then used for sowing.

*Dashparni ark* natural farming practices got fourth rank. All the larva and sucking pest are controlled with the use of this spraying. *Dashparni ark* containing 10 liter gir cow urine, 2 kg cow dung, 500 gm coriander, 500 gm ginger paste, 10 gm asafoetida, 1 kg spicy chilli paste, 500 gm garlic paste, 1 kg tobacco powder, 2 kg tender branches of neem tree. All these ingredients are mixed in a barrel for one day. After one day, 2-2 kg of any five plant leaf from karanj leaf, castor leaf, mango leaf, bael leaf, datura leaf, tulsi leaf, guava leaf, bitter gourd leaf, papaya leaf, coriander leaf, babul leaf, custard apple leaf is mixed in solution. It is mixed by shaking with wooden stick in clock wise direction for two minutes 2 times in a day for 3-4 days. Direct sunlight is avoided. Then it is covered with gunny bag. After 35-40 days, the mixture is ready for spraying and 5-6 liter of mixture is used in one

pump. Solution is used up to 6 months in all the crops.

Another natural farming practices is Aak mixture. This solution acts as antifungal along with increased potash level and decreased thrips and aphid attack in all crops. In a 200 liters barrel, 20 kg Aak (*ankado*), 1 kg jiggery, 5 kg cow dung and 5 liters cow urine is mixed with 150 liters water. After 20-25 days, solution gets ready to use with irrigation water or spraying with butter milk in pump. A next practices is buttermilk + lemon juice mixture, followed by 90.27 per cent of the farmers got sixth rank. It controls the harmful insect, sucking pest and reduce the damage in fruits, oilseed and pulses crops like, mango, pomegranate, custard apple and groundnut, sesame, pigeon pea, green gram, black gram, chickpea *etc.* crop. The water from the upper layer of buttermilk or butter milk and lemon juice is mixed and kept as such. After 1-2 months, 250-400 gm solution is added in each pump for spraying.



Plate 1: Preparing of *dashparni ark* by farmer



Plate 2: Preparing of *Neemastra* and *brahmastra* by farmer





**Plate 3: Preparing of *jivamrut* by farmer**

*Brahmastra* practices followed by 82.63 per cent farmers. It is used for the control of sucking pest and larva. It is made from gir cow urine 10 liters, neem leaf paste 5 kg, white datura leaf paste 2 kg, custard apple leaf paste 2 kg, karanj 2 kg, guava leaf 2 kg, castor leaf 2 kg and papaya leaf 2 kg mixture solution. It is mixed by shaking with wooden stick in clock wise direction for two minutes 2 times in a day for 7-8 days. Direct sunlight is avoided. Then, it is covered with gunny bag. After spray in pump with 200-250 ml/pump.

Next practices is neem kernel + jaggery mixture got eight rank. The solution is made from mixing 15 kg neem kernels and 3 kg jaggery in 50 liters of water in air tight condition. After 3 months, a spray of 500 ml solution in 15 liters pump is used for control of sucking pest and larvae of insect in groundnut, soyabean, black gram, chickpea *etc.* crops. Practicing natural farming farmer from 83.33 per cent farmers practicing solid *jivamrut*. Solid *jivamrut* is made by mixing of 100 kg gir cow dung, 1 kg jiggery, 2 kg pulse flour and 1-2 liters of cow urine. Water is sprayed with some time interval for two days and during these two days, contact of mixture with direct sunlight is avoided. After drying, it is packed in bag and can be used for 6 months in any crop as nutrient base.

Another natural farming practices adopted by farmers is carom (ajwain) flowers + peppermint sat (ijmet flower) + camphor (kapur) got tenth rank. 10 gm carom (ajwain) flowers, 10 gm peppermint sat (ijmet flower) and 100 gm camphor (kapur) is mixed without adding the water in a bottle. After one month, 4-5 ml solution is used for spraying per pump to control of sucking pest and other insect in groundnut, chickpea, green gram, bajra, wheat *etc.* crops. Next practice is buuter milk store in copper vessel. butter milk is kept in a copper vessel for 5-10 days and used

to control the insects and sucking pests in groundnut, bajara, maize, vegetable, sesame, sorghum *etc.* crops. Another natural farming practice is mixing of gir cow milk with turmeric powder. Farmers spray the mixture of milk and turmeric powder in fruit crops to reduce the flower drop in coriander, sesame *etc.* crops.

Majority (64.58 per cent) of the adopted natural farming farmers followed kesudo mixture practices. It is used for increase flowering in crop. Flowers of *butea monosperma* (*Kesudo*) 5-6 kg is mixed with 15-20 liters of water and 2-3 liters of cow urine. After 10-15 days, solution is ready for spraying. When the crop becomes 20-25 days old, 1-2 liters of solution is added in a pump of 15 liters and sprayed at 15-20 days interval for 3 to 4 times. Next practices is ripened banana solution. It is used as micronutrients in all crops especially in vegetables at flowering time. In an air tight cane of 15 liters, 5 kg ripened banana and cow urine or water is mixed and left as such for 5 days. After 5 days, the air is removed and is packed again for 5 days. The proportion to be used is 1 liter of solution per pump of 15 liters.

At the time of flowering, 2-3 sprays of mixture containing 500 ml of cow milk and 250 gm of jaggery in crop is practiced by farmers. Calcium is available in both milk and jaggery. Moreover, jiggery also attracts the honey bee which leads to increased pollination in coriander, sesame, green gram, black gram *etc.* crop. Majority farmers also used colosturm in field. The quantity of 500 gm colostrum is applied to the crop to increase the flowering in soyabean, coriander, chickpea, pigeon pea and vegetable crops.

Natural farming in fertilizer not purchased from outside. All residual plant crop and leaf cutting in small pieces are mixed with water in barrel and is kept for composting for

15-20 days. It is applied along with the irrigation to nutrient provide to plant. Natural farming practicing farmers are spraying solution with time interval, when insect attack is severe during the period of eleventh lunar day of fading moon to the dark moon night. So, the prepared solutions are sprayed during this period. Farmer used aloe vera for control of pest. 10 kg aloe vera, water and cow urine is mixed and sprayed in crops to control the thrips and other sucking pest in all crops. Those plants which are not eaten by animal it can be used for making insecticides.

This finding was in line with the findings of Singh and Tyagi (2014), Prajapati *et al.* (2018), Sarada and Kumar (2018), Kumar *et al.* (2019) and Ingale (2020), Padma *et al.* (2022).

## CONCLUSION

Farmers are aware about harmful effect of use of chemical fertilizer and conventional pesticides and now a day they are starting to natural farming. The current serious problem faced by farmer is pest management and nutrient management. From the above discussion, it can be concluded that Majority of the practices for nutrient and insect-pest control. Jivamrut, Neemastra, Bijamrut, Dashparni all four practices are more than 90 per cent farmer adopted due to highly useful for nutrient and pest management. The overall study showed that natural farming is in its nascent stage of development and has more scope and potential for development. Efficient working and implementation of all the organizational/institutional projects by integrating all the sectors shall increase the profit of the natural farming farmers and also afford a common man to buy natural products and this overall leads to a healthy sustainable ecosystem.

## ACKNOWLEDGEMENT

Authors are thankful to Department of Agricultural Extension, College of Agriculture, Junagadh Agricultural University, Junagadh, 362001, Gujarat, India.

## CONFLICT OF INTEREST

There is no conflict between author.

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Received : March 2022 : Accepted : June 2022