



## K. K. WAGH COLLEGE OF AGRICULTURE, NASHIK

K. K. Wagh COA is premier educational institute within jurisdiction of Mahatma Phule Krishi Vidyapeeth, Rahuri and is occupying a significant place on the Agricultural educational map of the state.

These college is well equipped, fully developed and accredited for excellence in quality education by Maharashtra Council of Agricultural Education and Research (MCAER), Pune.



### **Certificate Course on Soil Fertility and Crop Nutrition**

**Department of Soil  
Science and Agricultural  
Chemistry**

### **ABOUT COURSE**

The Soil Fertility and Crop Nutrition course focuses on understanding essential nutrients for plant growth and the principles of soil fertility. It covers methods for assessing soil nutrient status and strategies for optimizing nutrient management.

The course includes practical components like soil sampling, testing, and fertilizer calculation exercises, along with field visits to farms. Students will gain knowledge on sustainable soil fertility practices and their impact on crop yield and quality, preparing them for careers in agricultural consultancy, soil science research, and sustainable farming.

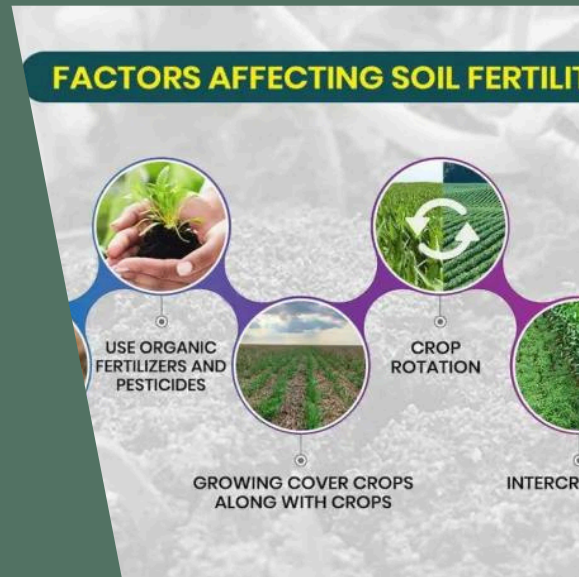
# COURSE OUTCOMES

- Understand Soil Properties
- Conduct Soil Testing
- Apply Fertilizer Management
- Implement Soil Management Practices
- Adapt Trends

## COURSE DURATION

**06/01/2020 To  
11/01/2020**

**Total No. of Hrs- 36**



## COURSE HIGHLIGHTS

- Understand the role of essential nutrients
- Competance in collecting soil sample
- Ability to calculate fertilizer requirement
- Ability to implement practices

# HOW TO REGISTER

**Students of Final Year can enroll in this course. For enrollment details, please contact the course coordinator up to 04/01/2020 (Mrs. P. V. Shinde) Contact No. 7588616706**



Date: 1/1/2020

To,  
The Principal  
K. K. Wagh College of Agriculture,  
Nashik

Subject Regarding permission for Certificate Course.....

Respected Sir,

On behalf of the Department of Soil Science and Agricultural Chemistry, we respectfully request permission to launch a Certificate course titled "Soil Fertility and Crop Nutrition." This course is scheduled to run from 6/1/2020 to 11/1/2020, and will involve approximately 39 final-year students. The course will equip participants with the skills to analyze and address real-world soil fertility and crop nutrition challenges. We kindly ask for your approval for the implementation of this course.

Thanking You,

Yours faithfully,



(Prof.P.V.Shinde.)

Course Co ordinator

Permission granted

u/s  
1/1





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(Affiliated to Mahatma Phule Krishi Vidyapeeth, Rahuri)  
Saraswati Nagar, Panchavati, Nashik- 422 003. Maharashtra  
College Code:11135 AISHE Code: C-50690

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Certificate course in

**“Soil Fertility and Crop Nutrition.”**

Academic Year 2019-20

**Syllabus Committee**

Sr no	Name of teacher	Designation	Department	Role in course
1	Ms. P.V.Shinde.	Assistant Professor	Soil Science and Agril. Chemistry	Course coordinator
2	Ms. C.B.Wagh	Assistant Professor	Soil Science and Agril.Chemistry	Committee member

Course Co ordinator

Principal

K.K.Wagh College of Agriculture  
Saraswatinagar, Panchavati, Nashik







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Date: 3/01/2020

Academic Year 2019-20

## Department of Soil Science and Agril. Chemistry

### Minutes of the Board of Studies Meeting for the Short-Term Certificate Course

A meeting of the Board of Studies for the Short-term Certificate Course in “Soil Fertility and Crop Nutrition” was convened on 3 January 2020, at 10:30am in the Department of Soil Science and Agril. Chemistry. The meeting was attended by the following Syllabus Design Committee members:

Sr no	Name of the expert	Designation	Sign
1	Dr. S. M. Hadole	Principal	
2	Ms. P.V.Shinde.	Course Co ordinator	
3	Ms. C.B.Wagh	Member	

#### Minutes of Meeting

The Board of Studies convened a meeting on 3 January 2020, at 10:30am in the Department of Soil Science and Agril. Chemistry to address various aspects concerning the Short-Term Certificate Course on “Soil Fertility and Crop Nutrition”. The meeting focused on the following key points:

- Syllabus Formation:** Members deliberated on developing a syllabus that emphasizes on relevant knowledge and skills in “Soil Fertility and Crop Nutrition”.
- Dissemination of Work:** Strategies for effectively teaching “Soil Fertility and Crop Nutrition” were discussed to aid students in the course.
- Encouragement of Students:** The meeting stressed the importance of offering guidance and motivation to students. “Soil Fertility and Crop Nutrition” “was recognized as an effective approach which provide with the skills to analyze and address real-world soil fertility and crop nutrition challenges
- Examination of Short-Term Course:** The examination structure and assessment methods for the short-term course were reviewed. The board explored ways to ensure fair and comprehensive evaluations that accurately assess students.

