

Syllabus for Millet Cultivator

Course Name	Millet Cultivator
Sector	Agriculture
Course Code	AGR/2023/MICU/168
Level	3
Occupation	Millet cultivators are responsible for tasks such as land preparation, seed selection, sowing, irrigation, pest and weed management, fertilization, crop monitoring, harvesting and post-harvest handling. They play a vital role in ensuring food security, promoting rural livelihoods and contributing to sustainable agriculture practices
Job Description	Millet cultivator involves planning and executing the cultivation of millet crops, including land preparation, sowing, irrigation, pest and weed control, fertilization, monitoring crop health, harvesting, and post-harvest handling. Millet cultivators are skilled in selecting appropriate millet varieties, implementing sustainable agricultural practices and adapting to local agro-climatic conditions to ensure optimal crop growth and yield.
Course Duration	Total Duration 390 Hours (T-90, P-180, OJT-60 and ES-60)
Trainees' Entry Qualification	Grade 10 having experience in farming
Trainers Qualification	B.SC IN AGRICULTURE / HORTICULTURE / BOTANY/BIOTECHNOLOGY 2 YEARS IN RELEVANT FIELD

Course Structure :

Module No.	Module name	Outcome	Theory (Hours)	Practical (Hours)	OJT (Hrs)	Total (Hours) [Multiple of 30]
1	Importance of food grain crops	Describe different cultivated food grain crops in West Bengal along with nutrient value of millets for human growth and development	20	40		60
2	Cultivation of Millets with Soil, nutrient management	Implement sustainable millet cultivation practices, incorporating soil health management strategies such as crop rotation, organic matter incorporation, soil nutrient balancing, improve soil fertility and long-term	10	50		60
3	Irrigation, drainage and Plant protection management	Demonstrate effective water management and seed management techniques for millet cultivation	10	20		30
4	Harvesting and processing	Execute efficient harvesting methods and post-harvest processing techniques for	10	20		30

		millet, including proper timing of harvesting, appropriate drying and threshing practices.				
5	Post-harvest practices and value addition	Demonstrate post-harvest practices and value addition for millet, procedure encompassing knowledge of appropriate storage methods, value-added product development	20	40		60
6	Marketing management	Develop comprehensive marketing strategies that effectively address market challenges, drive business growth viz. Kishanmandy, Sufal Bangla or farmer producing company etc. and meet organizational objectives.	20	10		30
7	Exposure Visit (OJT)		-	-	60	60
8	Employability Skill		60	-		60
TOTAL:			150	180	60	390

SYLLABUS:

Module No	Module Name (From Course Structure Table)	Outcome (From Course Structure Table)	Theory content	Practical content	Tools & Equipment needed (only name for each module)
1	Importance of food grain crops	Describe different cultivated food grain crops in West Bengal along with nutrient value of millets for human growth and development	1. Crop season in West Bengal 2. Idea about different food grain crop 3. Major and minor cereals 4. Contribution of cereals to food basket 5. Distribution of cereal crops in India and West Bengal 6. Importance of cereals in cropping sequence 7. Crop diversification 8. History of millet cultivation in West Bengal	1. Preparation of district wise agricultural map of West Bengal 2. Preparation of map for different agro climatic zone of West Bengal 3. Soil sample collection procedure 4. Identification of fertilizers with nutrient content 5. Calculation of fertilizers dose for different crops 7. Identification of different farm	1. Map of West Bengal, 2. Map of agro climatic zone of West Bengal, 3. Sample of fertilizer, 4. Different farm implements like spade, kodal, khurpi, sickle, 5. Farm machinery like power tiller, disc harrow, mould board plough, knapsack

Module No	Module Name (From Course Structure Table)	Outcome (From Course Structure Table)	Theory content	Practical content	Tools & Equipment needed (only name for each module)
			9. Why millets loses its importance after green revolution 10. Importance and scope of millet cultivation 11. Millets as climate resilient crop 12. Importance of millets as nutriceals 13. Present need for millet cultivation	implements 8. Identification of different farm machinery 9. Weather data 10. Identification of different millet crops from crop gallery/ herbariums 11. Village survey to know past history of millet crops 12. Preparation of food chart with millets 13. Market survey for millet based snacks in shop 14. Feedback from users of millet based food 15. Testing of foods like idli, kichri etc. prepared from millet	sprayer, plank, 6. Different types of major and minor millet seed sample, 7. Nutritional chart/ PPT of millet 8. Chart or PPT showing beneficial role millets 9. Feedback form
2	Cultivation of Millets with Soil, nutrient management	Implement sustainable millet cultivation practices, incorporating	1. Major and minor millets 2. Present prospect of millet cultivation in West Bengal 3. Millets as a component of ecofriendly cultivation	1. Field survey 2. Calculation of area left as cultivable wasteland during kharif season 3. Identification of the probable area to be	1. Meteorological data of West Bengal 2. Feedback form

