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Popular Article

Degree in Natural Farming – A new diploma and graduate degree programme in Agricultural Sciences

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Abstract

The natural farming (NF) will be new beginning of environmentally friendly in-situ management of plant, soil and water. Different types in indigenous farming practices by the stakeholders over the time and achieved mastery in these practices will be the beginning of natural farming as a concept. These practices include, *rishi krishi*, zero budget natural farming, *Natueco* culture, *Panchagavya* farming, do nothing farming and *homa* farming or *Agnihotri* farming. Increasing constructive reports on such practices, state level activities and promotional programme and policy by different national agencies such as NITI AYOOG creates constructive environment of inculcating the NF degree programme. Being new degree and diploma programme, several new courses and their curricula are introduced. Therefore, the attempt is made herewith in this article to discuss major highlight of natural farming graduate programme. According to Dean Committee Report (DCR) there are three different programme is going viz., UG-Certificate (Natural Farming) UG-Diploma (Natural Farming) and Bachelor of Science Agriculture (Honours) Natural Farming. The degree programme consist of 176 credit hours to be completed in four hours with core courses (for 111 credit hours), multi-disciplinary courses (for 9 credit hours), value added courses (for 6 credit hours), ability enhancement courses (for 8 credit hours), skill enhancement courses (for 12 credit hours), internship/ project/ student READY (for 20 credit hours), non-gradual courses (for 4 credit hours) and online courses or massive online open courses (MOOC) (for 10 credit hours). The multiple entry and exit, online courses, more opportunity of selecting elective courses and student READY (Rural Entrepreneurship Awareness Development *Yogaja*) are the major significant highlight of natural framing degree programme. In nutshell, with introduction of natural farming in formal education the indigenous technologies were more surfaced in agricultural education in India. The natural farming education addressing environmental responsive, diversification, integrated farming system, agrobiology with skill enhancement of student and hence will be a worthy to introduce natural farming in agricultural education.

Keywords: Skill enhancement, course curricula, student READY programme, elective course.

The agriculture as a whole does not have single and simple origin and is simultaneously flourished in different parts and also being developing/ modifying till date through different



experience-teaching-learning- realization processes. The agricultural education is through both formal and informal way and still date there are several places and also for several agricultural technology informal education prevalent in Indian agriculture. The successful attempts were made in history of India as well as still going on to bring different aspects of agricultural education system under the single and formal umbrella of education system. The large number of agricultural subjects and sub-subjects in formal education with systemic distribution of courses and their duration with still adding subjects is the indication of the same. The reason of developing such new subjects in agriculture any be explained by points such as relevance of subject over the time, possibility of separating sub-subjects in to two or more subjects, increase in level of knowledge and understating, possibility to address the concerns of present-day agriculture and policy initiative due to different reason, stakeholder/ public claim and need for development of skilled manpower. The development of concepts such as organic farming, conservation agriculture, resource conservation technology, precision farming are some of the new concept's examples. In most of the cases, the development starts with the research findings followed by developing the knowledge base or the modification of the practices followed by stakeholders gradually over the time. In case of natural farming, before the recognition of natural farming as a subject or on scientific practice, it was a separate concept for the farmers/ stakeholders with different variables being followed over the different part of area and being claimed as a separate type of farming than the concept of organic farming and is promoted by different pioneer workers such as zero budget natural farming by Subash Palekar. After this people movement it was started to get recognition on scientific forum. Considering this people claims about natural farming, it found the way to research and education. Being indigenous to India with large number of literatures in the form of different scripts, technical knowledge and belief as well as government policy orientation, the natural farming education in India is started the full flagged graduate degree programme and proposed to be a post graduate (masters) programme. Hence in this overview attempt has been done to study the graduate degree programme in natural farming. The objective is to highlight the significant and important aspects of Bachelor of Science in Natural Farming along with the detailed structure of degree programme with some introduction to the concept of natural farming.

