Date: 27/02/2023

To.

The Principal

K. K. Wagh College of Agriculture,

Nashik

Subject Regarding permission for Certificate Course.....

Respected Sir,

On behalf of the Department of Horticulture, we humbly request permission to initiate a Certificate course titled 'Vegetable Grafting: Concept and Application'. This course is scheduled from 13/03/2023 to 18/03/2023 and will involve approximately 20 final-year students. It is anticipated that this course will greatly benefit our students in enhancing their knowledge about advance technique and practical skills in propagation of vegetable crops. We kindly ask for your approval for the implementation of this course.

Thanking You,

Permission granted

Yours faithfully,

(Mr. Y. R. Kadam)

Course Coordinator



K. K. Wagh College of Agriculture,

(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

'Vegetable Grafting: Concept and Application'

Academic Year 2022-23

Syllabus Committee

Sr	Name of teacher	Designation	Department	Role in course
1	Prof. Y. R. Kadam	Assistant Professor	Horticulture	Course coordinator
2	Prof. A. C. Jadhav	Assistant Professor	Horticulture	Committee member
3	Prof. S. G. Thakare	Assistant Professor	Horticulture	Committee member
4	Prof. T. B. Ugale	Assistant Professor	Entomology	Committee member
5	Prof. S. K. Ahirrao	Assistant Professor	Plant Pathology	Committee member





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Date:02/03/2023

Academic Year 2022-23 Department of Horticulture 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 'Vegetable Grafting: Concept and Application' was convened on 1 March 2023, at 12:00 PM in the Department of Horticulture. 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	an
2	Prof. Y. R. Kadam	Course Coordinator	A STATE OF THE PROPERTY OF THE
3	Prof. A. C. Jadhav	Member	(1)10
4	Prof. S. G. Thakare	Member	202
5	Prof. T. B. Ugale	Member	
6	Prof. S. K. Ahirrao	Member	Amure

Minutes of Meeting

The Board of Studies convened a meeting on 1 March 2023, at 12:00 PM in the Department of Horticulture to address various aspects concerning the Short-Term Certificate Course in 'Vegetable Grafting: Concept and Application'. The meeting focused on the following key points:

1. Syllabus Formation: Members deliberated on developing a syllabus that emphasizes on relevant knowledge and skills in vegetable grafting.

2. Dissemination of Work: Strategies for effectively teaching vegetable propagation techniques were discussed to aid students in the course.

3. Encouragement of Students: The meeting stressed the importance of offering guidance and motivation to students. Grafting was recognized as an effective alternative against various biotic and abiotic stresses, emerging as an environmentally friendly and climateresilient approach.

4. 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 'Vegetable Grafting: Concept and Application'

Course coordinator



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College Code;11135

Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Syllabus Outcomes:

- Gain awareness of historical and current perspectives of vegetable grafting. 1.
- Perform various vegetable propagation methods. 2.
- Acquire knowledge on abiotic stress tolerance in vegetables through grafting technology. 3.
- Understand the role of vegetable grafting in addressing biotic stresses. 4.
- Explore methods for addressing nematode problems through vegetable grafting. 5.
- Examine the commercial aspects of vegetable grafting.

	mine the commercial aspects	Description	No of Lectures
Sr no	Topic What is vegetable grafting	Concept, Reasons for Vegetable Grafting, Material Required for Grafting	03 hours
2	Historical and Current Perspectives of Vegetable	References of Historical and Current Perspectives of Vegetable Grafting	03 hours
3	Grafting Methods of Vegetable Grafting	Different methods, Rootstocks used in different vegetable crops	06 hours
4	Physiology of Graft Union Formation	Purposes of grafting	06 hours
5	Soil-borne Pathogens in Vegetable Crops: Status	Introduction, Important soil borne diseases affecting various crops, Management of soil borne diseases	06 hours
6	Effect and Management of Abiotic Stresses in Vegetable Crops	Introduction, Abiotic stresses and their impacts and management.	06 hours
7	Commercial Aspects of Vegetable Grafting	Global scenario, Commercial advantages of vegetable grafting	06 hours
		Total	36 hours

Course Coordinator



K. K. Wagh Education Society's K. K. Wagh College of Agriculture,

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Date:04/03/2023

Student Notice

All the students of B. Sc. (Hons.) Agriculture final year are informed that for the academic year 2022-23 the Certificate Course on 'Vegetable Grafting: Concept and Application' is starting from 13/03/2023 to 18/03/2023. For this certificate course students should submit their names to the Certificate Course Coordinator Assistant Prof. A. C. Jadhav up to 08/03/2023.

