FCSCC16
MICROGREENS CULTIVATION

SYLLABUS & ASSESSMENT PROCEDURE

COURSE DESCRIPTION:

Microgreens are young vegetable greens that are harvested just after the first true leaves have developed. They are packed with flavor and nutrients, making them popular additions to salads, sandwiches, and garnishes. The Certificate Course in Microgreen Cultivation provides participants with comprehensive knowledge and hands-on experience in cultivating microgreens for personal or commercial purposes. Throughout the course, participants will learn the principles of microgreen cultivation, including seed selection, germination techniques, growing mediums, lighting requirements, watering schedules, and harvesting methods. Practical sessions will allow participants to gain experience in sowing seeds, monitoring growth, and troubleshooting common issues. By the end of the course, participants will have the skills and knowledge necessary to successfully cultivate a variety of microgreens in both indoor and outdoor settings. Whether aspiring entrepreneurs looking to start a microgreen business or home gardeners interested in growing their own nutritious greens, this certificate course equips individuals with the tools to thrive in the exciting world of microgreen cultivation.

SYLLABUS

FCSCC16 MICROGREENS CULTIVATION

Credit: 2 Course Duration: 30 hrs.

OBJECTIVES:

1. To provide a comprehensive understanding about microgreens, nutritional value, andvarious types.
2. To teach the techniques and methods required for successful microgreen cultivation.
3. To teach proper harvesting and packaging techniques maintain the quality and freshnessof microgreens for storage and transportation.
4. To explore the nutritional benefits of microgreens and their various culinary uses.

COURSE OUTCOME:

CO1 Proficiency in Microgreen Cultivation

CO2 Participants often gain practical experience through lab sessions or hands-on projects, allowingthem to apply theoretical knowledge to real-world growing situations.

CO3 Understands the nutritional content and health benefits of various microgreens enabling them to make informed choices and educate others about the importance of incorporating microgreens into diets.

CO4 For those interested in commercial microgreen production, the course may equip them with basic business skills such as market analysis, pricing strategies, and regulatory compliance, laying the foundationfor entrepreneurship in the microgreen industry.

COURSE CONTENT

Unit 1: Introduction to Microgreens-Definition and classification of microgreens, Historical background and trends in microgreen cultivation, Nutritional value, and health benefits of microgreens.

Unit 2: Microgreen Cultivation Basics-Seed selection and sourcing, growing media: soil-based vs. hydroponic systems, Equipment and supplies needed for microgreen cultivation, Environmental requirements: light, temperature, humidity, and air circulation.

Unit 3: Growing Techniques-Seeding methods: broadcast vs. tray seeding, Watering techniques and irrigation systems, Lighting requirements and artificial lighting options, Germination and growth stages of microgreens.

Unit 4: Pest and Disease Management, Common pests and diseases affecting microgreens, Prevention strategies: sanitation, quarantine, and biosecurity measures, Integrated pest management(IPM) approaches, Organic and chemical pest control options.

Unit 5: Harvesting and Post-Harvest Handling-Determining readiness for harvest, harvesting techniques to minimize damage and maintain freshness, Post-harvest handling, washing, and sanitization, Packaging and storage considerations.

Unit 6: Nutritional Value and Culinary Applications-Nutrient content and health benefits of different microgreens, Culinary uses and recipes incorporating microgreens, Incorporating microgreens and Marketing and promoting the nutritional value of microgreens.

RELATED EXPERIENCES:

1. Hands-On Cultivation
2. Harvesting and Handling
3. Culinary Knowledge and Application
4. Sustainability Practices

REFERENCES:

1. Kyriacou, Marios C., et al. "Micro-scale vegetable production and the rise of microgreens." Trends infood science & technology 57 (2016): 103-115.
2. Choe, Uyory, Liangli Lucy Yu, and Thomas TY Wang. "The science behind microgreens as an exciting new food for the 21st century." Journal of agricultural and food chemistry 66.44 (2018): 11519-11530.
3. Zhang, Yanqi, et al. "Nutritional quality and health benefits of microgreens, a crop of modern agriculture." Journal of Future Foods 1.1 (2021): 58-66.
4. Mir, Shabir Ahmad, Manzoor Ahmad Shah, and Mohammad Maqbool Mir. "Microgreens: Production,shelf life, and bioactive components." Critical reviews in food science and nutrition 57.12 (2017): 2730-2736.
5. Xiao, Zhenlei, et al. "Microgreens of Brassicaceae: Mineral composition and content of 30 varieties."Journal of Food Composition and Analysis 49 (2016): 87-93.

6.Galieni, Angelica, et al. "Sprouts and microgreens: Trends, opportunities, and horizons for novelresearch." Agronomy 10.9 (2020): 1424.

SCHEME OF EVALUATION FOR STUDENTS

METHOD OF EVALUATION			
Assessment Methods	**Criteria**	**Marks**	**Weightage**
Formative Assessment (FA)	Attendance	4	25%
	Assignment/Project/Activities/Report	6	
Summative Assessment (SA)	Test Paper	30	75%
	Total	40	100

ATTENDANCE

Attendance	Marks
90-100%	4
85-89.9%	3
40-84.9%	2
75-79.95	1
<75%	0

GRADING POLICY

Grade	Percentage of total marks (FA+SA)
A	80% & above
B	60-79.9%
C	50-59.9%
D	40-49.9%
Not qualifying	**<40%**

MODEL QUESTION PAPER

FCSCC16 MICROGREENS CULTIVATION

Time: 1 Hour **Max Marks: 30 Marks**

1. What are microgreens, and how do they differ from sprouts and baby greens?
2. Discuss the nutritional benefits of including microgreens in one's diet.
3. Explain the basic steps involved in cultivating microgreens at home.
4. What are some common challenges faced in microgreen cultivation, and how can they bemitigated?
5. Describe two innovative culinary uses for microgreens beyond simple garnishes.
6. How can microgreens contribute to sustainable food production practices?
7. Compare and contrast soil-based and hydroponic methods of growing microgreens.
8. Discuss the potential market opportunities for microgreens in the food industry, includingtrends and consumer preferences.
9. Examine the role of microgreens in urban agriculture and community gardening initiatives.
10. What are some key factors to consider when selecting seeds for microgreen cultivation?

(1x3 =3 marks)

KORAMBAYIL AHAMED HAJI MEMORIAL UNITY WOMEN'S COLLEGE MANJERI
NARUKARA P.O
MALAPPURAM (Dt)
Date

PRINCIPAL
Korambayil Ahamed Haji
Memorial Unity Women's
College, Manjeri