The meeting concluded with a commitment to refine the course and its delivery methods to better meet the needs of students enrolled in the Certificate Course in “Soil Fertility and Crop Nutrition”.

Course Co ordinator



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## Department of Soil Science and Agril. Chemistry

### Certificate course in "Soil Fertility and Crop Nutrition" Academic Year 2019-20 Syllabus Outcomes:

1. Participants will understand the role of essential nutrients (macronutrients, secondary nutrients, and micronutrients) in plant growth and development.
2. Competence in collecting soil samples, interpreting soil test reports, and applying results to make informed fertilizer recommendations.
3. Ability to calculate fertilizer requirements based on soil test results and crop needs, and apply fertilizers using various techniques (broadcasting, banding, fertigation).
4. Participants will recognize effective soil and crop management practices that enhance soil fertility and crop productivity.
5. Ability to implement practices such as crop rotation, use of cover crops, conservation tillage, and organic amendments.

Sr. No.	Topic	Description	No of Lectures
1	Introduction to Soil Fertility	Overview of soil properties and fertility concepts	2 Hrs.
2	Soil Nutrient Management	Techniques for managing soil nutrients	3 Hrs.
3	Soil Testing and Analysis	Methods for testing and analyzing soil	10 Hrs.
4	Practical Session: Soil Sampling	Hands-on experience with soil sampling techniques	02 Hrs.
5	Crop Nutrition Fundamentals	Basic principles of crop nutrition	02 Hrs.
6	Nutrient Deficiency Symptoms in Crops	Identifying and diagnosing nutrient deficiencies	02 Hrs.
7	Fertilizer Types and Application Methods	Different types of fertilizers and how to apply them	2 Hrs.
8	Practical Session: Fertilizer Application	Hands-on application of fertilizers	2 Hrs.
9	Integrated Nutrient Management	Combining techniques for optimal soil and crop health	2 Hrs.
10	Advances in Soil Fertility Science	Recent developments and technologies	2 Hrs.
11	Soil and Crop Interaction	How soil properties influence crop growth	2 Hrs.
12	Exam and Evaluation	Assessment of knowledge and skills	4 Hrs.
13	Certification Ceremony and Closing Remarks		1Hrs.

*[Signature]*  
Course Co ordinator

*[Signature]*  
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Date: 3/01/2020

## Student Notice

Final Year Students, B.Sc. (Hons.) Agriculture are to inform that the Certificate Course on "Soil Fertility and Crop Nutrition" for the academic year 2019-20 will commence on January 6, 2020, and will run until January 11, 2020. To enroll in this certificate course, please submit your names to the Certificate Course Coordinator, Ms. P. V. Shinde, by January 4, 2020.

**Duration:** 36 Hrs. (6/01/2020 to 11/01/2020)  
**Time: Morning Session:** 10.00 am to 1.00 pm  
**Afternoon session:** 2.00pm to 5.00 pm

**Note:** This course is free of cost to all students.

Course Co ordinator



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## Department of Soil Science and Agril. Chemistry

### Certificate course in

### “Soil Fertility and Crop Nutrition” Academic Year 2019-20

### Enrolled Student List

Sr. No.	Registration No	Name of Student
1	AKN/D-017/001	Avhad Gokul Ashok
2	AKN/D-2017/024	Walunj Abhishek Balasaheb
3	AKN-2015/020	Dayal Aniket Suresh
4	AKN-2015/032	Hodgar Abhiraj Satish
5	AKN-2015/068	Nikam Pallavi Bhalchandra
6	AKN-2015/069	Nikam Hrushikesh Vijay
7	AKN-2016/002	Aware Harshal Ramdas
8	AKN-2016/022	Darekar Prajwal Sanjay
9	AKN-2016/024	Deshmukh Kunal Keshavrao
10	AKN-2016/042	Joshi Akshay Dilip
11	AKN-2016/063	Nalawade Abhishek Ashok
12	AKN-2016/065	Nehe Priya Somnath
13	AKN-2016/068	Palkhede Shubham Nivrutti
14	AKN-2016/069	Palve Amol Ramnath
15	AKN-2016/070	Pangavhane Yadnesh Kishor
16	AKN-2016/072	Patil Narendra Sandipan
17	AKN-2016/081	Rathod Krantikumar Bhaskar
18	AKN-2016/087	Satpute Ashish Annasaheb
19	AKN-2016/110	Udmale Tejashri Hanuman
20	AKN-2016/112	Unde Devendra Dattatraya
21	AKN-2016/006	Bendre Ankita Jalindar
22	AKN-2016/057	Mhaske Mahesh Dattatray
23	AKN-2016/061	Murkute Vishnuprasad Dadasa
24	AKN-2016/084	Sahare Gitanjali Madhusudan
25	AKN/D-2017/009	Kamble Gaurav Gautam
26	AKN/D-2017/022	Tile Suvarna Gajendra
27	AKN/D-2017/023	Vairal Rohit Ashok
28	AKN/D-2016/015	Patade Ashwini Bhaskar

Course Coordinator



Principal  
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**Department of Soil Science and Agril.Chemistry**

