

Department of Natural Resource Management ASPEE College of Horticulture Navsari Agricultural University Navsari – 396450



ACTIVITIES AND ACHIEVEMENTS

ACADEMIC ACTIVITIES

List of Courses offered by the Department for Under Graduate Programme

	B. Sc. (Hons.) Horticulture						
SN	Sem.	Course No.	Title of Course	Credit hrs			
1	1^{st}	NRMH 1.1	Fundamentals of Soil Science	3(2+1)			
2	2^{nd}	NRMH 2.2	Soil Fertility and Nutrient Management	2(1+1)			
3	2^{nd}	NRMH 2.3	Water Management in Horticultural Crops	2(1+1)			
4	2^{nd}	NRMH 2.4	Agro-meteorology and Climate Change	2(1+1)			
5	3^{rd}	NRMH 3.5	Organic Farming	2(1+1)			
6	4^{th}	NRMH 4.6	Farm Power and Machinery	2(1+1)			
7	4^{th}	NRMH 4.7	Soil, Water and Plant Analysis	2(1+1)			
8	5^{th}	NRMH 5.8	Weed Management in Horticultural Crops	2(1+1)			
9	6 th	NRMH 6.9	Introduction to Major Field Crops	2(1+1)			
10	6^{th}	NRMH 6.10	Introductory Agroforestry 2(1+1)				
11	6^{th}	NRMH 6.11	Environmental Studies and Disaster Management	3(2+1)			
Sub Total (A)							

List of Courses offered by the Department for Post Graduate Programme

M. Sc. Horticulture						
SN	Sem.	Course No.	Title of Course	Credit hrs		
1	Even	FSC 510	Organic Fruit culture (P)	2(1+1)		
2	Odd	PSM 607	Organic spices and plantation crop Production (P)	3(2+1)		
3	Even	VSC 511	Organic vegetable production (P)	2(1+1)		
4	Odd	Soil 511 (Agri)	Management of problematic soils and waters	3(2+1)		
5	Odd	Agron 513 (Agri)	Principles and Practices of Organic Agriculture	3(2+1)		
6	Even	Agron 609 (Agri)	Stress Crop Production	3(2+1)		
7	Even	Agron 609	Stress Crop Production	3(2+1)		
			Sub Total (A)	19 (12+7)		
COMPULSORY NON-CREDIT COURSES						
1	Odd	PGS 504	Basic Concept in Laboratory Techniques	1(0+1)		
			Sub Total (B)	1(0+1)		
Total (A + B) = 2						

RESEARCH ACTIVITIES

Focus Areas

The growth of organic agriculture in India as well as in the state is increasing. The area under certified organic farming in India during 2003-04 was 42,000 ha and it was increase almost 20 fold during the last 5 years. By March 2010 India has brought more than 4.48 million ha area under organic certification process. This is mainly due to (1) the continuous use of chemical fertilizers with unscientific soil and water management led to soil degradation and (2) Increase awareness among the people about health. Number of farmers has started organic farming on their own way as they have no technical know how. Further, the efforts are scanty and patchy. Looking to this, Navsari Agricultural University has started the work on this aspect and converted 12 ha land in to organic farming and plan scheme was also sanctioned and initiated the experiment. The experiment was started using banana, papaya, sugarcane, elephant foot yam, greater yam, onion, garlic and turmeric. The preliminary result was good. For enhancement of organic farming required to work on development of organic package of practices, production of quality organic manure and organic pest control module. This requires to strength the existing scheme so as to achieve following objectives.

- To generate basic information about potential of organic farming, inorganic farming and combination of both from agronomy, soil science, soil and plant health, crop quality and nutrition and biochemistry view points.
- To asses intensity of pests and diseases in relation to different treatments and thereby to study pollution problem.
- To develop simple index based on quality difference and economics for assessing superiority of treatments and thereby make recommendation for farmers.
- Modelling and documentation of results.
- Develop organic package of practices for different crops.
- Evaluate quality of produce.
- Assess soil health.
- Training for creating awareness among farmers about organic farming.
- Demonstrate organic package of practice on farmers' fields.
- Helping farmers for organic certification and develop marketing linkages.
- Human resource development.

