STATE PROJECT IMPLEMENTING UNIT (SPIU)
PRAKRITIK KHETI KHUSHHAL KISAN YOJANA (PK3Y)
Department of Agriculture, Government of Himachal Pradesh

Certified Evaluation Tool for Agriculture Resource Analysis-Natural Farming (CETARA-NF)

(SuSPNF(PK3Y) Digital Farmer Self Assessed Certified-Evaluation System)

A Handbook
Vision, Approach and Methodology

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About Natural Farming and its principles

Natural farming is a climate resilient farming system that advocates farmers to use low cost, locally sourced i.e. indigenous cow dung and urine based on-farm inputs. Natural farming's main emphasis is on enhanced soil conditions by managing soil humus and biological activities, reduced water requirement, enhanced biomass recycling, biodiversity and biological interactions.

Natural Farming has been implemented by the Government of Himachal Pradesh as the 'Prakritik Kheti Khushhal Kisan' Yojana (PK3Y) since May 2018. This Yojana is based on a holistic system built upon principles of Zero Budget Natural Farming, as propounded by Padmashri Subhash Palekar. This has proven to be a scalable model of Low-Input cost and productive farming output for a positive impact on Smallholder producer income systems. This system improves ecology by enhancing soil health through bio-inoculation, continuous vegetation cover on the farms, and reduced tillage resulting in increased sequestration of carbon in soils. The system is successfully supporting the state and India with meeting 7 SDGs with 15 Targets and 18 Indicators. The program enhances biodiversity by encouraging the production of traditional crops to ensure food security. Through optimal management of soil moisture and prohibiting the use of chemical inputs, it enhances water security. The Yojana successfully scales up since May 2018 and is in great strides to cover all 9.61 lakh producers towards 100% chemical free agriculture through the adoption of climate resilient production systems. Currently, grassroots systemic change is undergoing by scaling out with farmer-to-farmer interconnects through successful formal extension deployment of the ATMA infrastructure. Clear pathways are defined in the program to scale towards Market linkage based on Traceability and Transparency through an Innovative Sustainable Food Systems Platform for Natural Farming (SuSPNF). The program is also engaging the trained farmers for three panchayats and also added synergy to the upscaling of the program. Despite the COVID lockdown challenges, Natural Farmers successfully linked themselves with consumers in rural and peri-urban centres to continue food supply and enhance incomes. The robustness of the Yojana has led to the implementation of Innovative systems to ensure a grassroots change in Sustainable Agriculture.

The State Project Implementing Unit (SPIU)-Prakritik Kheti Khushhal Kisan Yojna (PK3Y) of the Department of Agriculture, Government of Himachal Pradesh (GoHP) conceptualised the practices and through the process of sensitisation, local level training, nearby exposure visits, and phase wise transformation expanded the outreach of the program.

Rationale of the concept: It is understood that over 98% of the nutrients that crops require — carbon dioxide, nitrogen, water, and solar energy — are already present in nature. The remaining 1.5-2% are taken from the soil, with the help of

microorganisms. Hence nothing external including industrial based inputs or water is required from outside the farm system.

Nutrient management of crops: The 'four wheels' of Natural farming are 'Jeevamrit', 'Beejamrit', 'Aachhadan', and 'Vafsa'.

A. Beejamrit is a seed treatment mixture to protect seed from diseases and enhance germination. It is a mix of desi cow dung and urine, water, bund soil and lime that is used as a seed treatment solution prior to sowing.

B. Jeevamrit is a fertility enhancing decoction. It is a fermented mixture of cow dung and urine (of desi breeds), jaggery, pulses flour, water and soil from the farm bund.This isn't a fertiliser, but just a source of some 3-500 crore micro-organisms that can convert all the necessary "non-available" nutrients into "available" form.

C. Aachhadan, or covering the plants with a layer of dried straw or fallen leaves, is meant to conserve soil moisture and keep the temperature around the roots at 25-32º C, which allows the microorganisms to do their job.

D. Vafsa enables the maintenance of moisture air balance in the rhizosphere. It is providing water to maintain the required moisture-air balance and also achieves the same objective.

Management of pests: The use of 'Agniaster', 'Bramhaster' , and 'Neemaster'/ 'Paudhaster concoctions' are prepared from the mixture of cow urine and local plants. They are based on cow urine and dung, plus pulp from leaves of neem, white datura, papaya, guava, and pomegranates — for controlling pest and disease attacks. Further, the pulp of leaves from locally available plants is also used.

Dynamic Innovation system*:* Apart from the above basic principles, this innovation continuously evolves in the field of farmers. Based on the altitude, soil quality, and variability of the pests, we are always buzzing with natural farming farmers sharing their experiences and ways to tackle any problem faced on the field. The inclusion of new practices base itself on farm visit, validation and further inclusion in the package of practices. Such learnings are also shared amongst other farmers through communication platforms like WhatsApp groups, periodic meetings, Facebook and Youtube videos amongst others.

I. Critical evaluation of current certification systems

Certification: Certification is a formal attestation of whether individuals are knowledgeable enough in a given occupational area to be labeled "competent to practice" in that area. Upon definition of standards and regulations, the accreditation body may allow a third party to provide third-party certification. It ensures and assesses compliance to the defined standards and provides an official certification mark or a declaration of conformity. This enables a certified individual/body to have a

competitive advantage in various markets, add to the brand value and gain premium price for the goods/produce.

India has more organic farmers than any other country, which is approximately 6 lakh farmers (2015). It is noted that in policy debates and calculations, the distinction between organic farmers and natural farmers currently does not exist, and there is no specific certification system for natural farming produce. This section will go in detail through the two existing organic certification systems, to identify their pros and cons and to learn of the alignment as well as distinction that certification system of natural farming produce may require.

Since 2001, the government has been promoting organic farming through third party certification under the National Programme for Organic Production (NPOP). It was only in 2015 that the present dispensation officially recognised PGS. The NPOP, which is run by the Ministry of Commerce, was originally meant for exports and requires adherence to stringent standards.

As per the new regulation by the Food Safety and Standards Authority of India (FSSAI), farmers can obtain certification through two processes, both of which, are difficult and time-consuming.

- The first option is to get a certificate, valid for one year, from one of the 28 third-party certification agencies accredited by the Agricultural and Processed Food Products Export Development Authority (APEDA) under the National Programme for Organic Production (NPOP).

- The other option is the Participatory Guarantee System-India (PGS), under which a group of farmers come together and vouch for each others' produce. While PGS certification can be obtained for free, getting the certificate takes three long years, even if the farmer is already practising organic.

Before the new regulation kicked in, only farmers and food processors exporting their products needed mandatory certification and domestic players could operate without a certification[1]. We understand that at present FSSAI has limited the annual turnover to ₹12 lakhs, therefore, farmers do not have any other pending requirements to be able to access the market.