Natural Farming an overview:

The natural farming (NF) is earlier a one terms under the umbrella of organic farming and defined as organic farming with special emphasis on soil health through use of compost and use of microbial compost; while for the practitioners of NF it is farming which is chemical free, utilize local/ on farm resource and increase positive interaction between soil, plant and water with microorganisms as the mediator and utilize the indigenous traditional knowledge developed over the centuries. At



present definition of *NITI AYOGA* is most referred. The *NITI AYOGA* define NF as “a chemical-free traditional farming method and considered as an agroecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity”. At present natural farming hold the title as umbrella terms as earlier hold by organic farming. The different variables such a rishi krishi given by Deshpande, zero budget natural farming by Subhash Palekar, Natueco culture given by Dabholkar, Panchagavya farming given by Natarajan, do nothing farming of Masanobu Fukuoka and homa farming or Agnihotri a vedic farming practice renewed by *Param Sadguru Shree Gajanan Maharaj* of Akkalkot, Maharashtra and popularized by his follower Vasant Paranjpe are the different farming practices entitled under natural farming. Besides that, biodynamic farming given by Rudolf Steiner and vermiculture by Arlene Appelfhof are some of farming types with similarity to natural farming. At policy level Govt. of India under the scheme ‘*Paramparagat Krishi Vikas Yojna*’ started ‘*Bhartiya Prakritik Krishi Paddhti* (BPKP)’ since 2019. The NITI AYOGA takes lead with forming basic technical flow for promotion of NF as well as deal different aspects of NF. The establishment of National mission on natural farming management and knowledge portal is also one of the important events in natural farming development. The national central of organic farming was remained as national centre of organic and natural farming in March 2022 with five regional centres all over the India. The MANAGE started the natural farming trainings for gram pradhans with contribution to human resource development. Different states had their different programme for natural farming promotion such as Andhra Pradesh introduce zero budget natural farming in 2016 and further remain it as Andhra Pradesh community managed natural farming. In Tamil Nadu central for natural farming and sustainable agriculture is established in 2022 to execute activities related with NF. In Gujarat, first NF University ‘Gujarat Natural Farming Science University’ was established in 2017 indicating the first ever entry of natural farming in formal agricultural education. At present it is being followed on 10.05 lakh ha area in different states such as Andhra Pradesh, Chhattisgarh, Kerala, Gujarat, Himachal Pradesh, Jharkhand, Odisha, Madhya Pradesh, Rajasthan, Uttar Pradesh and Tamil Nadu. These are the indication of major attempts at state and national level for natural farming. With formulating committee to prepare the details courses and course curricula for natural farming by ICAR, the natural farming is completely entered in the agricultural education system.

Degrees offered under natural farming:

The first attempt for designing the course curricula was done by ICAR under the 6th Dean Committee; while considering the need of timeliness the details course curricula was published and provided to the concern institutions for implementation. The VIth Dean Committee Report (DCR) was published in 10th September 2024 which is a regular in order after Vth DCR. The DCR is most