Module No	Module Name (From Course Structure Table)	Outcome (From Course Structure Table)	Theory content	Practical content	Tools & Equipment needed (only name for each module)
		soil health management strategies such as crop rotation, organic matter incorporation, soil nutrient balancing, improve soil fertility and long-term agricultural productivity.	<p>4. Millets as a component in national food security mission</p> <p>5. Challenges in millet cultivation and strategies to combat the challenges</p> <p>Describe the following:-</p> <ol style="list-style-type: none"> 1. Soil type 2. Land situation 3. Soil pH 4. Nutritional management for millet cultivation 5. Seed rate for different millet cultivation 6. Method of sowing 7. Time of sowing 8. Seed treatment 9. Plant spacing for different millets 10. Important cultivars for different millets 	<p>covered under millets</p> <p>4. Study of problem of kharif paddy in the potential areas</p> <p>5 Study of rainfall history in that area during kharif season</p> <p>6. Identification of irrigation source for life saving irrigation.</p> <p>7. Identification of different millet seeds</p> <p>8. Identification of laboratory equipment used for determination of soil pH</p> <p>9. Calculation of fertilizer requirement for millet</p> <p>10. Availability of organic matter for millet cultivation</p> <p>11. Seedbed preparation for transplanted millet cultivation</p> <p>12. Field preparation for millet cultivation</p> <p>13. Calculation of seed rate for different millets</p> <p>14. Seed treatment technique</p> <p>15. Sowing of millets</p> <p>16. Evaluation of effect of different sowing dates on growth and yield parameters of millets</p> <p>17. Observation and recording of different growth and yield parameters of millet crops</p>	<ol style="list-style-type: none"> 3. Soil test kits, 4. soil color chart, 5. pH meter, 6. Calculator, 7. Bucket, weigh balance, 8. Soil auger, 9. Sampling packets, 10. Different millet seed, 11. seed treating chemical, 12. Tape, 13. Seed cum fertilizer drill, 14. Measuring tape, 15. Roap, peg, 16. Water can
3	Irrigation, drainage and Plant protection management	Demonstrate effective water management and seed management techniques for	<ol style="list-style-type: none"> 1. Water requirement of different millets 2. Irrigation schedule 3. Drainage facility 4. Response of millets to waterlogging situation 	<ol style="list-style-type: none"> 1. Irrigation requirement of millet crops 2. Effect of waterlogging situation on growth and development of millets 3. Identification of major 	<ol style="list-style-type: none"> 1. Irrigation pipe 2. Source of irrigation 3. Spade 4. Herbicide 5. Pesticides

Module No	Module Name (From Course Structure Table)	Outcome (From Course Structure Table)	Theory content	Practical content	Tools & Equipment needed (only name for each module)
		millet cultivation	<p>5. Important weeds associated with millet and their management</p> <p>5. Pest and disease incidence in millet</p> <p>6. Management of different insect-pest and diseases.</p>	<p>weeds grown at millet field</p> <p>4. Application of herbicide and data recording on efficiency of herbicide</p> <p>5. Observation of different pest and diseases in millet crops</p> <p>6. Application of pesticide and observation and data recording on the effect of pesticide application</p>	<p>6. Magnifying glass</p> <p>7. Measuring cylinder</p>
4	Harvesting and processing	Execute efficient harvesting methods and post-harvest processing techniques for millet, including proper timing of harvesting, appropriate drying and threshing practices.	<p>1. Days to harvest different millets</p> <p>2. Maturity sign of millets</p> <p>3 Harvesting methods of millets</p> <p>4. Yield and productivity of different millets</p> <p>5. Processing of millet seeds for safe storage</p>	<p>1. Observation on different yield parameters of millets and recording of data</p> <p>2. Observation of maturity sign of millets grown in field</p> <p>3. Harvesting technique of millets</p> <p>4. Calculation of days to harvest of different millets</p> <p>5. Recording of different data on yield parameters after harvesting</p> <p>6. Drying and cleaning of millet seeds</p> <p>7. Recording of yield data and conversion it to kg/ha or t/ha</p>	<p>1. Brown packet, measuring scale</p> <p>2. Gunny bag</p> <p>3. Seedbin</p>
5	Post-harvest practices and value addition	Demonstrate post-harvest practices and value addition for millet, procedure encompassing knowledge of appropriate storage methods, value-added product development	<p>1. Methods of post-harvest storage of millets as seed.</p> <p>2. Threshing of millets</p> <p>3. Preparation of millet grain and flour from millet seed</p> <p>4. Value addition of millets</p> <p>5. Preparation of delicious foods from different millets</p>	<p>1. Storage technique of millet seeds for agriculture purpose</p> <p>2. Threshing of millet seeds in deshi/electric dekhi to get ready use of millet grain</p> <p>3. Preparation different millet flours from millet grain at husking machine</p> <p>4. Preparation of delicious dishes (idli/kichri/payes/cooked</p>	<p>1. Gas stove</p> <p>2. Cooking utensils</p>