The table below compares the two on various constitutional, strategic and operational aspects

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[1] It is important to note that direct marketing done by Small original producers or producer organisations to the end consumer and having an annual turnover of not more than ₹12 lakh are permitted by FSSAI to do business without the certifications.

ASPECT	NPOP	PGS
Principle	Organic agriculture practice is based on four principles of IOFAM – Health, ecology, fairness and care.	Guiding Principles of PGS is participation, shared vision, transparency, trust, horizontality, national networking.
Process	Third party verification – both farmers and processors are eligible.	Farmers will have to form a group of at least five and then apply for PGS. Only farmers and PGS farmer-based federations can be certified under PGS. Off farm processing activities are no covered under PGS.
Form	It involves the accreditation programme for Certification Bodies, standards for organic production, promotion of organic farming.	The certification is in the form of a documented logo or a statement. PGS is applicable on on-farm activities comprising of crop production, processing and livestock rearing, etc.
Accredited agencies	There are 24 accredited certifying agencies that verify farms, storages and processing units.	47 Facilitating agencies under PGS.
Time to get certified	For perennial crops – Waiting period is 3 years For Annual crops – Waiting period is 2 years	Registration of a new farmer takes upto 3 years
Verification and Inspection process and time	Inspection agencies and inspectors will review every year.	A farmer has to peer-review the fields thrice every season—during sowing, harvest and once in between. This inspection takes around 12 days every season
Logo specification	Products certified organic by them carry the India Organic logo.	Produce from farms that are being converted to organic carries the PGS-India Green logo during the transition period, and after three the farm will be eligible for the PGS-India Organic symbol.
Land under certification	In 2015-16, there were 1.5 million hectares of cultivable land certified under NPOP.	There are 3.5 lakh farmers under the initiative, owning 2.7 lakh hectares.
Nodal Agency	Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce	Ministry of Agriculture through National Centre for Organic Farming (NCOF)
Validation	Recognized by the European Commission, Switzerland and USA as equivalent to their respective accreditation systems.	-
Cost	Range between INR 15,000-50000/year	INR 1000 per year for first two years, and lesser later

II. Need for innovation in the certification system

Some of the common challenges faced in the existing certification system are summarised below:

NPOP (Third party certification)	PGS
• Expensive for the individual farmer to bear the cost of such certification. • It certifies the product and not the producer and therefore requires extensive planning and documentation for initial as well as any revisions in crops sown and grown – thus making it difficult for farmers to apply and avail.	• Individual farmers cannot apply unless there are farmers living in a similar geographical area. • Regional Councils require funds for data collection, and management and the absence of funding have led to many RCs being defunct and non-operational. • Although this certificate is free to obtain and the documents needed are basic, its operation and procedure are difficult to be used by an individual farmer/ group of farmers as it does not provide any local language support. This is highlighted by the fact that governments usually rely upon services from Implementation Agencies(IAs) which are tasked to register farmers and groups on the PGS-India platform.

One can summarise that there is a definitive trade-off between cost, operation and time taken to obtain legitimate certificates in both systems. Therefore, the State Project Implementing Unit (SPIU)-Prakritik Kheti Khushhal Kisan Yojna (PK3Y) of the Department of Agriculture, Government of Himachal Pradesh (GoHP) has decided to design a novel certified evaluation system for natural farming based on the needs and requirements of small and medium holder farmers in Himachal Pradesh and eliminate the shortcomings in the conventional third-party evaluation and PGS-India. The ultimate purpose is to provide an inexpensive and easy process for farmers to certify and for consumers to gain confidence on the food they are consuming.

The Sustainable Food Systems Platform for Natural Farming (SuSPNF) program is initiated by the Department of Agriculture, Government of Himachal Pradesh. It is based on intensive engagement with smallholder farmers since 2018 and has a network of 150000+ farmers with the goal to become a 100 percent Natural Farming state soon. This project plans to cover all farming families of the state and aims to extend its coverage to 20000 ha. Department of Agriculture, GoHP is inclined to consolidate and support natural farmers in segregated markets for natural farming based products for two primary reasons -

- To incentivise the practice of natural farming among producers and provide recognition for the same.

- To promote awareness among consumers by providing a more natural and chemical free alternative graded option.

III. About the CETARA-NF

The Certification process under the SuSPNF program is a Self Assessment Certified Evaluation Methodology. It has been named as Certified Evaluation Tool for Agriculture Resource Analysis-Natural Farming (CETARA-NF)

Key Principles: The founding principles of the proposed certified evaluation methodology i.e. CETARA-NF are:

- Simple for farmers and implementation agency
- Based on principles of No use of Agro-chemicals and GMOs
- Based on principles of Natural Farming as propounded under PK3Y Scheme
- Scalable with other schemes/regulations at national and international level
- Based on transparency and traceability between Farmer and Consumer

Highlights of the Certified Evaluation system: The features that makes CETARA-NF distinct from existing certification system are:

- Self-certification – has easy process at the end of the farmer
- Convenient for new joining farmers as there is a defined rating from the start
- Fast in response as the certification is generated within a set time frame
- Possibility for individual farmers to also apply and certify their produce
- Review process based on peer farmers as well as nodal officers at the block

Grading and Rating System in the Certified Evaluation System: Through the SuSPNF platform, Department of Agriculture, Government of Himachal Pradesh has laid down the standards of the NF practices and has provided an appropriate score for each under PK3Y scheme. The ratings are received based on the final score obtained with the goal of promoting natural farming practices and conventional farming practices are discouraged by lowering the score to an entry level rating. This ensures fairness as well as the distribution of ratings across the number of farmers. State Domestic Production Certification Protocol (SDPECP) has defined three levels and rating of NF:

- Antral-PK3 ⭐ Entry level rating which signifies a farmer's initial conversion from chemical to NF

- Sadharan-PK3 ★ ★ NF practices adopted by farmers with some use of external non-chemical inputs. This is provided after one year of Antral-PK3

- Vishisht-PK3 ★ ★ ★ This rating specifies a farmer practising NF strictly. This is provided after a year of Sadharan-PK3.