Research Schemes in Operation

SN	Title of Project	Budget Head	PI & Co-PI
Α	Plan Schemes		
1	Strengthening of organic farming cell	2012-13 & BH- 12022	PI: Dr. A.R. Kaswala Co-PI: Dr.P.K. Dubey

: ResearchRecommendations:

Year 17-18

1 Effect of liquid manures on quality and productivity of banana and papaya grown under alternate row system

The farmers of south Gujarat heavy rainfall agro climatic zone- I (AES III) growing banana (variety, Grand Naine) and papaya (variety, red lady 786) under alternate row system are advised to apply 7.2 kg NADEP manure along with 2 l/plant Jeevamrut and 2 l/plant Amreetpani to each of banana and papaya crop for achieving higher yield and net return.

Detail management for banana and papaya alternate row system as follows,

- Planting: Prepare the pits at 2.4 m x 1.5 m distance. Sow plant by applying 2.4 kg of NADEP manure per plant along with PSB and *Azotobactor* biofertilizer and *Trichoderma* and Pseudomonas biopescicide 2 ml or g each/plant.
- 2.5 & 5 MAP: Apply 2.4 kg of NADEP manure per plant each time.
- Apply liquid manures Jeevamrut and Amreetpani @ 400ml/plant at one month interval starting from planting in 5 equal splits.
- In banana, drench 500 ml 0.5% each of Trichoderma and Pseudomonas after one month of planting.
- In papaya, drench 400 ml 0.5% each of Trichoderma and Pseudomonas at 30 and 60 days of planting.
- For plant protection measure, use the 40 fruit fly traps/ ha for control of fruit fly in papaya and alternate spray of cow urine 2 %, neem oil 0.02%, neem extract 0.5% for control of sucking pest and disease in the both crops as per need basis.



2018-19

2 Effect of different organic source on yield and quality of sorghum varieties

The farmers of South Gujarat Heavy Rainfall Agro-climatic Zone growing *rabi* sorghum (GJ 42) organically are recommended to apply 50% RDN (40 kg N/ha) through NADEP compost and spray 1% Novel organic liquid nutrient three times (20, 40 and 60 days after sowing) for attaining the higher yield and net profit.

Detail management as follows,

- > Sow the sorghum crop at 60 x 15 cm and apply 4.2 t/ha of NADEP compost.
- Apply 2 kg or l/ha each of Azospirillum, PSB, Trichoderma and Pseudomonas in soil at the time of sowing.
- Apply 900 l/ha of jeevamrut with irrigation water in three equal splits at 15 days interval starting from sowing.
- ➢ Need based alternative spray of 0.20 % neem oil, 4 % neem extract and 2 % cow urine should be done to control sucking pests.



sowing.

- > Inoculate seeds with *Rhizobium* @ 10 ml/kg seed before sowing.
- > Grow marigold plant as a trap crop in the surrounding of the field.
- > Keep 12 pheromone trap/ha to control *Helicoverpa armigera*.
- Spray 4% neem extract, 0.2 % neem oil and 2 % cow urine alternatively at 15 days interval from the flowering. Keep 50 bird perch/ha to control the insects.



The farmers of South Gujarat Heavy Rainfall Agro-climatic Zone growing sugarcane organically are recommended to prefer CoN 05072 or CoN 05071 (for Jaggery) or Co 62175 (for Jaggery) variety for attaining higher yield and net profit.



- Planting: Prepare the pit at 1.5 m x 1.2 m x 2.4 m distance and apply the first split of NADEP compost (1.02% N) @ 4.9 kg per pit along with *Azatobactor*, PSB and KMB @ 5.0 l/ha each at the time of planting. Apply second and third split application of NADEP compost @ 4.9 kg/plant at 30 and 60 DAP, respectively.
- Grow *dhaincha* as green manure continuously two times in between the wider spaces of banana. First at the time of planting and subsequently second after incorporation of first green manuring and incorporate it in soil at 45 DAS.