Duration: 36 Hrs. 13/03/2023to 18/03/2023 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.

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Department of Horticulture Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Enrolled Student List

SR NO	REGISTRATION NO	NAME OF STUDENT
1	AKN-2019/002	Aher Ajinkya Vijay
2	AKN-2019/007	Awari Nutan Kailas
3	AKN-2019/009	Bangar Anushka Balkrishna
4	AKN-2019/010	Bankar Vaishnavi Keshav
5	AKN-2019/011	Bhadane Anurag Raju
6	AKN-2019/013	Bhadange Rushikesh Sanjay
7	AKN-2019/018	Chaudhari Pratik Sopan
8	AKN-2019/020	Chinchole Sumit Sharad
9	AKN-2019/025	Deshmukh Akash Pradip
10	AKN-2019/027	Deshmukh Mrunal Vasantrao
11	AKN-2019/036	Gadekar Harshad Anil
12	AKN-2019/038	Gaikwad Prachi Sanjay
13	AKN-2019/039	Gaikwad Rahul Dnyandev
14	AKN-2019/047	Gatkal Aditya Vinayak
15	AKN-2019/052	Ghongade Swapnil Balasaheb
16	AKN-2019/055	Jadhav Abhiraj Ramrao
17	AKN-2019/056	Jadhav Hemant Madhukar
18	AKN-2019/063	Kadam Vedant Prakash

Course Coordinator





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STUDENT REGISTRATION FORM

Academic Year: 2022-23

(Department of Horticulture)



CERTIFICATE COURSE

'Vegetable Grafting: Concept and Application' For Department Use Only

Registration No.: AKN = .2019 0.47. Student ID:
Name of the Student: Gatkal Aditya. Winayak.
Mother's Name: Gotkal Alka Jinayak
Father's Name:Gatkalv.nayak
E-Mail ID: gotkoladity 12@gmoil: com
Address: N.O.shik.
State: Mahayashtra PIN Code: 422003
Mobile No: 8080.79.77.9.5 Alternate contact number:
Gender: Male Female Other Religion: Hindu Date of Birth: 28 10 2001
Educational Qualification (at the time of admission):
HSCOther
A

Place: Nashik

Date: 08/03/2023



Signature of Student



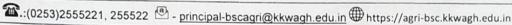
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College Code;11135

AISHE Code: C-50690





STUDENT REGISTRATION FORM

Academic Year: 2022-23

(Department of Horticulture)



CERTIFICATE COURSE

'Vegetable Grafting: Concept and Application' For Department Use Only

Registration No.: Ak N-2019.10.07. Student ID:
Name of the Student: Awan Nutan Kailas
Mother's Name: Awari Sugandha kailas
Father's Name: Awari kallas. Year:1st /2nd /3rd/4th/
E-Mail ID: nutan desar of Q on ev. Con
Address: K. K. Wagh College of Agriculture, Nashik State: Maharashtra. PIN Code: 422003.
State: Maharashtra. PIN Code: 422003.
Mobile No: 9022070969. Alternate contact number:
Gender: Male Other Religion: Hindu
Date of Birth:17/03/2601

Signature of Student

Place: Nashik

Date: 8/3/2023

Educational Qualification (at the time of admission):

HSCOther





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Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Schedule of the course

Sr	Topic	Description	Name of the teacher	Department
no	What is vegetable grafting	Concept, Reasons for Vegetable Grafting, Material Required for Grafting	Prof. Y. R. Kadam	Horticulture
2	Historical and Current Perspectives of Vegetable Grafting	References of Historical and Current Perspectives of Vegetable Grafting	Prof. A. C. Jadhav	Horticulture
3	Methods of Vegetable Grafting	Different methods, Rootstocks used in different vegetable crops	Prof. Y. R. Kadam	Horticulture
4	Physiology of Graft Union Formation	Introduction, physiology of graft union	Prof. S. G. Thakare	Horticulture
5	Soil-borne Pathogens in Vegetable Crops: Status	Introduction, Important soil borne diseases affecting various crops, Management of soil borne diseases	Prof. T. B. Ugale and Prof. S. K. Ahirrao	Entomology Plant Pathology
6	Effect and Management of Abiotic Stresses in Vegetable Crops	Introduction, Abiotic stresses and their impacts	Prof. Y. R. Kadam	Horticulture
7	Commercial Aspects of Vegetable Grafting	Global scenario, Commercial advantages of vegetable grafting	Prof. A. C. Jadhav	Horticulture

