



कृणवन्तो राष्ट्र कृषि सपन्नम्

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आचार्य અને વિદ્યાશાખાધ્યક્ષ

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આણંદ કૃષિ યુનિવર્સિટી

આણંદ- ૩૮૮ ૧૧૦



ફોન નં.: ૦૨૬૯૨-૨૬૧૦૭૬

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વંચાણે લીધો: વિદ્યાપરિષદની ૬૦મી બેઠકની કાર્યનોંધના મુદ્દા નં. ૬૦.૨૯ અન્વયે

કૃષિ વિદ્યાશાખામાં સ્નાતક કક્ષાએ Natural Farmingની ત્રણ વિષયોનો સમાવેશ કરવા તથા AEMS System માં ઉમેરવા બાબત

જાહેરનામું

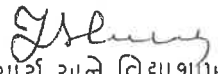
આથી સંબંધકર્તા સર્વેને જાણ માટે જાહેર કરવામાં આવે છે કે, તા. ૦૪-૦૭-૨૦૨૩ના રોજ આણંદ ખાતે મળેલ વિદ્યાપરિષદની ૬૦મી બેઠકની કાર્યનોંધના મુદ્દા નંબર ૬૦.૨૯ થી નીચે મુજબ ઠરાવવામાં આવેલ છે.

“આથી ઠરાવવામાં આવેલ છે કે, કૃષિ વિદ્યાશાખાઓમાં શૈક્ષણિક વર્ષ ૨૦૨૨-૨૩ થી Natural Farming-1 (2+1) ચોથા સેમેસ્ટરમાં, Natural Farming-2 (2+1) છઠ્ઠા સેમેસ્ટરમાં તથા Natural Farming-3 (0+5) આઠમાં સેમેસ્ટરમાં Non gradial અભ્યાસક્રમો તરીકે સામેલ કરવા કૃષિ વિદ્યાશાખાની બોર્ડ ઓફ સ્ટડીઝની ભલામણ ધ્યાને લઈ વિદ્યાપરિષદ કાર્યોત્તર અસરથી મંજૂરી આપે છે.”

સામેલ: એનેક્ષર-૧

જા.નં. આકૃયુ/બીએસીએ/ટીઓ/ ૪૫ /૨૦૨૩

તા. ૧૫/૦૭/૨૦૨૩


આચાર્ય અને વિદ્યાશાખાધ્યક્ષ
બં.અ. કૃષિ મહાવિદ્યાલય, આણંદ

નકલ સવિનય રવાના જાણ સારૂ:

૧. વિદ્યાપરિષદના તમામ સભ્યશ્રીઓ તરફ જાણ થવા સારૂ.
૨. તમામ યુનિવર્સિટી અધિકારીશ્રીઓ તરફ જાણ થવા સારૂ.
૩. કુલસચિવશ્રી, આ.કૃ.યુ., આણંદ તરફ જાણ થવા સારૂ. (૧૦ નકલ)

નકલ રવાના જાણ સારૂ:

૧. માન. કુલપતિશ્રીના અંગત સચિવશ્રી, આ.કૃ.યુ., આણંદ તરફ જાણ સારૂ.
૨. વિભાગીય વડાશ્રીઓ, બં. અ. કૃષિ મહાવિદ્યાલય, આણંદ તરફ જાણ થવા સારૂ.
૩. કોલેજની જાહેરનામાની ફાઈલ

Annexure – I

Sr. No.	Course No.	Course Credit	Semester	Remarks
1	NF-1	2+1	4 th Semester	S - Satisfactory US - Unsatisfactory
2	NF-2	2+1	6 th Semester	S - Satisfactory US - Unsatisfactory
3	NF-3	0+5	8 th Semester	S - Satisfactory US - Unsatisfactory

Part-1 Natural farming -1 (NF 1) (Theory)