**Certificate course in**


**“Soil Fertility and Crop Nutrition”**

**Academic Year 2019-20**

**Enrolled Student List**

Sr. No.	Registration No.	Name of Student
29	AKN/D-2016/019	Salve Yuvraj Ashok
30	AKN-2015/002	Ahirrao Manasi Kishor
31	AKN-2015/027	Gaikwad Darshan Dadasaheb
32	AKN-2015/48	Kelgandre Shrushti R
33	AKN-2015/049	Khade Karan Milind
34	AKN-2015/057	Lalge Akash Dilip
35	AKN-2014/020	Chavan Pravin Ambadas
36	AKN-2014/085	Patil Hitesh Ganesh
37	AKN-2014/091	Pawar Chetan Sanju
38	AKN-2014/114	Thokal Ajinkya Babasaheb
39	AKN-2012/040	Ghotekar Gokul Sampat

  
Course Coordinator

  
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## STUDENT REGISTRATION FORM

Academic Year: 2019-20  
(Department of SSAC)

CERTIFICATE COURSE ON  
'Soil Fertility and Crop Nutrition'

For Department Use Only

Registration No.: ... AKH-2019-1069 ..... Student ID:  
Name of the Student: .. Nikam Haushikesh Vijay .....  
Mother's Name: ..... Shobha .....  
Father's Name: .... Vijay ..... Year: 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup>  
E-Mail ID: .... nikamhaushikesh@gmail.com .....  
Address: .... Niphad ..... Tal: Niphad ..... Dist: Nashik .....  
State: ... Maharashtra ..... PIN Code: .....  
Mobile No: .10.0.78.67710... Alternate contact number: .....  
Gender: Male  Female  Other  Religion:  
Date of Birth: ..... 15/3/1999 .....  
Educational Qualification (at the time of admission):  
HSC ..... Other .....

Nikam  
Signature of Student

Place:

Date:







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## STUDENT REGISTRATION FORM

Academic Year: 2019-2020  
(Department of Soil Science and Agril. Chemistry)

### CERTIFICATE COURSE

### “Soil Fertility and Crop Nutrition”

For Department Use Only

Registration No.: ..... Student ID: .....

Name of the Student: .....

Mother's Name: .....

Father's Name: ..... Year: 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup>

E-Mail ID: .....

Address: .....

State: ..... PIN Code: .....

Mobile No: ..... Alternate contact number: .....

Gender: Male  Female  Other  Religion: .....

Date of Birth: .....

Educational Qualification (at the time of admission):  
H.Sc . ..... Other .....

**Signature of Student**

Place:

Date:



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## Department of Soil Science and Agril.Chemistry

### Certificate course in "Soil Fertility and Crop Nutrition"

Academic Year 2019-20

### Schedule of the course

Sr no	Topic	Description	Name of the teacher	Department
1	Introduction to Soil Fertility	Overview of soil properties and fertility concepts	Ms. P.V.Shinde	SSAC
2	Soil Nutrient Management	Techniques for managing soil nutrients	Ms. C.B.Wagh	SSAC
3	Soil Testing and Analysis	Methods for testing and analyzing soil	Ms. P.V.Shinde	SSAC
4	Practical Session: Soil Sampling	Hands-on experience with soil sampling techniques	Ms. C.B.Wagh	SSAC
5	Crop Nutrition Fundamentals	Basic principles of crop nutrition	Ms. P.V.Shinde	SSAC
6	Nutrient Deficiency Symptoms in Crops	Identifying and diagnosing nutrient deficiencies	Ms. P.V.Shinde	SSAC
7	Fertilizer Types and Application Methods	Different types of fertilizers and how to apply them	Ms. P.V.Shinde	SSAC
8	Practical Session: Fertilizer Application	Hands-on application of fertilizers	Ms. C.B.Wagh	SSAC
9	Integrated Nutrient Management	Combining techniques for optimal soil and crop health	Ms. C.B.Wagh	SSAC
10	Advances in Soil Fertility Science	Recent developments and technologies	Ms. C.B.Wagh	SSAC
11	Soil and Crop Interaction	How soil properties influence crop growth	Ms. C.B.Wagh	SSAC
12	Exam and Evaluation	Assessment of knowledge and skills	Ms. P.V.Shinde Ms. C.B.Wagh	SSAC

  
Course Coordinator

  
Principal  
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## Department of Soil Science and Agril.Chemistry

Certificate course in

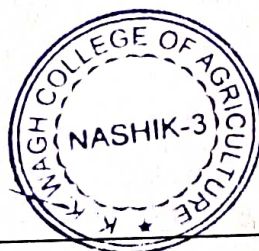
### “Soil Fertility and Crop Nutrition”

Academic Year 2019-20

#### Time Table

Sr. No.	Date	Time		Topic
1	6/1/2020	10.00 am	12.00 pm	Introduction to Soil Fertility
		1.00 pm	4.00 pm	Soil Nutrient Management
		4.00 pm	05.00 pm	Soil Testing and Analysis
2	7/1/2020	10.00 am	12.00 pm	Soil Testing and Analysis
		1.00 pm	5.00 pm	Soil Testing and Analysis
3	8/1/2020	10.00 am	1.00 pm	Soil Testing and Analysis
		2.00 pm	5.00 pm	Practical Session: Soil Sampling
4	9/1/2020	10.00 am	12.00 pm	Crop Nutrition Fundamentals
		1.00 pm	3.00 pm	Nutrient Deficiency Symptoms in Crops
		3.00 pm	5.00 pm	Fertilizer Types and Application Methods
5	10/1/2020	10.00 am	12.00 pm	Practical Session: Fertilizer Application
		1.00 pm	3.00 pm	Integrated Nutrient Management
		3.00 pm	5.00 pm	Advances in Soil Fertility Science
6	11/1/2020	10.00 am	12.00 pm	Soil and Crop Interaction
		1.00 pm	5.00 pm	Exam and Evaluation
		5.00 pm	6.00 pm	Certification Ceremony and Closing Remarks