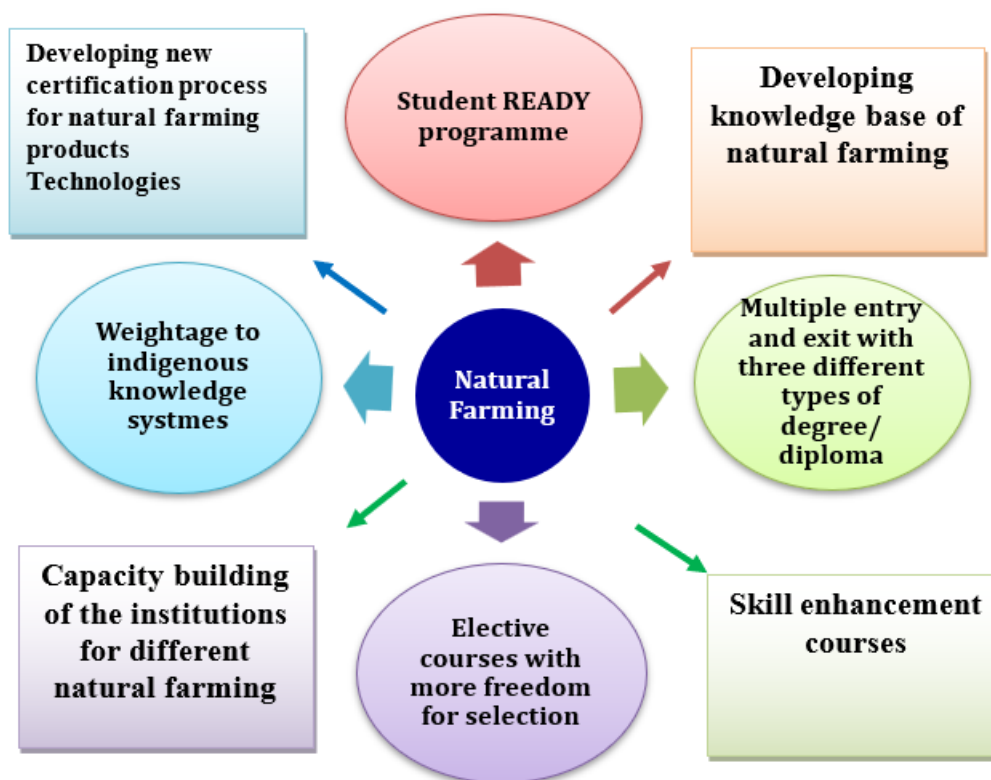


Figure 1. The natural farming in agricultural education.

authentic, and recommend report giving the details about regulation and their details for administration, establishment and education with an accreditation value to it. The DCR is also used to take in to account the national education policy while doing any modification in course curricula; henceforth most preferred by agricultural institutions all over the India. According to VIth DCR, there are provisions of three different degrees under natural farming viz., UG-Certificate (Natural Farming) UG-Diploma (Natural Farming) and Bachelor of Science Agriculture (Honours) Natural Farming. These degree programmes are of different duration and offered to ensure great flexibility in education system with multiple entries and exit in a four-year degree programme (Figure 1). In case of UG-Certificate (Natural Farming), one-year formal education with 40 credit hours in two semesters along with 10 credit (10 week) industry/ institute training/ internship programme is included. In case of UG-Diploma (Natural Farming) student has to complete two years of formal education with different courses with credit hours (in total 85 course credit hours) and 10-week industry/ institute training/ internship programme. The student which continues further in third year do not have to attend the industry/ institute training/ internship and complete the courses with credit hours up to four years to get Bachelor of Science Agriculture (Honours) Natural Farming degree. The lateral entry of the student with UG-Diploma in natural farming is allowed directly in 3rd year of degree programme. The entire four years degree is consists of 176 credit hours which are distributed in four year degree programme. The course offered in entire degree are classified as core courses (for 111 credit hours), multi-



disciplinary courses (for 9 credit hours), value added courses (for 6 credit hours), ability enhancement courses (for 8 credit hours), skill enhancement courses (for 12 credit hours), internship/ project/ student READY (for 20 credit hours), non-gradual courses (for 4 credit hours) and online courses or massive online open courses (MOOC) (for 10 credit hours). The course work is equally distributed across the 4 years and introduction of online courses are the most significant highlight as such as of courses were not enlisted earlier in any agricultural disciplines and that to 10 credit hours (Table 1). There is enough freedom for selection of elective courses which cover all most all aspect of natural farming and will also give freedom to educational institutions to select the sources as per the agro-climatic condition and their competence along with demand from student and situation in local scenario. Besides that, the courses offered in natural farming do not distinguish based on the subject just such as economics courses, extension courses, agronomy courses, horticulture courses like in other graduate degree programme. This will help in inculcating interdisciplinary approach in graduate students which is most essential in present day complexity of concerns and issues in agricultural systems.

Table 1. year wise highlight of courses offered in natural farming.