Process of certified evaluation in CETARA-NF: In the digital certification system, any farmer who practices natural farming can use this methodology for self-evaluation based on the parameters defined under this methodology. In addition, the peer farmer group will also certify that individual farmer in this process for the same criteria. Upon verification by Block Technology Manager (BTM), a final score and rating will be generated. The designated authorities in the Government of Himachal Pradesh will act as monitoring heads and thereby approve the certification rating and methodology. The certification process is decentralised in the manner that self evaluation and peer-review of farmers is practiced in a defined methodology and approved by the respective BTM. Any anomalies in the procedure or any errors trigger a notification to the higher institutions for further action/review. This ensures the system is reactive in nature instead of proactive wherein the superior authority for licensing certificates rests at the top level of the institution.
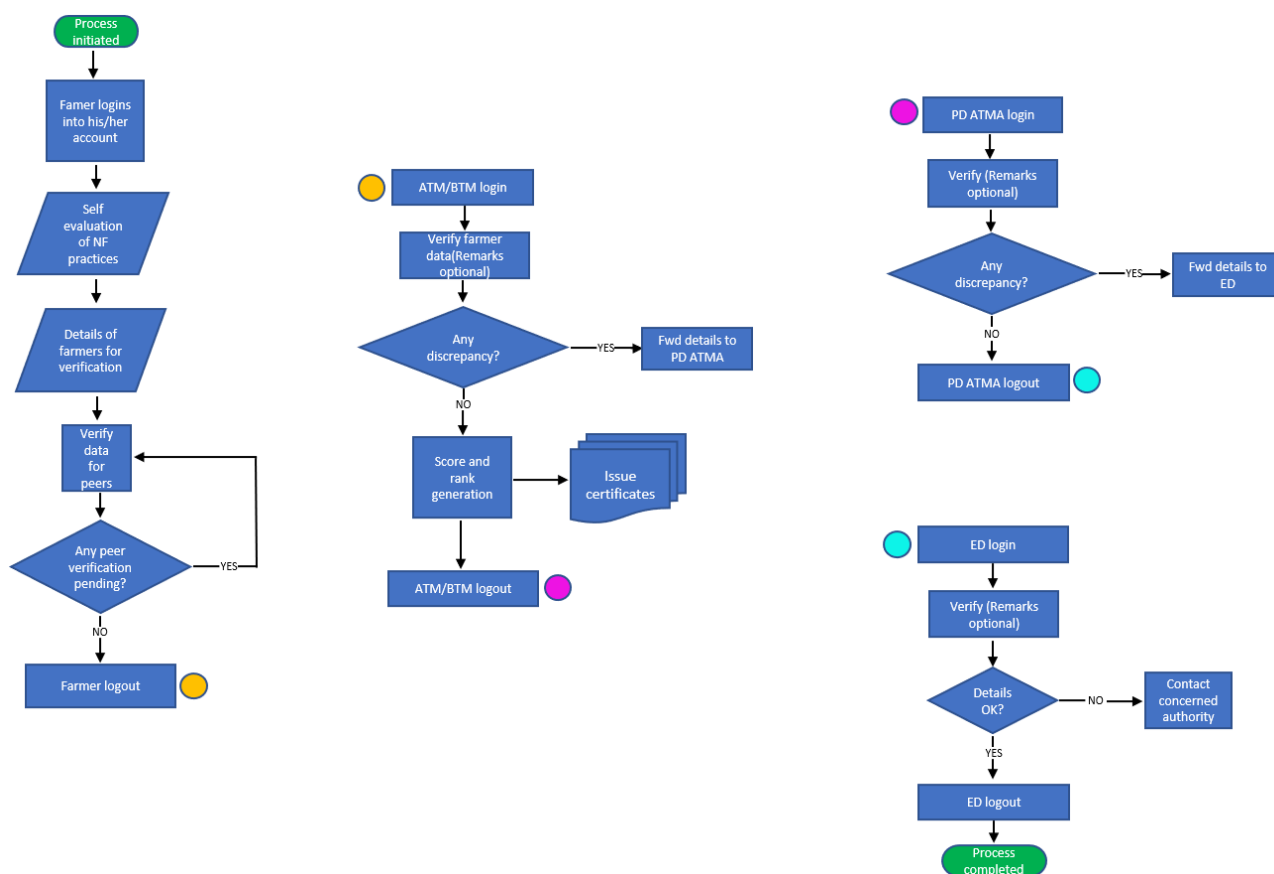
Organisational Structure: The branding of the methodology will remain at the Higher order institutional level i.e. at the State Department of Agriculture while the farmers, FPOs, and other institutions will have the right to use based on various accessibility nodes. These standards are complying and complement existing regulatory systems and market identities and do not aim to compete with any certification system. Also, the certified evaluation methodology will be a multi-tier mechanism to access markets at multiple levels - State, National, and International.

Level	Body	Role
International	IOFAM, INRAE, FAO	Currently exploring the possibility of endorsement/validation of the methodology
National	NITI Aayog, Ministry of Agri, GoI	Possibility of endorsement and replicability/scalability across the country
State	SPIU-PK3Y, Dept of Agri, GoHP	Monitoring and review, maintaining the standards, ensuring compliances and routine inspections. Over time, a specialised cell or body can be developed under SPIU that takes up this role.
District	District Officer, ATMA	To verify or correct course in case of any discrepancy in data or delay in certification
Panchayat	ATMA Officers – ATM-BTM	Verify the farmer data and practices as mentioned on the farmer
Village	Peer review of the farmer	To verify the practices of the farmer practicing natural farming
Farmer	-	Self certify

IV. Trademark Logo and License

Natural HP Logo

A trademark – "Natural HP" is granted on the basis of compliance with the standards laid by State Domestic Production Certified Evaluation Protocol (SDPCEP). Only such farmers, manufacturers and processors whose products are duly certified by the accredited Certification Bodies or ED, SPIU(PK3Y), are eligible for grant of licence to use the logo.

Grant of Licence

If, after having regard to requisite skill, resources, production, processing previous performance and antecedents relevant to the issuance of the licence, the Accredited Certification Body (SPIU, PK3Y) is satisfied that the applicant is fit to use the

Certification Trade Mark, the Accredited Certification Body issues a licence authorizing the use of the Certification Trade Mark in respect of the farmer, product or class of products manufactured by the applicant in respect of the process employed in any production, subject to such terms and conditions as specified in these regulations for a period not exceeding **one year/crop cycle**.

The Applicant on receipt of the licence shall be entitled to use the Certification Trade Mark and restrict its use to such products, which will meet the norms and standard specifications of the products, set out in the SDPCEP. The Certification Trade Mark may be affixed to the products and/or used on packaging or promotional material or in the context of advertising activities.

In the event of a withdrawal of the right to use the aforesaid Certification Trade Mark, the certificate or the Licence shall be returned to the Accredited Certification Body.

Withdrawal of license

Any licence granted by the Accredited Certification Body may be suspended or cancelled by it, if it is satisfied that:-

i.   The products marked with the Certification Trade Mark do not comply with the related norms and procedures under SDPCEP; or

ii. The licensee had used the Certification Trade Mark in respect of a process which does not comply with the SDPCEP; or

iii. The licensee failed to provide reasonable facilities to the Accredited Certification Body to enable them to discharge the duties imposed on them; or

iv. The licensee has failed to comply with any of the terms and conditions of the licence.