  
Course Co ordinator



  
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**Department of Soil Science and Agril. Chemistry**  
**Certificate course in "Soil Fertility and Crop Nutrition"**  
**Academic Year 2019-20**

Sr. No.	Registration no	Name of students Date:	6/1/2020		7/1/2020		8/1/2020		9/1/2020		10/1/2020		11/1/2020	
			10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00
1	AKN/D-017/001	Avhad Gokul Ashok	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul
2	AKN/D-2017/024	Walunj Abhishek Balasaheb	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek
3	AKN-2015/020	Dayal Aniket Suresh	Aniket	Aniket	Aniket	Aniket	Aniket	Aniket	Aniket	Aniket	Aniket	Aniket	Aniket	Aniket
4	AKN-2015/032	Hodgar Abhiraj Satish	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj	Abhiraj
5	AKN-2015/068	Nikam Pallavi Bhalchandra	Nikam	Nikam	Nikam	Nikam	Nikam	Nikam	Nikam	Nikam	Nikam	Nikam	Nikam	Nikam
6	AKN-2015/069	Nikam Hrushikesh Vijay	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh	Hrushikesh
7	AKN-2016/002	Aware Harshal Ramdas	Harshal	Harshal	Harshal	Harshal	Harshal	Harshal	Harshal	Harshal	Harshal	Harshal	Harshal	Harshal
8	AKN-2016/022	Darekar Prajwal Sanjay	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal	Prajwal
9	AKN-2016/024	Deshmukh Kunal eshavrao	Kunal	Kunal	Kunal	Kunal	Kunal	Kunal	Kunal	Kunal	Kunal	Kunal	Kunal	Kunal
10	AKN-2016/042	Joshi Akshay Dilip	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay	Akshay
11	AKN-2016/063	Nalawade Abhishek Ashok	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek
12	AKN-2016/065	Nehe Priya Somnath	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya
13	AKN-2016/068	Palkhede Shubham Nivrutti	Shubham	Shubham	Shubham	Shubham	Shubham	Shubham	Shubham	Shubham	Shubham	Shubham	Shubham	Shubham
14	AKN-2016/069	Palve Amol Ramnath	Amol	Amol	Amol	Amol	Amol	Amol	Amol	Amol	Amol	Amol	Amol	Amol
15	AKN-2016/070	Pangavhane Yadnesh Kishor	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh	Yadnesh
16	AKN-2016/072	Patil Narendra Sandipan	Narendra	Narendra	Narendra	Narendra	Narendra	Narendra	Narendra	Narendra	Narendra	Narendra	Narendra	Narendra
17	AKN-2016/081	Rathod Krantikumar Bhaskar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar	Krantikumar
18	AKN-2016/087	Satpute Ashish Amasaheb	Ashish	Ashish	Ashish	Ashish	Ashish	Ashish	Ashish	Ashish	Ashish	Ashish	Ashish	Ashish
19	AKN-2016/110	Udmale Tejashri Hanuman	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri	Tejashri

*edhy*  
**Course Coordinator**



*Principal*  
**Principal**  
 K.K.Wagh College of Agriculture  
 Saraswatinagar, Panchavati, Nashik



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**Department of Soil Science and Agril. Chemistry**  
**Certificate course in "Soil Fertility and Crop Nutrition"**  
**Academic Year 2019-20**

Sr. No.	Registration no	Name of students	6/1/2020		7/1/2020		8/1/2020		9/1/2020		10/1/2020		11/1/2020	
			10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00	10.00-1.00	2.00-5.00
20	AKN-2016/112	Unde Devendra Dattatraya	ppole	ppole	ppole	ppole	ppole	ppole	ppole	ppole	ppole	ppole	ppole	ppole
21	AKN-2016/006	Bendre Ankita Jalindar	Amr	Amr	Amr	Amr	Amr	Amr	Amr	Amr	Amr	Amr	Amr	Amr
22	AKN-2016/057	Mhaske Mahesh Dattatray	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh	Mhsh
23	AKN-2016/061	Murkute Vishnuprasad Dadasa	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu	Vshnu
24	AKN-2016/084	Sahare Gitanjali Madhusudan	Gsh	Gsh	Gsh	Gsh	Gsh	Gsh	Gsh	Gsh	Gsh	Gsh	Gsh	Gsh
25	AKN/D-2017/009	Kamble Gaurav Gautam	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav
26	AKN/D-2017/022	Tile Suvarna Gajendra	Ssu	Ssu	Ssu	Ssu	Ssu	Ssu	Ssu	Ssu	Ssu	Ssu	Ssu	Ssu
27	AKN/D-2017/023	Vairal Rohit Ashok	Vairal	Vairal	Vairal	Vairal	Vairal	Vairal	Vairal	Vairal	Vairal	Vairal	Vairal	Vairal
28	AKN/D-2016/015	Patade Ashwini Bhaskar	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini
29	AKN/D-2016/019	Salve Yuvraj Ashok	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj
30	AKN-2015/002	Ahirrao Manasi Kishor	Manasi	Manasi	Manasi	Manasi	Manasi	Manasi	Manasi	Manasi	Manasi	Manasi	Manasi	Manasi
31	AKN-2015/027	Gaikwad Darshan Dadasaheb	Darshan	Darshan	Darshan	Darshan	Darshan	Darshan	Darshan	Darshan	Darshan	Darshan	Darshan	Darshan
32	AKN-2015/48	Kelgandre Shrushti R	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti	Shrushti
33	AKN-2015/049	Khade Karan Milind	Karan	Karan	Karan	Karan	A.B.	A.B.	Karan	Karan	Karan	Karan	Karan	Karan
34	AKN-2015/057	Lalge Akash Dilip	Akash	Akash	Akash	Akash	Akash	Akash	Akash	Akash	A.B.	A.B.	Akash	Akash
35	AKN-2014/020	Chavan Pravin Ambadas	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin	Pravin
36	AKN-2014/085	Patil Hitesh Ganesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh	Hitesh
37	AKN-2014/091	Pawar Chetan Sanju	Chetan	Chetan	Chetan	Chetan	Chetan	Chetan	Chetan	Chetan	Chetan	Chetan	Chetan	Chetan
38	AKN-2014/114	Thokal Ajinkya Babasaheb	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya	Ajinkya
39	AKN-2012/040	Ghotekar Gokul Sampat	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul	Gokul