S. No.	Year of degree programme	Major highlight
1.	1 st year	Courses to impart knowledge and skill enhancement in natural farming; total 42 credit hours. Offered UG-Certificate (Natural Farming) with 10-week internship
2.	2 nd year	Practical exposure to natural farming along with some fundamental courses of agricultural sciences to impart knowledge on basic principles and practices; total 43 credit hours; Offer UG-Diploma (Natural Farming) with 10-week internship
3.	3 rd year	Courses with in depth details with specialized knowledge about subjects. Total credit hours 40.
4.	4 th year	Rural agricultural work experience and experiential learning/ internship/ projects as a part of student READY programme (Rural and entrepreneurship awareness development <i>yojana</i>). Total credit hours 40; Offers Bachelor of Science Agriculture (Honours) Natural Farming

Special component of course curricula of natural farming:

Skill enhancement courses (SEC): Imparting skill to students is important part of any technical course/ graduate programme which is generally achieved through practical classes, hands on training and workshops arranged by host institute with its capacity. Therefore, the weightage is given for infrastructure and skilled human resources working in college during accreditation as mentioned in DCRs. Considering the need of skills in bio-input productions, cultivation practices of natural farming as well as different enterprises complementary to natural farming, the different SEC were designed during the degree programme. The VIth DCR give the list of 26 such SEC in which entire credit is



given to practical (2(0+2) for each course) signifying the purpose to train the students in particular skills enlisted in course. This long list also makes it possible to select the appropriate course as the situation and competence of college in imparting training and will not be enforcement of any course which is not relevant to the situation. This was the first time in VIth DCR that such courses were introduced which reduce the assumption the practical credit hours will justify the technical education. It is well accepted at present that, beyond the course curricula there should be specific and hand on training with experts along with course instructors will be much impactful than regular practical classes.

Online courses

Considering the preponderance and impact of audio-visual aids in teaching-learning process after COVID-19 as well as increased competence in present day communication system, the allocation credit hours to online courses will be worthy. There are several institutions such as national institute of Agricultural Extension management (MANAGE), Indian Institute of Management, Indian Agricultural Statistics research institute, Indian Institute of Horticulture Research, Indian Institute of remote sensing, Indian Institute of Technology, Indian institution of sciences, etc. as well as resource persons and experts from different organization and all state level bodies working parallel with agricultural education system have vast knowledge with practical application which can be turn in to more economics of being shared with graduate students. Considering the increasing importance of information and technology computer types of things, data analysis and use of space data in agriculture (GIS, GPS, remote sensing, soil mapping, yield monitoring, etc.), the training beyond the regular course curricula and that is from the best experts/ specific institute is of paramount importance. It is reality that, the farming practices are shifting drastically towards the skilled and large-scale input/bio-input production or service provider (hire basis).

Elective courses: In natural farming degree programme are nine credits is reserved for elective courses for which sixteen courses were given in VIth DCR. These courses cover different aspect of crop production such as, agri-business management. management of natural resources, agricultural Journalism, landscaping, commercial plant breeding, food safety standards, bio-formulation and nano-formulation, bio-pesticides and bio-fertilizers, system simulation and agro-advisory, hi-tech horticulture, protected cultivation, climate resilient agriculture, biotechnology of crop improvement, geo-informatics and remote sensing, precision farming, micro-propagation technologies, commercial seed production. The elective courses will give freedom for both student and faculties for selection of courses of their own interest with a condition of competence of faculty for teaching a selected course.



The student READY programme

The student READY (Rural Entrepreneurship and Awareness Development Yojana) has been allocated with 20 credit hours in VIth semester of degree programme with different components such as experiential learning/hands on training/skill development/ rural experience work programme (RAWE)/ industrial attachment/in-plant training/ student project and Internship depending upon the resources and priorities. Among them RAWE is for 8 credit, Experiential learning for 6 credit, industrial attachment or In-plant training for 4 credit and student project for 2 credits with total 20 credits. In RAWE, students are attached to the any agricultural institutes mostly Krishi Vigyan Kendra (KVK) to undergo teaching-learning-experiencing activities with KVK scientists as well as farming community. In case of internship programme, students attend the industries, research institute, NGOs, commercial farms. In these institutions it is believed that students will learn the skill related to selected activity and will be specialized practical knowledge.