Lecture No.	Title of the topic
	Unit 1 History and Heritage of Natural Farming
L-1	Pioneers and scholars of natural farming and their important classics on heritage of natural farming
L-2	Rich heritage of plant protection in natural farming
	Unit 2 - Concepts of Natural Farming
L-1 & L-2	Principles of Agroecology and 10 Elements of Agroecology
L-3	Principles of Agroecology
L-4	Need of natural farming
L-5	Different forms of Non chemical farming practices
L-6	Comparisons with organic agriculture
L-7	Other innovations
	Unit 3 - Inputs in Natural Farming and Usage
L-1 & L-2	Soil health management
L-3,4 & 5	Nutrient management
L-6	Plant protection
L-7	Water conservation techniques
	Unit 4 - Agronomic Practices
L-1	Land management – Soil health
L-2,3,4	Land management of natural farming and Crop wise package of practices
L-5	Land management-Water dynamics
L-6	Sustainable crop intensification-cropping systems and concept of sustainability in natural farming
L-7	Sustainable crop intensification-Sustainable crop intensification in natural farming for productive resource conserving and climate resilient agriculture
L-8	Flora and Fauna- Biodiversity management strategies in agri-food production systems
L-9	Advantages of natural farming–Environment dimension
L-10	Economics of natural farming
L-11	Advantages of natural farming: Socio-economics dimension
	Unit 5 - Climate Change and Sustainable Agriculture Systems
L-1	Sustainable Food and Agriculture systems
L-2	Sustainable development goals
L-3	Circular Farm Economy and carbon cycle – measurement and management

Exercise No.	Title of the exercise
	Unit 1
1.	Preparation of different types of manures and plant protection inputs for natural farming
	Unit 2
2.	Farm Visit
3.	Identification of Botanicals - In-situ or near in-situ
4.	Inventory and Calendar of Inputs-- Creation
	Unit 3
5.	Preparation of natural farming inputs- <i>Jeevamrit, Beejamrit</i> and <i>Ghan jeevamrit</i>
6.	Study about physical and chemical properties of natural farming inputs
7.	Field visit to natural farming
8.	Mulching, different types of mulching in different Agro ecosystems
9.	Preparation of <i>Agniastra, Brahmastra, Dashparni ark</i> and <i>Neemastra</i>
10.	Preparation of desired concentrations of spray formulations and their application against insect-pests
11.	Preparation of desired concentrations of spray formulations and their application against disease
	Unit 4
12.	Understanding the impact of "no tillage natural farming" on soil aggregate stability in comparison to conventional tillage farming
13.	Assessment of the activity of soil life by comparing natural farming with conventional fields
14.	Study of sustainable crop intensification
15.	Assessment of the Economic profitability by comparing natural farming with conventional fields
	Unit 5
16.	Carbon measurement for natural farming production and mapping local food systems

Part-2 Natural farming -2 (NF 2) (Theory)

Lecture No.	Name of the topic
	Unit 1 Agroecology Systems and Conventional Agriculture
L-1	Challenges of conventional agriculture in future sustainability
	Unit 2 Processes of Natural Farming
L-1	Energy flow measurement and management
L-2	<i>Rhizosphere</i> effect
L-3 & L-4	Microbial management
L-5	Beneficial arthropods
L-6	Soil Organic Carbon (SoC) enhancement and sequestration
L-7 & L-8	Plant and soil nutrient enhancement
L-9	Management practices to enhancement soil and plant health
	Unit 3 - Natural Farming - Farm Systems Design
L-1 & L2	Farm Macro/Micro-climate analysis
L-3	Cropping system planning and Resource use calendar
L-4	Efficient Livestock integration and biomass recycling
L-5	Natural farming–Livestock integration
L-6	Sustainable crop intensification
L-7	Seed production management
L-8	Weed management
L-9 & L10	Cropping pattern and systems
L-11	Water management
L-12	Plant protection
L-13	Post harvest management
L-14 & L15	Technology intervention
	Unit 4 Sustainable Agriculture Systems Management
L-1	Farmer and Consumer Health
L-2	Allied Livelihood Activities
L-3 &4	FPO, Marketing Systems and entrepreneurship (Sustainable food/Agri Systems)

Exercise No.	Title of the exercise
	Unit 1
1.	Study of local crop varieties of the native area
2.	Study of agroecological practices of different farms
	Unit 2
3.	Study of nutrient deficiencies and diagnostic plant symptoms
4.	Study of soil-plant interaction on nutrient use efficiency in plants
	Unit 3
5.	Study of microclimate analysis
6.	Preparation of crop calendar
7.	Study of water management by natural farming with conventional farming
8.	Visit to seed production fields
9.	Exposure to seed production farm and hands-on practice for seed quality standards
10.	Identification and documentation of different weeds
11.	Identification of key insect pests and their natural enemies
12.	Visit to traditional storage structures in tribal areas
	Unit 4
13.	Visit to FPO and different markets
14.	Study of availability of synthetic biocides in the nearby markets for agricultural use