Course Coordinator



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Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Time Table

C	D .		Time Tab	ne		
Sr no	Date Time		ime	Topic		
1	10.00 am 03		03.00 pm - 05.00 pm	What is vegetable grafting		
2	14/03/2023	10.00 am- 01.00 pm	03.00 pm - 05.00 pm	Historical and Current Perspectives of Vegetable Grafting		
3	15/03/2023	10.00 am- 01.00 pm	03.00 pm - 05.00 pm	Methods of Vegetable Grafting		
4	16/03/2023	10.00 am- 01.00 pm	03.00 pm - 05.00 pm	Physiology of Graft Union Formation		
5	17/03/2023	10.00 am- 01.00 pm	03.00 pm - 05.00 pm	Soil-borne Pathogens in Vegetable		
6	18/03/2023	10.00 am- 01.00 pm	03.00 pm - 05.00 pm	Effect and Management of Abiotic Stresses in Vegetable Crops, Commercial Aspects of Vegetable Grafting		

Course Coordinator

PRINCIPAL K.K.Wagh**Principa**bf Agriculture Saraswatinagar, Panchavati, Nashik

K K WAGH COLLEGE OF AGRICULTURE, NASHIK Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application'

Academic Year 2022-23														
Sr	Registration no	Name of students Date	13/03	/2023	14/0.	3/2023	15/03	3/2023	16/03	3/2023	17/03/	2023	18/03	2023
110		Time	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-2019/002	Aher Ajinkya Vijay	AIINE	H May	Anker	AINPU	Ajnku	Ainter	Ainken	Hint	Ainus	Ajmy	Ajnbu	Ajnkes
2	AKN-2019/007	Awari Nutan Kailas	Autos	calleten	canistos	conutac	Into	Anita	Anuto	duter	Ab	druta	Anutos	Inter
3	AKN-2019/009	Bangar Anushka Balkrishna	Bhangar	Alangoc	Abeny	Bloomers	Bourge	Alargu	Abanga	CA DOLLAGE	Bhargue	Abang	A DONAL	Floors
4	AKN-2019/010	Bankar Vaishnavi Keshav	Ruy	Quit	Quit	Omy	Russ	Quent	Quit	Quel	Pens	Quel	Quest	aus.
5	AKN-2019/011	Bhadane Anurag Raju	Ab	Quent	Budan	andre	amala	andre	Ab	Butne	audne	and	andre	andre
6	AKN-2019/013	Bhadange Rushikesh Sanjay	populada	Poplado	BBKU	Rosen	Restados	Bolad	poras	Roxas	Melar	POBLA	BBu	Bru
7	AKN-2019/018	Chaudhari Pratik Sopan	Pratiks	Proticic	Pratiks	Pratikes	Prout KSC	Pratikic	Produksy	Proutiksa	Proad KSC	Producti	Produksc	Pad KS
8	AKN-2019/020	Chinchole Sumit Sharad	Chin	dil	Chil	Ohin	ah.	Ohil	Ohi	ahil	Olin	alial	alil	Olid
9	AKN-2019/025	Deshmukh Akash Pradip	Doo houth	Buhnukh:	Deshaukh	Bohnikh.	Dennuch	Deshmun.	Deshnuch-	Dehnuch		Deshouth	Dedroues	Destruk
0	AKN-2019/027	Deshmukh Mrunal Vasantrao	Nest	Wahr	NOST	Ab	NOS	mode	Melin	Palum	Noshu	Moh	Mode	Mach
1	AKN-2019/036	Gadekar Harshad Anil	Chastady	Charotad	Chardre	Chashad	Charshad	Charstoo	Charotad	Chaishad	Charshad	Ghanstad	Charstad	Chasha
2	AKN-2019/038	Gaikwad Prachi Sanjay	Esprachi	apradi	morach	aprady	G prachi	Copradi	Chradi	aprochi	aprachi	apoli	apadi	mradi
	AKN-2019/039	Gaikwad Rahul Dnyandev	OX	200	DO C	FO)	100	98/	(D)	(D)	25	200	A)	377
1	AKN-2019/047	Gatkal Aditya Vinayak	Aguire	Auri	Aui	Luli	Mis	Alusi	Agris	Mi	Alo	MILE	1102	NUT
A	KN-2019/052	Ghongade Swapnil Balasaheb	faregade.	Igho gade	fgregade.	lahegal1.	Ab	Ab	fangade	fyrogell.	fgregadu	foregoy.	Danisate.	Palment
1	KN-2019/055	Jadhav Abhiraj Ramrao		Majadhay	ARnahay	Detachas	ARJadha	Akaaha	ARtadhar		ARtallas		Aletaahov	Alphaha
	AKN-2019/056	Jadhav Hemant Madhukar	Jacke	Judhan	Jadha	EGE	Sodian			Judhar			Todbas	Tedher
8	AKN-2019/063	Kadam Vedant Prakash	V. Kadam,	1. Kadar	1 todary	Pradou	1 Fodou	Wadan	1. Kadam	v. Kodar	V-todan	xadan	Ladar	Ikadas
		Course	oord inato	r	To de la constant de	NASHIK	(3)0		K.K.W Sarasy	PRIN	CIPAL ye of Agric Panchavati,	ulture Nashik		•