• Spray of noval organic liquid nutrient @ 1% in three times at 15, 45 and 60 DAT. As a preventive measures and need based, alternative spray of 0.20% neem oil and 4% neemastra should be done to control disease and pests.







Achievements

Aw	Awards				
SN	Name of Award	Awardee	Year	Awarding institute/ Agency	
1	Best Poster Paper Presentation	Dr. A.R. Kaswala	2022	31th National Conference on "Innovative Resource Management Approaches for Coastal and Inland Ecosystems to Sustain Productivity and Climate Resilience "held at Navsari Agricultural University, Navsari, Gujarat on October 13-15, 2022.	
2.	Best Oral Paper Presentation	Dr. A.R. Kaswala	2021	National Seminar on "Advances in Sustainable Management Of Natural Resources For Food and Nutritional Security" held at Navsari Agricultural University, Navsari, Gujarat on August 26-27, 2021.	
3	Best Oral Paper	Dr. P.K.	2022	31th National Conference on "Innovative Resource	

	Presentation	Dubey		Management Approaches for Coastal and Inland Ecosystems to Sustain Productivity and Climate Resilience "held at Navsari Agricultural University, Navsari, Gujarat on October 13-15, 2022.
4	Best Oral Paper Presentation	Dr. P.K. Dubey	2021	National Seminar on "Advances in Sustainable Management Of Natural Resources For Food and Nutritional Security" held at Navsari Agricultural University, Navsari, Gujarat on August 26-27, 2021.
5	Young Scientist Award	Dr. P.K. Dubey	2018	International Conference on Food and Agriculture" ICFA-2018, 29-31 March, 2018 at Dhanbad, Jharkhand
6	Best Oral Paper Presentation	Dr. P.K. Dubey	2018	International Conference on Food and Agriculture" ICFA-2018, 29-31 March, 2018 at Dhanbad, Jharkhand
7	Best Oral Paper Presentation	Dr. P.K. Dubey	2018	National Seminar on "Technologies and Sustainability of Protected Cultivation for Hi-Valued Vegetable Crops" held at ACHF, Navsari Agricultural University, Navsari, Gujarat
8	Young Scientist Award	Dr. P.K. Dubey	2017	National Conference on Doubling Farmers Income for Sustainable and Harmonious Agriculture ' DISHA-2017, 9-10th September, 2017 at Sri Venkateshwara University, Tirupathi, Andhra Pradesh
9	Best Oral Paper Presentation	Dr.Smita Gupta	2021	3 rd International Conference on "Food,Agriculture and Innovations(Hybrid mode) "held at Ranchi Jharkhand on 24 th -26 th December, 2021.
10	Best Research Scholar Award	Dr.Smita Gupta	2017	Advances in agricultural and biodiversity conservation for sustainable development at C.C.S,UniversityMeerut,UP,India
11	Young Scientist Award	Dr.Smita Gupta	2016	Genesis urban and rural development society, Hyderabad

EXTENSION ACIVITIES

- ◆ Participation of faculty in *Krushi Mahotsava* and *Krushi Mela* Programme.
- Lectures delivered in training programme organized by KVKs of NAU, Navsari, DEE office, NAU, Navsari and other colleges of NAU, Navsari to the farmers, in-service employee, class I & II officers etc.
- Lectures delivered in training programme organized by ATIC, DEE, NAU, Navsari to the Agro-input dealers.
- Technical guidance on organic farming was provided to the 21 days trainers
- Technical guidance on Organic farming was provided to the organic growers.
- Dissemination of technology through field demonstration.
- Established museum to aware the farmers for organic farming.

TRANSFER OF TECHNOLOGY (ToT)



Transfer of technology

Infrastructure Available

Department

- UG and PG Laboratories:
- Instrument room, Store room, sample room and office.
- Wi-Fi facility.









Farm

- Farm Area: 10 ha
- Office, Museum and godawn
- Borewell: 01
- Farm implements, Vermicompost unit, NADEP compost unit, anaerobic compost unit, Net house.