Part-3 Natural farming -3 (NF 3)

Experiential Learning Program (ELP)

Duration: 10 weeks

Practical Outline

Week 1

- Farm Visit
- Identification of Botanicals
- Inventory and Calendar of Inputs
- Preparation of Herbal *Kunapajala*
- Preparation of *Jeevamrit*
- Visit to a Natural Farming farm

Week 2

- Field visit to Natural farming
- Preparation of *Beejamrit*
- Preparation of *Ghan jeevamrit*
- Physical, Chemical and biological Properties of *Beejamrit*
- Physical, Chemical and biological Properties of *Ghan jeevamrit*
- Physical, Chemical and biological Properties of *Jeevamrit*

Week 3

- Preparation of *Agnistra*,
- Preparation of *Brahmastra*,
- Preparation of *Dashparni ark*
- Preparation of *Neemastra*
- To prepare desired concentrations of spray formulations and their application against insect-pests
- Different types of mulching

Week 4

- Assessment of microbial diversity in soil
- Earthworm count/mass comparison
On farm visit and discussion on cropping systems (comparison of NF and Conventional cropping systems). Subgroup analyses on mapping of crop geometry with emphasis of system productivity and ecological sustainability - and panel presentation.
- Soil clods exposure to the impact of water to test if water-resistant soil aggregates are developed which indicates 'soil sponge' (slake test or clods immersion in water column)
- To prepare desired concentrations spray formulations and their application against diseases
- Understanding the impact of "no tillage natural farming" on soil aggregate stability in comparison to conventional tillage farming.

Week 5

- Carbon Measurement for Natural Farming Production and Mapping Local Food
- Crop Cut exercises (subject to availability of crop at harvesting time)
- Field Visit to FPO and Market Systems. Preparing report on Sustainable Food Systems mapping with field visit
- Household production and consumption analysis
- Mapping of Availability of Synthetic Biocides in the nearby markets for Agricultural Use with Class List chemicals and highlighting those that are recommended for Ban in India.
- Planning, seed bed preparation and layout of field experiments

Week 6

- Estimation of crop yield on the basis of yield attributes
- Formulation of cropping schemes for various farm sizes and calculation of cropping and rotational intensities, intercultural operations in different crops
- Phonological studies at different growth stages of crops
- Practice of Seed treatment, seed germination and crop establishment in relation to soil moisture content
- Raising of herbarium of different cereals, millets and pulses
- Working out harvest indices of various crops

Week 7

- Construction of crop growth curves based on growth analysis data
- Crop planning in relation to changing scenario of water availability
- Cropping pattern and cropping intensity
- Determination of infiltration rate and available soil moisture
- Field measurement of root- shoot relationship in crops at different growth stages
- Study of water use efficiency in different crops

Week 8

- Analysis of organic carbon and major nutrients (N, P, K) and its interpretation
- Calculation of crop water requirements- average, peak and seasonal water use
- Computation of irrigation needs of crops for life saving irrigation
- Determination of moisture retention characteristics of soil by pressure plate apparatus
- Soil sampling from field
- Soil sampling: procedure, precautions, preparation and storage

Week 9

- Soil Analysis for Physical properties (Soil Texture and Bulk Density)
- Soil Analysis of Micronutrients (Fe, Mn, Zn, Cu and B) and its interpretation
- Soil Analysis of secondary nutrients (Ca, Mg, S)
- Preparation of saturated paste and saturation extract and determination of pHs and ECe
- Plant Analysis: Plant sampling, Sampling stage, Critical concentration, Digestion of sample, Interpretation of result
- Digestion of sample (Practical)
- Plant Analysis: Analysis of Total organic carbon and major (N, P, K) nutrients

Week 10

Evaluation by considering the following aspects.

- Technical skill development
- Report writing skill
- Regularity
- Project planning and Writing
- Presentation
- Output delivery
- Monthly assessment
- Entrepreneurship skill
- Business Networking skill
- Final presentation