Surveillance and randomized review

The grant of a licence shall be followed by surveillance visits determined by the Accredited Certification Body. The surveillance visits may be without notice to the applicant to ensure that the systems and procedures already assessed are being maintained. A special reassessment visit shall be necessary where an applicant fails to observe the conditions of the licence or where there have been significant changes in the organization of the applicant.

Responsibility of licensee

Licensee on grant of a licence to use of Certification Trade Mark shall:

i.   At all times comply with the requirements of the licence as set out therein and comply with these Regulations or any amendments thereto.

ii. Only claim that it is holding a licence in respect of the capability which is the subject of the licence and which relates to the products or processes in accordance with the licence requirements.

iii. Not use the licence in any manner to which the Accredited Certification Body may object and shall not make any statement concerning the authority of the applicant's use of the licence which in the opinion of the Accredited Certification Body may be misleading.

iv. Submit to the Accredited Certification Body for approval the form in which it proposes to use its licence or proposes to make references to the licence.

v. Upon suspension or termination of the licence, however determined, discontinue its use forthwith and withdraw all promotional & advertising matter which contains any reference thereto.

V. Certification Process under CETARA-NF

A typical example of the process of obtaining certification for a farmer under SDPCEP is as follows:

- Application for registration made by the farmer on the certification portal/ mobile application in the prescribed format with KYC details

- Application for certified evaluation is made by the farmer to the certification agency in the prescribed format with necessary farm and NF practices details.

- In addition, the applicant/farmer provides details of farmers for its peer-review who will approve/disapprove the inputs given by the applicant/farmer

- Screening of application by local ATM/BTM ATMA office and if necessary further details/clarification sought

- Signing of agreement between farmer and ATMA officials for onboarding NF platform

- Certification agency seeks NF production/cultivation/processing plan and crop details

- Inspection schedule is worked out and is carried out at one or more than one occasion

- If required, an unannounced inspection can also be done. In case of doubt, the inspection team can also draw plant/soil/raw material/input/product samples for laboratory analysis.

- Upon verification by physical Inspection, the ATM/BTM official approves the application for certification.

- Certification is granted

- On grant of certificate, the farmer is deemed NF farmer and is applicable for the licence for use of the '**Natural HP**' Logo

- Real time monitoring of the aforementioned process and discrepancies in this SOP are alerted to higher district ATMA officials and ED, SPIU(PK3Y) for review.

VI. Auditing Process

To ensure that the protocols and standards are followed, a randomized audit process will be carried out during the period of validation of the certificate. The following process will be carried out for randomized testing under CETARA-NF:

- The digital system identifies 5% of farmers by randomization for all districts of the state. These farmers are labeled as 'farmers under review'(FUR)

- An Auditing committee is formed comprising of district officials (PD ATMA), the BTM, and one champion NF farmer of the panchayat. In the case of the non-availability of a champion NF farmer in the panchayat, the geographically nearest champion NF farmer is appointed for the committee.

- The auditing committee (AC) will conduct independent physical verification of the farmer

- Sufficient information is made available to the AC about the FUR to allow proper audit which includes earlier reports, if any, a description of activities/processes, specifications, inputs used, earlier irregularities, infringements, conditions, and disciplinary measures.

- The checklists used during the audit and the reports emanating from the inspection shall be comprehensive covering all relevant aspects of the production standards (SDPCEP) and shall adequately validate the information provided.

- Audit checklist and reports shall follow specified methods to facilitate a non-discriminatory and objective inspection procedure. The reports shall be designed to allow for elaborate analysis by the AU on areas where compliance might be partial; standards might not be clear.

- Audit reports shall give adequate information on what was actually checked including but not restricted to:

  o Date and time of inspection
  o Peer group of FUR interviewed
  o Crops/products requested for certification
  o Fields and facilities visited
  o Documents reviewed
  o Calculation of input/output norms, production estimates etc.
  o Assessment of production system of operator
  o Assessment of the use of logos/ approvals (India organic logo, product logo as well as the Certification Body's logo)
  o Evaluation of compliance to standards and Certification requirements

- The final decision for adjusting the star rating of the FAU will be done by AU based on the detailed finding in the report.

- Of the total sampled FAU, 2-5% of them will be audited by SPIU independently.

VII. Features of the digital evaluation system of CETARA-NF

Certified evaluation system score the farmer based on the farming-based inputs for manure and pest control that it uses. There is positive scoring for using natural products and negative in case any fertiliser and external pesticide is used. The number of years since natural farming is practiced also provides an incremental score to the farmer. The details of natural farming practices and their parameters, weights, and scores are listed in Annexure I.

1. A group of farmers comprises five(5) farmers with individual farmers having four(4) peer-review farmers.

2. Peer-review farmers can be of the same panchayat. It is not necessary for them to be in the same group. There is a choice for the farmer to select any four peer review farmers from his/her panchayat.

3. For farmers with inadequate peer-review farmers, BTM can complete the evaluation for such farmers.

4. ATM/BTM officers can log in to verify and approve/disapprove the certification of farmers governed in their block. In addition, they can check real-time certification status of individual farmers and can troubleshoot if there are any discrepancies. Their dashboard will contain analytics related to respective blocks. Only upon approval from ATM/BTM, shall the score, rating, and QR code be generated.

5. PD officers (monitoring role) can log in to check the status and analytics of certification as well as the status of ATM/BTM officers and blocks of their respective states.

6. ED, SPIU(PK3Y) (monitoring role) can log in to check the status and analytics of certification as well as the status of PD officers and districts of the state of Himachal Pradesh

7. Scanning the QR code from the application will direct the user to a pdf certificate containing details of the farmer and his/her rating.

8. The scores for ratings have been given appropriate weights which complement farmers practicing natural farming for three or more years to be eligible for obtaining the highest rating.

9. Inclusion of independent audits and random sampling of farmers to generate a trigger in the system such that the rating of the corresponding farmer to be downgraded

The digital application platform is designed to have the following aspects:

- OTP enabled login portal for farmers, block level officers, administrators

- Voluntary information on NF practices provided by the registered farmers

- Peer review by a group of minimum three farmers to certify the authenticity of the information provided by the individual farmer.