  
**Course Coordinator**



  
**P. R. Pringalkar**  
 K.K.Wagh College of Agriculture  
 Saraswatinagar, Panchavati, Nashik



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**Certificate course in  
"Soil Fertility and Crop Nutrition"**

**Academic Year 2019-20**

**Examination Methodology**

Sr no	Nature of exam	Marks
1	Theoretical Examination	50
2	Practical Examination	45
3	Viva	05
3	Total	100

**Reference:**

1. Tandon, H. L. S. (2005) Methods of analysis of soils, plants, waters, and fertilizers.
2. Somwanshi, R.B., Kadu, P.P; Tamboli, B.D; Patil, Y.M. and Bhakare, B.D.(1999). Analysis of plants, irrigation water, and soils MPKV. Extn. Publ. No. 284. Rahuri (Maharashtra)
3. Jackson, M.L. (1973). Soil chemical analysis. Prentice-Hall of India, New Delhi.
4. Das D. K. 2011. Introductory Soil Science, 3rd revised and Enlarged Ed, Kalyani Publisher, Ludhiana. pp. 645.
5. Brady, N. C. 2016. The Nature and Properties of Soils. 15th edition Publisher: Pearson Education, ISBN: 978-0133254488
6. ISSS. 2009. Fundamentals of Soil Science. 2nd Ed. Indian Society of Soil Science, New Delhi- 110 012. pp. 728.
7. Yawalkar K.S. Manures & fertilizer: (1992).
8. Tisdale, S. L. and Nelson, W. L. and Beaton, J. D. 2010. Soil Fertility and fertilizers. 7<sup>th</sup> Ed. Macmillan Publishing Company, 445 Hutchinson Avenue, Columbus.

**Course Coordinator**



**Principal**  
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Department of Soil Science and Agril.Chemistry  
Certificate course in  
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Academic Year 2019-20

Student Result

Sr. No.	Registration no	Name of the Students	Theory marks (50)	Practical Marks 50)	Mark Out of Total 100
1	AKN/D-017/001	Avhad Gokul Ashok	32	41	73
2	AKN/D-2017/024	Walunj Abhishek Balasaheb	26	38	64
3	AKN-2015/020	Dayal Aniket Suresh	36	40	76
4	AKN-2015/032	Hodgar Abhiraj Satish	38	43	81
5	AKN-2015/068	Nikam Pallavi Bhalchandra	36	40	76
6	AKN-2015/069	Nikam Hrushikesh Vijay	46	45	91
7	AKN-2016/002	Aware Harshal Ramdas	38	42	80
8	AKN-2016/022	Darekar Prajwal Sanjay	32	41	73
9	AKN-2016/024	Deshmukh Kunal Keshavrao	42	39	81
10	AKN-2016/042	Joshi Akshay Dilip	44	40	84
11	AKN-2016/063	Nalawade Abhishek Ashok	38	42	80
12	AKN-2016/065	Nehe Priya Somnath	36	37	73
13	AKN-2016/068	Palkhede Shubham Nivrutti	34	42	76
14	AKN-2016/069	Palve Amol Ramnath	32	44	76
15	AKN-2016/070	Pangavhane Yadnesh Kishor	40	38	78
16	AKN-2016/072	Patil Narendra Sandipan	36	39	75
17	AKN-2016/081	Rathod Krantikumar Bhaskar	42	42	84
18	AKN-2016/087	Satpute Ashish Annasaheb	34	40	74
19	AKN-2016/110	Udmale Tejashri Hanuman	26	41	77
20	AKN-2016/112	Unde Devendra Dattatraya	30	40	70
21	AKN-2016/006	Bendre Ankita Jalindar	26	39	65
22	AKN-2016/057	Mhaske Mahesh Dattatray	34	40	74
23	AKN-2016/061	Murkute Vishnuprasad Dadasa	36	38	74
24	AKN-2016/084	Sahare Gitanjali Madhusudan	38	40	78
25	AKN/D-2017/009	Kamble Gaurav Gautam	40	42	82
26	AKN/D-2017/022	Tile Suvarna Gajendra	38	40	78
27	AKN/D-2017/023	Vairal Rohit Ashok	40	41	81
28	AKN/D-2016/015	Patade Ashwini Bhaskar	38	39	77

  
Course Coordinator



  
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**Certificate course in**  
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**Academic Year 2019-20**

**Student Result**

Sr. No.	Registration no	Name of the Students	Theory marks (50)	Practical Marks 50)	Mark Out of Total 100
29	AKN/D-2016/019	Salve Yuvraj Ashok	40	40	80
30	AKN-2015/002	Ahirrao Manasi Kishor	36	39	75
31	AKN-2015/027	Gaikwad Darshan Dadasaheb	36	37	73
32	AKN-2015/48	Kelgandre Shrushti R	36	42	78
33	AKN-2015/049	Khade Karan Milind	28	39	67
34	AKN-2015/057	Lalge Akash Dilip	44	41	85
35	AKN-2014/020	Chavan Pravin Ambadas	36	42	78
36	AKN-2014/085	Patil Hitesh Ganesh	32	43	75
37	AKN-2014/091	Pawar Chetan Sanju	38	40	78
38	AKN-2014/114	Thokal Ajinkya Babasaheb	40	39	79
39	AKN-2012/040	Ghotekar Gokul Sampat	36	42	78