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Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Examination Methodology

Sr no	Nature of exam	Marks
1	Written	30
2	Practical	20
3	Total	50

Reference:

- 1) Abdelmageed A H A, Gruda N. 2009. Influence of grafting on growth, development and some physiological parameters of tomatoes under controlled heat stress conditions. European Journal of Horticultural Science, 74 (1): 16-20.
- 2) Abdelmageed, A.H.A., Gruda, N. and Geyer, B. 2004. Effects of temperature and grafting on the growth and development of tomato plants under controlled conditions. In: Deutsher Tropentag, Rural Poverty Reduction through Research for Development and Transformation; October 5-7. 2004, pp. 1-5.
- 3) Albacete, A., Martinez-Andujar, C., Perez, A.M., Thompson, A.J., Dodd, I.C. and Alfocea, F.P. (2015). Unravelling rootstock x scion interactions to improve food security. Journal of Experimental Botany, 1-16.doi:10.1093/jxb/erv027.
- 4) Bahadur, A., Rai, N., Kumar, R., Tiwari, S.K., Singh, A.K., Rai, A.K., Singh, U., Patel, P.K., Tiwari, V. and Singh, B. 2015. Grafting tomato on eggplant as a potential tool to improve waterlogging tolerance in hybrid tomato. Vegetable Science, 42 (2): 82-87.
- 5) Colla, G., Kumar, P., Cardarelli, M., and Rouphael, Y. 2013. Grafting an effective tool for abiotic stress alleviation in vegetables. In: Horticulture for food and environment security (Chadha et al., Eds.), West Ville Pub. House, New Delhi. pp 15-28.

6) https://www.researchgate.net/publication/354118919_Vegetable_grafting_A_noble way to enhance production and quality

Course Coordinator

Incipale of Agriculture Saraswatinagar, Panchavati, Nashik



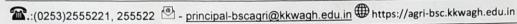
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Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Sr. No.	Registration no	Name of the students	Theory marks (30)	Practical Marks (20)	Mark Out of Total 50
1	AKN-2019/002	Aher Ajinkya Vijay	21	17	38
2	AKN-2019/007	Awari Nutan Kailas	29	19	48
3	AKN-2019/009	Bangar Anushka Balkrishna	27	18	45
4	AKN-2019/010	Bankar Vaishnavi Keshav	21	16	87
5	AKN-2019/011	Bhadane Anurag Raju	22	17	39
6	AKN-2019/013	Bhadange Rushikesh Sanjay	27	16	43
7	AKN-2019/018	Chaudhari Pratik Sopan	23	17	40
8	AKN-2019/020	Chinchole Sumit Sharad	25	18	43
9	AKN-2019/025	Deshmukh Akash Pradip	21	17	38
10	AKN-2019/027	Deshmukh Mrunal Vasantrao	22	17	39
11	AKN-2019/036	Gadekar Harshad Anil	23	19	42
12	AKN-2019/038	Gaikwad Prachi Sanjay	28	18	46
13	AKN-2019/039	Gaikwad Rahul Dnyandev	27	17	44
14	AKN-2019/047	Gatkal Aditya Vinayak	24	19	43
15	AKN-2019/052	Ghongade Swapnil Balasaheb	25	1.5	36
16	AKN-2019/055	Jadhav Abhiraj Ramrao	2:5	17	42
17	AKN-2019/056	Jadhav Hemant Madhukar	22	16	38
18	AKN-2019/063	Kadam Vedant Prakash	27	18	45

Course Coordinator



K. K. Wagh College of Agriculture, Nashik

Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application'
Academic Year 2022-23