- Notifications sent to higher authorities for anomalies in the certification process

- QR code generation which can be scanned promptly to receive the updated rating of the farmer. This will ensure transparency to the market and the consumer.
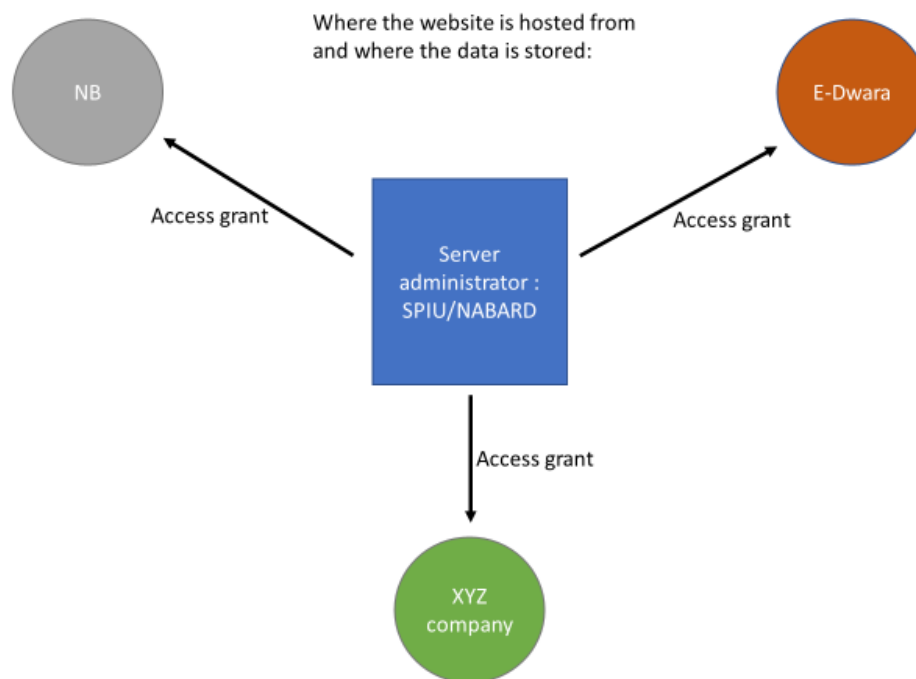
- The certification format issued by the department provides suitable weight and score to each input that is to be entered

- The individual farmer enters the data online voluntarily and will declare crop wise area in each Kharif and Rabi season immediately after sowing of the crop. This information will be used for monitoring as well as forecasting production levels.
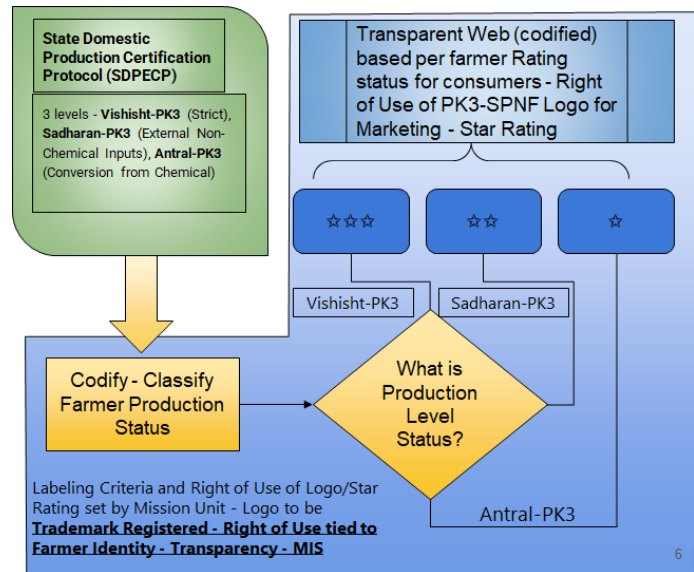
- The individual farmer's inputs are then endorsed by its peer farmers and block level officers.

- System evaluates an appropriate star rating based on the total score received from the data acquired

- A digital mapping is produced for each farmers' rating with a QR code. This will further enable uploading the PGS data (SDPCP levels) on the national certification system of PGS-India.

- A GIS based dashboard will present the status of certification of farmers and necessary analytics to monitor at the administration level.

VIII. Risks and mitigation strategies

Case 1. SPIU is the administrator of STPI server

Where the website is hosted from and where the data is stored:

NB

E-Dwara

Access grant

Access grant

Server administrator : SPIU/NABARD

Access grant

XYZ company

Pros: SPIU has root access and can authorize any user(company) with appropriate privileges to either build new IT infrastructure and maintain existing infrastructure. Multiple users(companies) can simultaneously work on different aspects of the platform. For example, 'A" can build a web portal for data entry, accounts, and certification. 'B' can build a dashboard based on the present data or XYZ can do some other job. In addition, the database control automatically resides with SPIU

Cons: If there are multiple partners, for example, NABARD or NITI AYOG, then there could be an administrator discord. This means if they independently want to hire any company for their use of this server, then they will have to ask the administrator(SPIU) to grant those privileges to the said company

Recommendation: This is the best case scenario.

Case 2: Server administrator is someone else

Pros: SPIU will hold access to its DataBase (DB) on the server which will contain all NF farmer accounts data etc. SPIU only has to request for privileges from server admin if they hire to do the work.

Cons: The credentials (username, password) that are required to access DB are stored in the server itself. So the admin/root user can get to those credentials if they need it.

Recommendation: To use encrypted connection. Databases usually support encrypted connections between clients and the server using some security protocols.

Using SSL, it will encrypt the communication between DB and server. This turns the data into an unreadable format over the network layer, and avoids network eavesdropping. Once we enable SSL on the database, it starts to support encrypted connections, and won't allow unencrypted connections.

IX. Scoring in CETARA-NF

Natural farming is an indigenous system based on cow dung and urine, biomass, mulch, and soil aeration. The methodology for the ranking and rating of the farmers will be based on the extent of Subhash Palekar Natural Farming (SPNF) principles/practices being adopted by the farmer for crop production on his/her farm. Various SPNF practices will be assigned weights depending on their importance. Prohibited crop production practices will attract penalties and will be assigned negative weights. Performa and methodology of the certification has been detailed in Annexure I and II. Weights and penalties proposed under this methodology have been discussed and presented in the following paragraphs.

a. **Women empowerment**: Various agricultural operations starting from the sowing of seed/ plants to the harvesting of crops had to be carried out by the farming families. Both male and female members are equally involved in these operations. Earlier male members made critical farm management decisions like the selection of crops and variety to be sown purchase of inputs and marketing channel selection for the disposal of the marketed surplus. Now with the spread of literacy among female members and exposure to various aspects of agricultural production technology through training, women have also started participating in the decision making process of family agribusiness. To further encourage this process of women empowerment, We have given a weightage of 2 points to those SPNF families where women have a primary/equal stake in the natural farming related decision making process of the family.