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**K.K. Wagh College of Agriculture, Nashik**  
**Department of Soil Science and Agril. Chemistry**  
**Practical Exam**  
**Certificate course in**  
**“Soil Fertility and Crop Nutrition”**  
**Academic Year 2019-20**

Academic year 2019-20  
Semester-VIII(New)  
Total Marks-50

Class:Final year  
Date -11/1/2020  
Time-3.00pm to 5.00pm

<b>Q.1. Performing Practical .....</b>	<b>26 M</b>
1. Determine the Organic Carbon from given soil sample	
2. Determine the P <sup>H</sup> and EC from given soil sample	
<b>Q.2. Procedure writing – 10 M</b>	
1 Estimation of Available Nitrogen in soil (Alkaline permanganate method)	<b>5 M</b>
2. Estimation of Available Potassium in soil	<b>5M</b>
<b>Q.4. Do as directed.....</b>	<b>10 M</b>
1. Define Soil Fertility	
2. Water soluble phosphorus in superphosphate is determined by <b>Pumberton method</b> .	
3. Sulphur content from fertilizer is determined by ( <b>Turbidity method</b> ).	
4. <b>Flame photometer</b> is used to determine the total potassium content of muriate of potash.	
5. Zinc content from micronutrient fertilizer is determined by ( <b>EDTA Method</b> ).	
6. Long form of <b>DTPA</b>	
7. Moisture From Organic Manure is determined by <b>Oven Dry Method</b>	
8. Organic carbon from organic manures is determined by <b>ignition method</b> .	
9. <b>0.5 M NaHCO<sub>3</sub>, pH 8.5</b> reagent is known as Olsen reagent.	
10. <b>Mixed indicator</b> is used to Estimation of Available Nitrogen In Soil By Alkaline Permagnet Method (Subbhia & Asija, 1956)	
<b>Q.5. Viva.....</b>	<b>4 M</b>







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Department of Soil Science and Agril.Chemistry  
Certificate course in  
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Academic Year 2019-20  
Theory Exam Block Report

Class- Final Year  
Subject: "Soil Fertility and Crop Nutrition"  
Block no: 01

Date- 11/1/2020  
Time: 1:00pm to 3:00pm

Sr. No.	Registration No	Name of Student	Sign
1	AKN/D-017/001	Avhad Gokul Ashok	Gokul Ashok
2	AKN/D-2017/024	Walunj Abhishek Balasaheb	Abhishek
3	AKN-2015/020	Dayal Aniket Suresh	Aniket
4	AKN-2015/032	Hodgar Abhiraj Satish	Abhiraj
5	AKN-2015/068	Nikam Pallavi Bhalchandra	Nikam
6	AKN-2015/069	Nikam Hrushikesh Vijay	Nikam
7	AKN-2016/002	Aware Harshal Ramdas	Harshal
8	AKN-2016/022	Darekar Prajwal Sanjay	Prajwal
9	AKN-2016/024	Deshmukh Kunal Keshavrao	Kunal
10	AKN-2016/042	Joshi Akshay Dilip	Akshay
11	AKN-2016/063	Nalawade Abhishek Ashok	Nalawade
12	AKN-2016/065	Nehe Priya Somnath	Priya
13	AKN-2016/068	Palkhede Shubham Nivrutti	Shubham
14	AKN-2016/069	Palve Amol Ramnath	Amol
15	AKN-2016/070	Pangavhane Yadnesh Kishor	Yadnesh
16	AKN-2016/072	Patil Narendra Sandipan	Narendra
17	AKN-2016/081	Rathod Krantikumar Bhaskar	Krantikumar
18	AKN-2016/087	Satpute Ashish Annasaheb	Ashish
19	AKN-2016/110	Udmale Tejashri Hanuman	Tejashri
20	AKN-2016/112	Unde Devendra Dattatraya	Devendra
21	AKN-2016/006	Bendre Ankita Jalindar	Ankita
22	AKN-2016/057	Mhaske Mahesh Dattatray	Mahesh
23	AKN-2016/061	Murkute Vishnuprasad Dadasa	Vishnuprasad
24	AKN-2016/084	Sahare Gitanjali Madhusudan	Gitanjali
25	AKN/D-2017/009	Kamble Gaurav Gautam	Gaurav
26	AKN/D-2017/022	Tile Suvarna Gajendra	Suvarna
27	AKN/D-2017/023	Vairal Rohit Ashok	Rohit
28	AKN/D-2016/015	Patade Ashwini Bhaskar	Ashwini

Total no of student: 39  
No of student present: 39  
No of students absent: Nil

Name and Sign of Jr. Supervisor

Name and Sign of Sr. Supervisor







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Department of Soil Science and Agril.Chemistry  
Certificate course in  
"Soil Fertility and Crop Nutrition"  
Academic Year 2019-20  
Theory Exam Block Report

Class- Final Year

Date- 11/1/2020

Subject: "Soil Fertility and Crop Nutrition" Time: 1:00pm to 3:00pm

Block no: 01

Sr No	Registration No	Name of Student	Sign
29	AKN/D-2016/019	Salve Yuvraj Ashok	
30	AKN-2015/002	Ahirrao Manasi Kishor	
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36	AKN-2014/085	Patil Hitesh Ganesh	
37	AKN-2014/091	Pawar Chetan Sanju	
38	AKN-2014/114	Thokal Ajinkya Babasaheb	
39	AKN-2012/040	Ghotekar Gokul Sampat	