THEORY EXAMINATION

Class:	Semester:	
Day & Date:	Time:	
Subject:	Marks:	
Name of student:	Registration no:	

Multiple Choice Questions

Q 1.What is Grafting?	1110 1100
A process by which 3 different plants are united	A process by which 2 different plants are united so that they grow as one
A process by which a plants roots are above ground	4. A process by which a plant cannot grow
Q 2 In grafting good care has to be used to match which laye	r of the scion and rootstock?
1. Cambium	2. Scion
3. Root	4. Top
Q 3 Botanical Name of tomato is	
1. Lycopersicon erecta	2. Solanum lycopersicum
3. Lycopersicon esculata	4. Lycopersicon esculentus
O 4 What is abbreviation IIVR	
Indian Institute of Vine Crop Research	2. Indian Institution of Various Resources
3 Indian Institute of Vegetable Research	4. Indian Institute of Variegated Crops Res
Q 5 The raising of grafted plants of vegetables was first init	iated in which country
1. UK	2. India
3. Denmark	4. Japan
O 6 What is object of Vegetable Grafting	
1 To develop plant resistance to disease and pests	2. To improve quality
2. To converting poor plants into more desirable one.	4. All
Q 7 Important feature of Brinjal rootstock <i>Solanum intergrij</i>	folium use for grafting
Tolerance to cold	2. Resistant to root knot nematode
2 High temperature tolerance	Resistance to Fusarium wilt
2 8 Vegetable grafting method commonly use in solanaceou	IS .
1. Slant grafting	2. Tube graning
2 Hole Insertion Method	Cleft grafting
2 9 Fusarium wilt of which crops are managed by grafting tec	chniques.
Solaneous crops	z. cole crops
3. Cucurbits	4. None of above
2 10 Example of heat sensitive crop	
1. Tomato	2. Cucumber
0 0 11	4. Brinjal
3. Chilli 2 11 Optimum temperature range for vegetable grafting is .	
11 Optimum temperature range for 15go	2. 20-25°C
1. 25-30°C	4. 15-20°C
3. 35-40°C 12 Ideal condition for vegetable grafting is	
12 Ideal condition for vegetable grating is	2. 80- 85 % RH with medium light intensity
1. 75- 80 % RH with high light intensity	4. None of above
3. 85- 90 % RH with low light intensity	hynocotyl are desirable
3. 85- 90 % RH with low light intensity 13 Root stock seedling at a first true leaf stage the	2. Long
1. Short	4. Pseudo short
3. Medium	4. I Scuud Short

Q 14 Who has made a successful attempt to produce Brim.	ato.		
1. IIVR, Varanasi			
1. IIVR, Varanasi 2. IIHR, Bangalore 4. None of above			
Q 15 Most suitable grafting method in tomato is	0.01-0		
1. Targets Grafting	2. Wedge Grafting		
1. Tongue Grafting	4. Hole Insertion Method		
3. Slice Grafting	O. Oing		
Q 16 What is Scion	2. Lower part of grafting		
1. Upper part of grafting	4. None of above		
3. Middle part of grafting Q 17 What is the most successful grafting technique?	CAing		
Q 1/ What is the most successful graiting	2. Whip and Tongue Grafting		
1. Bench grafting	4. None of above		
Slant Grafting O 18 is a methods commonly used to graft wat	ermelon and cucumber.		
Q 18 is a methods commonly used to grand	2, 200		
1. Approach (Tongue)	4. All of above		
3. One Cotyledon (splice) Q 19 is the most commonly used commercial ro	otstock for grafted watermelon?		
Q 19 is the most commonly used commercial to	2. Momordica charantia		
1. Cucumis melo	4. Lagenaria siceraria		
3. Cucurbita moschata			
Q 20 Grafted tomato transplant in from the seeding	2. 40 days		
1. 20 days	4. 30 days		
3. 50 days	4.50 days		
Q 21 Why use grafted tomatoes?	2. Resistance to pests		
Resistance to soil-borne diseases	4. All of above		
3. Resistance to nematodes			
Q 22 For grafts to be successful the rootstock and scion sl	2 Season		
Closely related plant species	2. Season 4. All of above		
3. Temperature	4. All of above		
Q 23 What is rootstock	2 I and of grafting		
1. Upper part of grafting	2. Lower part of grafting		
3. Middle part of grafting	4. None of above		
Q 24 is commercial root stock used in solanaceo	ous crops.		
1. Solanum torvum	2. Solanum nigrum		
3. Solanum indicum	4. Solanum khasianum		
Q 25 Important feature of Tomato rootstock Solanum pim	pinellifolium use for grafting.		
1. Resistance to nematodes	2. Resistance to pests		
3. Salt tolerance	Resistance to soil-borne diseases		
Q 26 Union of rootstock and scion is known as			
1. Layering	2. Grafting		
3 Cutting	4. Shooting		
Q 27 In tomatoes continue to growth, flower, and fruit se	tting is known as		
1. In determinant	2. Determinant		
3. Common tomato	4. None of above		
Q 28 In India, vegetable grafting work was first started in	1		
1. IARI, New Delhi	2. ICAR, New Delhi		
3. IIVR, Varanasi	4. IIHR Bengaluru		
Q 29 crop imparts salt, alkalinity and flooding to			
watermelon	and the same and a strictle of the		
1. Cucumber	2. Musk melon		
	4. Bitter gourd		
3. Bottle gourd grafting method commo			
Q 30 In bitter gourd grafting method commo	2 Splice Grafting		
1. Cleft	2. Splice Grafting		
Hole insertion and Tongue method	4. Tongue and Cleft methods		