b. **Exposure to SPNF practices**: SPNF practices were started by farmers across the state after the launch of Prakritik Kheti Khushhal Kissan Yojna (PK3Y) in 2018. SPNF is a "Regenerative agriculture" for holistic land management practice involving a complete paradigm shift from external input based Green Revolution. Therefore, an experienced farmer has a higher chance to ensure qualitative production on his/her farm and they have been given higher weightage points in this methodology. Presently, farmers have a maximum exposure of three years to these practices. Experience of 2 or more years will be given maximum points i.e. 4, while the experience of up to 2 and 1 years will fetch 3 and 1 point, respectively.

c. **The four wheels of SPNF**: SPNF production practices include four important non-negotiable practices: Bijamrita (Seed Treatment using local cow dung and cow urine), Jiwamrita (applying inoculation made of local cow dung and cow urine without any fertilizers and pesticides), Mulching (activities to ensure

favorable microclimate in the soil), and Waaphasa (soil aeration). These practices are a must for the realisation of the sustainable production potential of the crops as well as the agroecological objectives of the PK3Y. All these activities have been assigned 4 points each and farmers should practice them all to obtain higher star ratings.

d. **Intercropping/Mulching**: Increasing functional diversity is a critical principle of SPNF. Therefore, a number of crop combinations for increasing functional bio-diversity are proposed under SPNF. Intercropping of the main crop with cover crops of a mix of monocotyledons (like millets) and leguminous dicotyledons (like beans) leads to a symbiotic relationship among them. The monocots provide nutrients like potash or phosphate, while the dicots help in nitrogen-fixing. Straw mulching is also promoted, using dry crop residue.This ensures better health for the soils and must for sustaining the productivity levels of agricultural lands. Costs incurred on the main crop also get compensated by income from intercrops, making farming a close to zero budget activity. This activity has been assigned 4 points.

e. **Indigenous cow**: *Bos indicus* (Indigenous humped cow) is the base of the Subhash Palekar Natural Farming. Indigenous cow dung and urine have the highest concentrations of micro-organisms and its formulations are used in SPNF practices instead of chemical fertilizers and pesticides. It has proven to be a miraculous cure to revive the fertility and nutrient value of soil. Urine and dung from one cow are enough for farming 30 acres of land, so cow ownership by each individual farmer is not necessary. But the farmer having his own indigenous cow will be assigned 4 points because he can ensure quality and timely application of the various cow dung and urine-based formulations. Cross-bred indigenous cows will be assigned 2 points.

f. **Land under SPNF**: Land is the major natural resource impacting the adoption and spread of SPNF practices. A major proportion of farmland holding should be under SPNF to ensure the supply of chemical free agricultural produce. This scheme was launched only three years back, therefore, the majority of farmers are still in the process of converting their farms to SPNF practices. Therefore, different weights have been assigned on the basis of the extent of conversion of farms from conventional chemical based farm practices to chemical free SPNF practices. The farmer must cover more than 75 % of his land holding under SPNF practices to secure 4 points under this certification and those having 51-75%, 26-50% conversion under SPNF will get 3 and 2 points, respectively. Farmers having less than 26 % conversion will get only 1 point.

g. **Training attended**: SPNF crop production practices represent a complete paradigm shift from conventional practices presently being followed by the farmers. Farmers have least or no exposure to SPNF practices. So, training conducted by the Agriculture department is the only source of exposure to SPNF practices. These trainings are of 2 to 7 days duration and Sh Subhash

Palekar, department officials, and farmers share information about and exposure to various aspects of SPNF production technology in these trainings. Trained farmers have been assigned 4 points in this methodology as only trained farmers can assure the production of chemical free agricultural produce, whereas untrained farmers may unintentionally use inputs that are prohibited in this crop production practices.

h. **Decoctions and plant extract used**: Pest management is a very critical aspect of crop production technology otherwise huge losses are inflicted due to the economic losses in the form of damaged farm produce. A number of decoctions and plant extracts acting as natural fungicides and pesticides made from locally available ingredients like neem leaves, chilies, garlic, sour buttermilk, tobacco, etc are prescribed in SPNF. The use of these formulations as prophylactic measures for guarding or preventing the spread or occurrence of disease or insect infestation ensures minimal or no damage to the farming ecosystem. Their use will fetch 2 points per formulation. However, proper farm management leads to a situation when pest infestation is minimal and leads to any economic losses, such a situation will also be rewarded with 4 points.

i. **Separate storage facility for SPNF produce**: The majority of the SPNF farmers are practicing both SPNF and conventional farming methods on their lands. Therefore, chances of mixing the SPNF and conventional farm produce. Therefore, farmers with separate storage facilities for SPNF and Conventional produce will be encouraged and assigned 2 points.

j. **Externally sourced Organic inputs used**: SPNF crop production practices don't allow the use of externally sourced organic inputs like biofertilizers, botanical extracts/ biopesticides, organic manure/ Farm yard manure (FYM), vermicompost, etc because the use of these inputs will make this farming capital intensive. SPNF promotes the use of inputs available on the farm or in the nearby locality so that cost of cultivation could be minimized. Therefore, the use of any of the externally sourced organic inputs will attract a penalty of 2 points for each input.

k. **Chemical inputs used**: Use of chemical inputs like fertilizer, pesticides, antibiotics, food additives, etc is prohibited in SPNF. *Farmers still using any chemical will not be eligible for 3 (Vishisht) and 2 (Sadharan) star ratings and other benefits associated with this certification process.* Such farmers, who have just started SPNF practices can be assigned only 1 (Antraal) star rating. Use of each category of chemical inputs will attract a penalty of 5 points.