Total no of student: 39

No of student present: 39

No of students absent: nil

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Name and Sign of Sr. Supervisor







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Academic Year 2019-20  
Practical Exam Block Report

Class- Final Year

Date-11/1/2020

Subject: "Soil Fertility and Crop Nutrition"

Time: 3:00pm to 5:00pm

Block no: 01

Sr. No.	Registration No	Name Of Student	Sign
1	AKN/D-017/001	Avhad Gokul Ashok	
2	AKN/D-2017/024	Walunj Abhishek Balasaheb	
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27	AKN/D-2017/023	Vairal Rohit Ashok	
28	AKN/D-2016/015	Patade Ashwini Bhaskar	

Total no of student: 28

No of student present: 29

No of students absent: Nil

Name and Sign of Jr. Supervisor

Name and Sign of Sr. Supervisor







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**Department of Soil Science and Agril.Chemistry**  
**Certificate course in**  
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**Academic Year 2019-20**  
**Practical Exam Block Report**

**Class- Final Year**

**Date-11/1/2020**

**Subject: “Soil Fertility and Crop Nutrition”**

**Time: 3:00pm to 5:00pm**

**Block no: 01**

Sr No	Registration No	Name of Students	Sign
29	AKN/D-2016/019	Salve Yuvraj Ashok	
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35	AKN-2014/020	Chavan Pravin Ambadas	
36	AKN-2014/085	Patil Hitesh Ganesh	
37	AKN-2014/091	Pawar Chetan Sanju	
38	AKN-2014/114	Thokal Ajinkya Babasaheb	
39	AKN-2012/040	Ghotekar Gokul Sampat	

Total no of student: 39

No of student present: 39

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Name and Sign of Sr. Supervisor





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## Department of Soil Science and Agril.Chemistry

Certificate course in

**“Soil Fertility and Crop Nutrition”**

Academic Year 2019-20

### Exam Time Table

All enrolled students of the Certificate Course are hereby informed that for the academic year 2019-20, the Certificate Course on **“Soil Fertility and Crop Nutrition”** has been completed. The examination for this certificate course is scheduled to be conducted on 11/1/2020. Therefore, all students are required to be present without exception.

Note: Time Table is as follow

Sr. No.	Date	Time	Name of the exam
1	11/1/2020	1:00pm to 3:00pm	Theory Exam
2		3:00 to 5:00 pm	Practical Exam

Course Coordinator

Exam Incharge

PRINCIPAL

K.K.Wagh College of Agriculture  
Saraswatinagar, Panchavati, Nashik







**K.K. Wagh College of Agriculture, Nashik**  
**Department of Soil Science and Agril. Chemistry**  
**Theory Exam**  
**Certificate course in**  
**“Soil Fertility and Crop Nutrition”**  
**Academic Year 2019-20**

Academic year 2019-20  
Semester-VIII (New)  
Total Marks-50

Class : Final year  
Date -11/1/2020  
Time-1.00pm to 3.00pm

Note: 1) All questions carry equal marks

1. Which of the following soil textures has the highest water-holding capacity?

~~A) Sand~~

B) Silt

C) Clay

D) Loam

2. Soil pH affects the availability of nutrients. Which pH range is generally considered optimal for most crops?

~~A) 4.5 to 5.5~~

B) 5.5 to 6.5

C) 6.5 to 7.5

D) 7.5 to 8.5

3. Which of the following is classified as a secondary nutrient?

~~A) Nitrogen~~

B) Phosphorus

C) Potassium

D) Calcium

4. The nutrient cycle that describes the conversion of atmospheric nitrogen into a form usable by plants is known as:

~~A) The Carbon Cycle~~

B) The Nitrogen Cycle

C) The Phosphorus Cycle

D) The Sulfur Cycle

5. Which soil test is most commonly used to determine soil acidity?

~~A) Electrical Conductivity Test~~

B) Soil Moisture Test

C) pH Test

D) Organic Matter Test



6. A soil test report indicates a phosphorus level of 20 ppm. What is the general recommendation if the ideal phosphorus range for the crop is 30-50 ppm?

A) Apply no phosphorus

B) Apply phosphorus at a low rate

C) Apply phosphorus at a moderate rate

D) Apply phosphorus at a high rate

7. Which of the following is a characteristic of slow-release fertilizers?

A) They provide immediate nutrient availability B) They are typically more soluble in water

C) They release nutrients over an extended period D) They require frequent reapplication

8. Which method of fertilizer application involves placing the fertilizer in the soil close to the plant roots?

A) Broadcasting

B) Banding

C) Foliar Application

D) Fertigation

9. Which practice helps improve soil structure and fertility by adding organic matter?

A) Tillage

B) Irrigation

C) Composting

D) Monoculture

10. Crop rotation can help manage soil fertility by:

A) Depleting soil nutrients more quickly B) Increasing pest and disease pressure

C) Improving nutrient balance and reducing soil erosion D) Reducing soil organic matter

11. Which technology involves using GPS and sensors to apply fertilizers in precise amounts based on soil variability?

A) Traditional Agriculture

B) Precision Agriculture

C) Organic Farming

D) Conventional Tillage

12. What is the primary benefit of using cover crops in soil management?

A) Decrease soil organic matter

B) Increase soil erosion

C) Improve soil fertility and structure

D) Reduce crop yield





13. What is the primary function of nitrogen in plant growth?

- A. Enhancing root development      B. Promoting flower and fruit development  
C. Facilitating photosynthesis      ~~D. Increasing leaf and stem growth~~