K. K. Wagh College of Agriculture, Nashik
Department of Horticulture
Certificate course in 'Vegetable Grafting: Concept and Application'
Academic Year 2022-23

Answer Sheet

1	2. A process by which 2 different plants are united so that they grow as one			
2	1. Cambium			
3	2. Solanum lycopersicum			
4	3. Indian Institute of Vegetable Research			
5	4. Japan			
6	4. All			
7	2. Resistant to root knot nematode			
8	2. Tube grafting			
9	3. Cucurbits			
10	1. Tomato			
11	1. 25-30°C			
12	3. 85- 90 % RH with low light intensity			
13	2. Long			
14	1. IIVR, Varanasi			
15	3. Slice Grafting			
16	1. Upper part of grafting			
17	2. Whip and Tongue Grafting			
18	4. All of above			
19	3. Cucurbita moschata			
20	2. 40 days			
21	4. All of above			
22	Closely related plant species			
23	2. Lower part of grafting			
24	1. Solanum torvum			
25	3. Salt tolerance			
26	2. Grafting			
27	1. In determinant			
28	4. IIHR Bengaluru			
29	3. Bottle gourd			
30	3. Hole insertion and Tongue method			



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Department of Horticulture Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Exam Block Report

Class- Final Year

Date- 21/03/2023

Subject: Theory Paper of Vegetable Grafting: Concept and Application course

Block no: 02

SR NO	REGISTRATION NO	NAME OF STUDENT	SIGN
1	AKN-2019/002	Aher Ajinkya Vijay	Ainta
2	AKN-2019/007	Awari Nutan Kailas	anutes
3	AKN-2019/009	Bangar Anushka Balkrishna	Pounges.
4	AKN-2019/010	Bankar Vaishnavi Keshav	Quest
5	AKN-2019/011	Bhadane Anurag Raju	Burthal
6	AKN-2019/013	Bhadange Rushikesh Sanjay	Retailings
7	AKN-2019/018	Chaudhari Pratik Sopan	Brotik.S.S
8	AKN-2019/020	Chinchole Sumit Sharad	Chind
9	AKN-2019/025	Deshmukh Akash Pradip	Deshmulkh
10	AKN-2019/027	Deshmukh Mrunal Vasantrao	Dorani
11	AKN-2019/036	Gadekar Harshad Anil	Charstad
12	AKN-2019/038	Gaikwad Prachi Sanjay	Gpoachi
13	AKN-2019/039	Gaikwad Rahul Dnyandev	(D)
14	AKN-2019/047	Gatkal Aditya Vinayak	America
15	AKN-2019/052	Ghongade Swapnil Balasaheb	fanomade
16	AKN-2019/055	Jadhav Abhiraj Ramrao	ARJanhan
17	AKN-2019/056	Jadhav Hemant Madhukar	Jodhan
18	AKN-2019/063	Kadam Vedant Prakash	V. Kadam

Total no of student: 18

No of student present: 18 No of students absent: 00

Name and Sign of Jr. Supervisor

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Name and Sign of Sr. Supervisor

(DY. S. S. BOR Nove)



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Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

Exam Time Table

All enrolled students of the Certificate Course are hereby informed that for the academic year 2022-23, the Certificate Course on 'Vegetable Grafting: Concept and Application' has been completed. The examination for this certificate course is scheduled to be conducted on 21/03/2023. Therefore, all students are required to be present without exception.