This certification methodology was pre-tested in Shimla, Mandi, and Solan districts on 130 farmers. The results of the certification score achieved by these farmers have been presented in the following figure. Distribution according to the score range
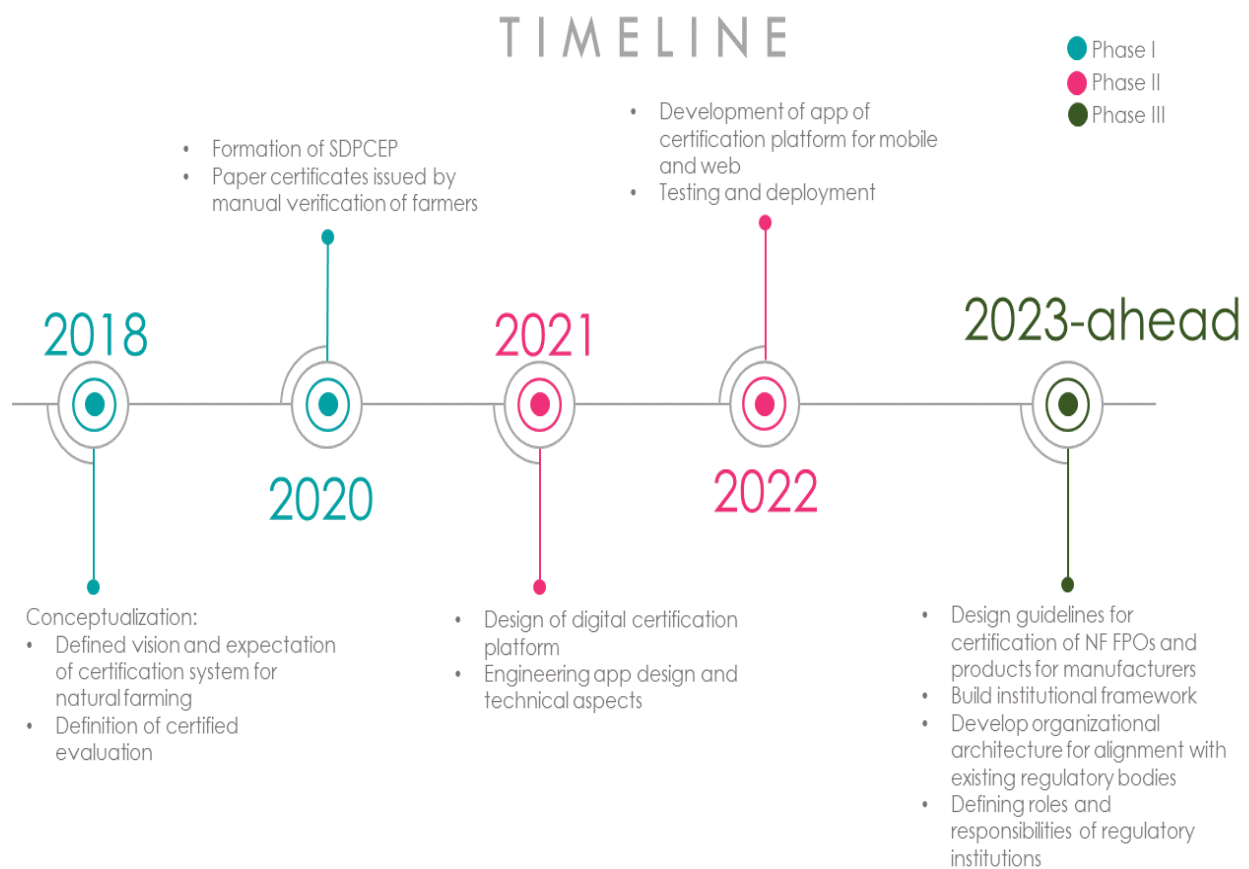
finalized in the chart gave the best normal distribution of the farmers. Therefore, this score range was finalized to classify the farmers into different star ratings.

Distribution of Farmers according to Certification Score
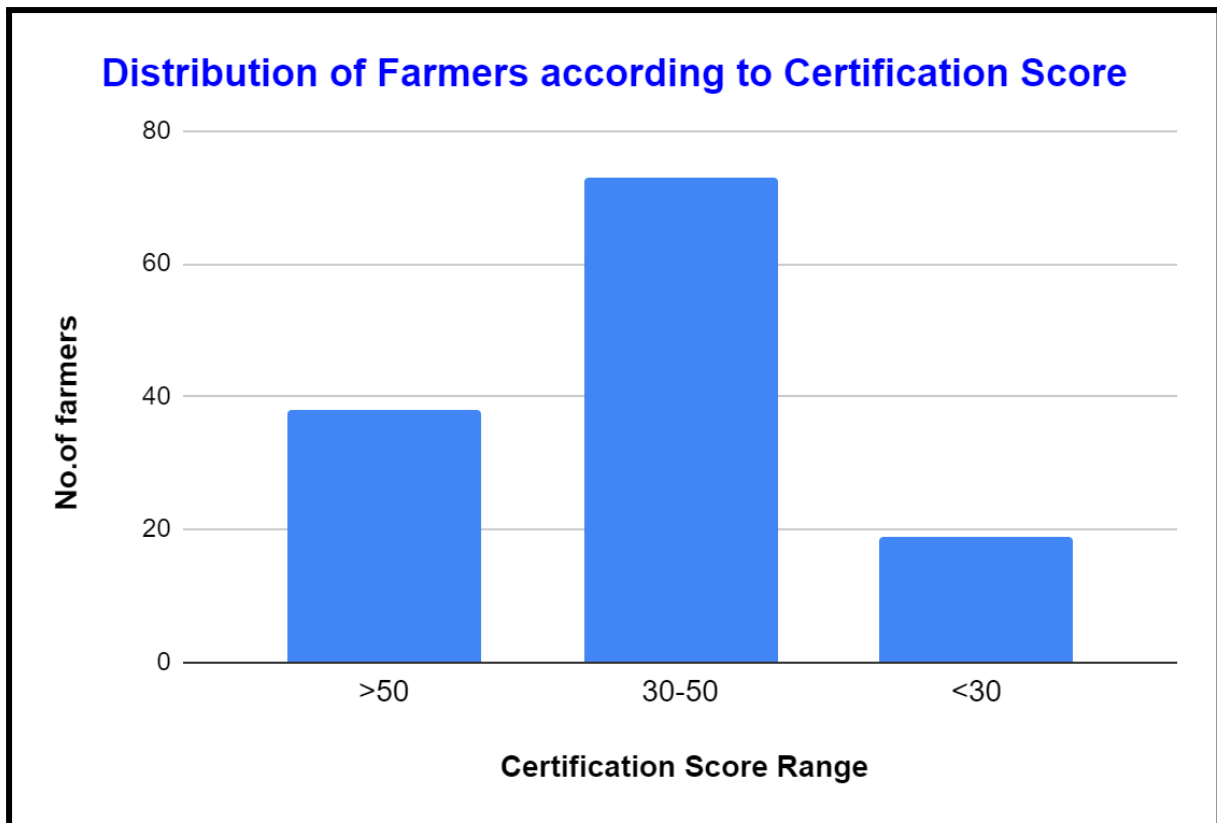
Farmers scoring equal to or more than 50 points in Self Declared Evaluation Methodology and cultivating crops entirely with SPNF ingredients and practices will be assigned three stars and labeled as "Vishisht-PK3 (Strict)" farmers. Farmers scoring between 30 to 50 points will be labeled " Sadharan-PK3 farmers (External Non-Chemical Inputs)" and will be assigned two stars. These products can use the word "SPNF naturals". Both Vishisht and Sadharan will be allowed to display the SPNF logo on their products. A third category, less than 30 points, can be labeled " Antral-PK3 (Conversion from Chemical)" and will be assigned only one star. Products Antral-PK3 ranking cannot advertise the word "SPNF naturals and the SPNF logo on their products to consumers and can only mention this fact in the product's ingredient statement.