14. Which soil type is known for having high water-holding capacity and good nutrient retention?

- A. Sandy soil      B. Clay soil  
~~C. Silty soil~~      ~~D. Loamy soil~~

15. What is the pH range considered ideal for most crops?

- A. 4.0 - 5.0      ~~B. 5.5 - 7.0~~  
C. 7.0 - 8.5      D. 8.5 - 9.5

16. Which of the following nutrients is most likely to cause nutrient imbalances if applied excessively?

- A. Potassium      B. Calcium  
~~C. Phosphorus~~      ~~D. Nitrogen~~

17. What is the term for the process of adding organic matter to the soil to improve its fertility?

- A. Irrigation      B. Fertilization  
~~C. Composting~~      D. Mulching

18. Which soil test method measures the available nutrients in the soil?

- ~~A. Soil texture analysis~~      B. Soil pH testing  
~~C. Soil fertility testing~~      D. Soil moisture testing

19. In crop nutrition, what does the term 'micronutrients' refer to?

- A. Nutrients required in large quantities      ~~B. Essential nutrients required in very small amounts~~  
C. Secondary nutrients needed for plant growth      D. Non-essential nutrients that plants do not need

20. Which of the following is NOT a common sign of nitrogen deficiency in plants?

- A. Yellowing of older leaves      B. Poor plant growth  
~~C. Purple discoloration of leaves~~      D. Reduced fruit and seed production



21 . What is the purpose of using green manure in soil management?

- A. To improve soil texture     B. To add organic matter and nutrients to the soil  
C. To reduce soil erosion    D. To increase soil pH

22 . Which of the following is a characteristic of acidic soils?

- A. High nutrient availability     B. Low cation exchange capacity  
C. High levels of lime    D. Increased solubility of aluminium and manganese

23. Which of the following are functions of soil organic matter?

- A. Increases CEC in the soil    B. Supplies N,P and S to plant growth  
C. Holds up twenty times its weight of water.     D. All of the above

24. Factors affecting root growth are

- A. Mechanical impedance    B. Soil temperature  
C. Soil aeration     D. All of the above

25. Environmental factors that affects plant growth are

- A. Temperature, moisture supply    B. Soil aeration, soil structure  
D. Biotic factors, radiant energy     D. All of the above







K. K. Wagh Education Society's  
K. K. Wagh College of Agriculture,  
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**Department of Soil Science and Agril.Chemistry**  
**Certificate course in**  
**“Soil Fertility and Crop Nutrition”**  
**Academic Year 2019-20**

**Report**

K.K.Wagh Education Society's K.K.Wagh College of Agriculture, Saraswatinagar, Nashik which provide education in Agriculture at U.G. level students. College has to decide introduce new Certificate Course in “Soil Fertility and Crop Nutrition”. Total 39 students are enrolled from department of Soil Science and Agril. Chemistry and Horticulture. Due to this certificate course in “Soil Fertility and Crop Nutrition”, Participants will be aware of current trends and innovations in soil fertility and crop nutrition, including sustainable practices and technological advancements.

**Course outcome**

- 1. Understand Soil Properties:** Describe soil characteristics and their impact on fertility and crop growth.
- 2. Conduct Soil Testing:** Perform soil tests, interpret results, and apply findings to manage soil nutrients effectively.
- 3. Apply Fertilizer Management:** Use different types of fertilizers and application techniques based on soil and crop need
- 4. Implement Soil Management Practices:** Apply soil and crop management strategies, including conservation and sustainable practices.
- 5. Adapt to Trends:** Recognize and incorporate emerging technologies and sustainable practices into soil fertility management.

This Course in “Soil Fertility and Crop Nutrition” has been designed with the aim to provide conceptual basic and hands on practical exposure thorough understanding of “Soil Fertility and Crop Nutrition”. The Certificate Course in Soil Fertility and Crop Nutrition successfully achieved its objectives, providing participants with valuable knowledge and practical skills in soil management and nutrient management. The course equipped participants with the tools needed to enhance crop production through effective soil fertility practices. Students who are pursuing their bachelors or master's course or have completed study and want to enter industry can join this course which will provide them the needed training and exposure in the field of Soil Fertility and Crop Nutrition”. This course also helps to motivate students to improve their Knowledge and skill of Soil Fertility and Crop Nutrition. In academic year 2019-20, 39 students are enrolled for this certificate course. Course structure had been divided into theory and practical. Theory has 50 marks while practical has 50 marks weightage, examination has been conducted for total 100 marks. Duration for this certificate course is 6/1/2020 to 11/1/2020(Total 36 hrs.) the students who successfully completed the certificate course were given a certificate as appreciation by the college. Course coordinator is Ms. P. V. Shinde, and member for this certificate course are Ms.C.B.Wagh.

  
Course Coordinator



  
**PRINCIPAL**  
K.K.Wagh College of Agriculture  
Saraswatinagar, Panchavati, Nashik





K K Wagh Education Society's

# K K WAGH COLLEGE OF AGRICULTURE

(Affiliated to Mahatma Phule Krishi Vidyapeeth, Rahuri)

Saraswatinagar, Panchavati, Nashik - 422 003

## Certificate

This is to certify that Mr./Ms. Nikam Hrushikesh Vijay.....

Class 4<sup>th</sup> Year.. has completed Certificate Course on Soil Fertility and Crop.....

Nutrition..... from 06/01/2020..... to 11/01/2020..... organized by

Department of Soil Science & Agril. Chemistry in academic year 2019-20.....

Date : 11/01/2020

Place : Nashik

Course Coordinator



Principal  
K K Wagh College of Agriculture  
Saraswatinagar, Panchavati, Nashik