Note: Time Table is as follow

Sr no	Date	Time	Certificate course subject
1	21/03/2023	01:00 to 02:00 pm	Theory exam: Vegetable Grafting: Concept and Application course
2		02:00 to 09:00 pm	Practical Exam: Vegetable Grafting Concept and Application course

Exam Incharge

K. K. Wagh College of Agriculture, Nashik

Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

THEORY EXAMINATION

	THEORY EXAMIN		15
Class:	Tonal wade	Semester:	VIII th
Day & Date:	21-3-2023	Time:	10-11 am
Subject:	Hortical ture.	Marks:	30 marks.
Name of student		Registration no:	AKN-2019/047
30	Multiple Choi	ce Ouestions	61
	No. 19 August Pro-	Law Aumora and	(=30)
O 1 What is Graft	ring?		
Q 1. What is Grafting? 1. A process by which 3 different plants are united		2 A process by which 2 different plants are united so that they grow as one	
3. A process	s by which a plants roots are above	4. A process by	which a plant cannot grow
ground			41-0
Q 2 In grafting go	ood care has to be used to match which laye	r of the scion and roots	stock?
V. Cambium		2. Scion	
		4. Top	
3. Root Q 3 Botanical Na	me of tomato is	The state of the s	
1, Lycopers		2. Solanum lyco	persicum
3. Lycopers		A. Lycopersicon	
Q 4 What is abbre		On Exception	MENTER WOMEN
		2. Indian Institut	ion of Various Resources
Indian Institute of Vine Crop Research Indian Institute of Vegetable Research		Indian Institute of Variegated Crops Res	
S. Indian in	of grafted plants of vegetables was first init		
Q 5 The raising o	or granted plants of vegetables was first inte	2. India	THE RESERVE OF THE PARTY OF THE
1. UK		4. Japan	
3. Denmark		J. Jupun	
Q 6 What is obje	ct of Vegetable Grafting op plant resistance to disease and pests	2. To improve q	nality
1. To devel	erting poor plants into more desirable one.	A. All	uunity
O 7 Important for	ature of Brinjal rootstock Solanum intergri		
t. Tolerance	attire of Britigar rootstock Solumum intergri	2. Resistant to ro	oot knot nematode
	perature tolerance	Resistance to Fusarium wilt	
	rafting method commonly use in solanaceo		r usarrum wiit
1. Slant gra		2. Tube grafting	
	ertion Method	4. Cleft grafting	
	It of which crops are managed by grafting te		
1. Solaneou		2. Cole crops	
3. Cucurbits		4. None of above	9
	heat sensitive crop	4. INOILE OF ADOVE	
Tomato	heat sensitive crop	2 Cusumban	
3. Chilli		2. Cucumber	
	amparatura ranga far yagatahla araftina ia	4. Brinjal	
	emperature range for vegetable grafting is		
1. 25-30°C		2.20-25°C	
3. 35-40°C	ition for vagetable grafting is	4. 15-20°C	
	ition for vegetable grafting is	2 00 -	
	RH with high light intensity	2. 80- 85 % RH w	ith medium light intensity
	RH with low light intensity	4. None of above	
	seedling at a first true leaf stage the	hypocotyl are desirab	le
1. Short		2. Long	
3. Medium		4. Pseudo short	