The certification has incorporated the weights to the different components of the certification methodology. In the future, if the need is felt to increase or decrease the role of any component of natural farming practices in certification scoring methodology then it can be done by changing the weights of that component. The higher or lower weight assigned to any component will increase or decrease the role of that component in the total certification score generated for the farmers. This change can be incorporated by SPIU without any dependence on the website of the mobile application developer.

X. Phase wise implementation and timeline

TIMELINE

● Phase I
● Phase II
● Phase III

2018

- Formation of SDPCEP
- Paper certificates issued by manual verification of farmers

2020

- Development of app of certification platform for mobile and web
- Testing and deployment

2021

2022

2023-ahead

Conceptualization:
- Defined vision and expectation of certification system for natural farming
- Definition of certified evaluation

- Design of digital certification platform
- Engineering app design and technical aspects

- Design guidelines for certification of NF FPOs and products for manufacturers
- Build institutional framework
- Develop organizational architecture for alignment with existing regulatory bodies
- Defining roles and responsibilities of regulatory institutions

Acknowledgement

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XII. Annexures

Annexure– I – Self-Certification Performa

Details of farmer			
Name of the Farmer			
Father's name			
Age			
Category (SC, ST, OBC, GEN)			
Village			
Panchayat			
Block & District			
Vidhan Sabha & Loaksabha Consituency			
Mobile Number			
E-mail id (if any)			
ID (Aadhaar/SPNF ID)			
Particulars	**Data**		**Remarks**
Gender (M/F)	Male /Female		
SPNF inputs use and practices			
Beejamrit	Yes/No		
Jeevamrit	Yes/No		
Ghanjeevamrit	Yes/No		
Wapsa	Yes/No		
Mulching	Yes/No		
Experience in SPNF			
>2 years	Yes/No		
Upto 2 years but >1 years	Yes/No		
Less than 1 year	Yes/No		
Cultivated land of farmer (in Bigha)	Total:		Under SPNF:
Land details (Khasra No. /GPS coordinates)			
Cultivated Land under SPNF (%) (Tick)	● upto 25% ● 26- 50% ● 51-75% ● more than 75%		

Crop rotation (Details regarding Crop name, Area, Companion crops, Expected production and expected marketable surplus)

Kharif season Crops>					
Area(Bigha)>					
Rabi season Crops>					
Area(Bigha)>					
Fruit crops with mixed cropping Crops>					
Area(Bigha)>					
Mixed Cropping with leguminous crop	Yes/No				
Indigenous /Cross bred/Exotic Cow	Yes/No				
Training attended:	Yes/No				
If yes Date					
Venue					
Duration	2 days/ 5-7 days				
Trainer (Tick)	● Subhash Palekar ● ATMA officials				
Using self-prepared SPNF inputs	Yes/No				

Concoctions Applied		
Khatti Lassi	Yes/No	
Sapt Dhan Ankur Ark	Yes/No	
Neemastra	Yes/No	
Other Concoctions		
Agniastra/Brahmastra/Dashparni Ark etc	Yes/No	
Above Astra's application Not Needed	Yes/No	
Separate storage facility for SPNF produce	Yes/No	
Externally sourced Organic inputs use		
Use of bio fertilizers	Yes/No	
Use of botanical extracts/ bio pesticides	Yes/No	
Use of organic manure	Yes/No	
Use of vermicompost	Yes/No	
Chemical inputs used		
Fertilizers (Urea etc)	Yes/No	
Fungicides	Yes/No	
Insecticide	Yes/No	
Herbicide	Yes/No	

I hereby declare that the details furnished above are true and correct to the best of my knowledge and belief and I undertake the responsibility to bear the consequences arising out of the wrong information provided by me in this performa.

Date: Signature of Farmers

Place:

Verification by neighboring Farmers (minimum three farmers)

Farmers Name	Father's Name	Contact No.
1.		
2.		
3.		

Verification by ATM/BTM

I have personally verified the details provided by the farmer and confirmed it from neighbouring farmers.

ATM/BTM Name………………………………….Block……………………Phone no…………………………

Approval By

Project Director (ATMA)

Annexure – II –Natural Farmer's Self-declared Certified Evaluation -Scoring

Particulars	Data	Weight/Penalties	Weighatge	Score
		(A)	(B)	(AxB)
Gender **(M/F)**	Male /Female	0/2	1	
SPNF inputs use and practices				
Beejamrit	Yes/No	4/0	1	
Jeevamrit	Yes/No	4/0	1	
Ghanjeevamrit	Yes/No	4/0	1	
Wapsa	Yes/No	4/0	1	
Mulching	Yes/No	4/0	1	
Year of starting SPNF			1	
More than 2 years	Yes/No	4	1	
More than 1 year but less than 2 years	Yes/No	3	1	
Less than 1 year	Yes/No	1	1	
Crop rotation (Details regarding Crop name, Area, Companion crops, Expected production and expected marketable surplus)				
Kharif season				
Rabi season				
Fruit crops with mixed cropping				
Mixed Cropping with leguminous crop	Yes/No	4/0	1	
Indigenous /Cross bred/Exotic Cow	Yes/No	4/2/0	1	
Total land of farmer (in ha) :				
Land details (Khasra No. /GPS coordinates)				
Land under SPNF				
> 75% of total cultivated land	Yes/No	4	1	
51-75% of total cultivated land	Yes/No	3	1	
26-50% of total cultivated land	Yes/No	2	1	
<26 % of total cultivated land		1	1	
Training attended :	Yes/No	4	1	
Date				
Venue				
Duration				
Trainer				
Using self prepared SPNF inputs	Yes/No	4/2	1	
Concoctions Applied				
Khatti Lassi	Yes/No	2/0	1	
Sapt Dhan Ankur Ark	Yes/No	2/0	1	
Neemastra	Yes/No	2/0	1	
Other Concoctions				
Agniastra/Brahmastra/Dashparni Ark etc	Yes/No	2/0	1	
Above Astra's application Not Needed	Yes/No	4/0	1	
Separate storage facility for SPNF produce	Yes/No	2/0	1	
Externally sourced Organic inputs use				
Use of bio fertilizers	Yes/No	-2/0	1	
Use of botanical extracts/ bio pesticides	Yes/No	-2/0	1	
Use of organic manure	Yes/No	-2/0	1	
Use of vermicompost	Yes/No	-2/0	1	
Chemical inputs used				
Fertilizers (Urea etc)	Yes/No	-5/0	1	
Fungicides	Yes/No	-5/0	1	
Insecticide	Yes/No	-5/0	1	
Herbicide	Yes/No	-5/0	1	

Annexure – III – SuSPNF framework

SuSPNF - Sustainable Food Systems Platform for Natural Farming