4. Pseudo short

1	Q 14 Who has made a successful attempt to produce I	
	. IIVR, Varanasi	Brimato.
	2. IIHR, Bangalore	3. IARI, New Delhi
	Q 15 Most suitable are 6:	4. None of above
1	Q 15 Most suitable grafting method in tomato is	
-	Bue Gratting	2. Wedge Grafting
	3. Slice Grafting	4. Hole Insertion Method
	Q 16 What is Scion	
1	Upper part of grafting	2. Lower part of grafting
1	3. Middle part of grafting	4. None of above
	Q 17 What is the most successful grafting technique?	1. I tolle of above
1	1. Bench grafting	2. Whip and Tongue Grafting
-	3. Slant Grafting	4 Name of the second
	Q 18 is a methods commonly used to graft	Watermaler and according
	1. Approach (Tongue)	watermeion and cucumber.
	3. One Cotyledon (splice)	2. Hole Insertion
	Q 19 is the most commonly year	A. All of above
	Q 19 is the most commonly used commercia	I rootstock for grafted watermelon?
L	3. Cucurbita moschata	2. Momordica charantia
	O 20 Grafted tometo transplant	4. Lagenaria siceraria
1	Q 20 Grafted tomato transplant in from the see	eding date.
1	3. 50 days	2.40 days
,		4. 30 days
	Q 21 Why use grafted tomatoes?	
10	1. Resistance to soil-borne diseases	2. Resistance to pests
	3. Resistance to nematodes	1 All of about
	Q 22 For grafts to be successful the rootstock and scion	n should be from
1	1. Closely related plant species	2. Season
1	3. Temperature	4. All of above
1	Q 23 What is rootstock	The of above
	1 Upper part of grafting	2. Lower part of grafting
,	3. Middle part of grafting	1 NonC 1
_	Q 24 is commercial root stock used in solanac	ceous crops
1	Solanum torvum	2. Solanum nigrum
	3. Solanum indicum	A C-1 11 .
	Q 25 Important feature of Tomato rootstock Solanum p	impinellifolium use for grafting
F	Resistance to hematoues	2. Resistance to pests
0	3. Salt tolerance	4. Resistance to soil-borne diseases
	Q 26 Union of rootstock and scion is known as	1. Resistance to son-borne diseases
11	1. Layering	2. Grafting
	3.Cutting	1 Chart
	Q 27 In tomatoes continue to growth, flower, and fruit	setting is known as
1	In determinant	2. Determinant
1	3. Common tomato	
	Q 28 In India, vegetable grafting work was first started	4. None of above
,	1. IARI, New Delhi	
-	3. HVR, Varanasi	2. ICAR, New Delhi
	Q 29 crop imparts salt, alkalinity and flooding	4. IIHR Bengaluru
1	watermelon	tolerance and improves water use efficiency in
	T. Cucumber	2.16.1
) ^		2. Musk melon
)^	3. Bottle gourd	1 D'11
	3. Bottle gourd O 30 In bitter gourd grafting method comments	4. Bitter gourd
	Q 30 In bitter gourd grafting method comm	only used
		4. Bitter gourd only used 2. Splice Grafting 4. Tongue and Cleft methods



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Department of Horticulture

Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

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 'Vegetable Grafting: Concept and Application'. Total 18 students are enrolled from department of Horticulture. Due to this certificate course in 'Vegetable Grafting: Concept and Application' Students get more knowledge of different type of vegetable grafting and in application in agriculture to improve quality and quantity of vegetable produce.

Course outcome

- 1) Gain awareness of historical and current perspectives of vegetable grafting.
- 2) Perform various vegetable propagation methods.
- 3) Acquire knowledge on abiotic stress tolerance in vegetables through grafting technology.
- 4) Understand the role of vegetable grafting in addressing biotic stresses.
- 5) Explore methods for addressing nematode problems through vegetable grafting.
- 6) Examine the commercial aspects of vegetable grafting.

Students are able to understand advance methods of vegetable grafting and its application in Agriculture. It helps in improve their vegetable grafting skill and build selfconfidence. Student get understand several factors which affect the vegetable crop growth specially biotic and abiotic. This will help to improve their Problem solving skill. Students understand that Grafting promises to be an effective alternative tool against various biotic and abiotic stresses; which has also emerged as an environment-friendly and climate resilient approach. This course also helps to motivate students to improve their entrepreneurship skill. In academic year 2022-23 eighteen students are enrolled for this certificate course. Course structure had been divided into theory and theory practical. Theory has 30 marks while theory practical has 20 marks weightage examination has been conducted for total 50 marks. Duration for this certificate course is 13/03/2023 to 18/03/2023 (Total 36 hrs.). The students

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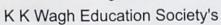
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who successfully completed the certificate course were given a certificate as appreciation by the college.

Course coordinator is Prof. Y. R. Kadam and member for this certificate course are, Prof. A. C. Jadhav, Prof. S. G. Thakare, Prof. T. B. Ugale and Prof. S.K. Ahirrao.





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. Aditya Ninayak Catkal

Class Final Irhas completed Certificate Course on Megetable Compling:

Concept & Application from 191912023 to 181812023 organized by

Department of Horniculture in academic year 2022-23

Date : 01/04/2023

Place: Nashik

Course Coordinator



Principal
K K Wagh College of Agriculture
Nashik



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Department of Horticulture Certificate course in 'Vegetable Grafting: Concept and Application' Academic Year 2022-23

PHOTO GALLERY





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Students performing practicals of Vegetable grafting