Module No	Module Name (From Course Structure Table)	Outcome (From Course Structure Table)	Theory content	Practical content	Tools & Equipment needed (only name for each module)
				rice) with this millet grain 5. Preparation of multigrain flour with flour obtained from different millets grains 6. Preservation technique for storing quality of millet grains/flour 7. Packaging methods of different millet grains and flour	
6	Marketing management	Develop comprehensive marketing strategies that effectively address market challenges, drive business growth viz. Kishanmandy, Sufal Bangla or farmer producing company etc. and meet organizational objectives.	1. Use of millets 2. Grading and marketing of millet seeds 3. Inclusion of millet in NFSM scheme of government 4. Introduction of millets in government's PDS system. 5. Role of FPC, Farmers' club government procurement centre for market linkages 6. Provision of MSP for millet growers	1. Display of packed foods at different mela and trade fairs 2. Involvement of SHG and give them hands on training to prepare millet based food 3. Visit to local threshing units and flour mills 4. Making of marketing channels with big trading agencies handling with bulk seed 5. Making liaison with govt. agency like Kishanmandy, Sufal Bangla, Farmers Producing Company etc. for selling of raw seeds 6. Feedback from millet based food users 7. Visit to govt. seed certification agency to become registered millet growers	1. Contact of resource persons 2. Grading chart of good quality seed

Module No. 7: Work in real job situation with special emphasis on basic safety and hazards in this domain (Exposure Visit).

Outcome:

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain.

Theory Content:

Practical Content:

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for 60 Hours.)

Module No. 8: Employability Skills***Key Learning Outcomes*****Introduction to Employability Skills Duration: 1.5 Hours****After completing this programme, participants will be able to:**

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e-mail using basic English

Career Development & Goal Setting Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy Duration:5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

Learning Outcome–Assessment Criteria

Module No.	Outcome	Assessment Criteria
1	Describe different cultivated food grain crops in West Bengal along with nutrient value of millets for human growth and development	<p>1.1 Describe about different food grain crops and different cereals crops cultivated in West Bengal..</p> <p>1.2 Explain the contribution of cereal crops in the food basket of the state.</p> <p>1.4 List the major cropping system of the state.</p> <p>1.5 Explain about crop diversification and alternate cropping for enhanced farm income</p> <p>1.6 Describe the food values of different millets</p> <p>1.7 List out the benefit of millet consumption in view of human health</p> <p>1.8 Explain the present need for millet cultivation</p> <p>1.9 Explain the prospect of millet cultivation in West Bengal</p> <p>1.10 Explain the purpose of national food security mission</p> <p>1.11 Describe the different components of NFSM</p>
2	Implement sustainable millet cultivation practices, incorporating soil health management strategies such as crop rotation, organic matter incorporation, soil nutrient balancing, improve soil fertility and long-term	<p>2.1 Describe about types of soil require for millet cultivation</p> <p>2.2 Explain about soil pH and instrument measuring soil pH</p> <p>2.3 Calculate fertilizer requirement of crops</p> <p>2.4 Explain the different method of sowing.</p> <p>2.5 Mentioned the appropriate time of sowing of millet crops</p> <p>2.6 Brief the importance of seed treatment before sowing of a crop</p> <p>2.7 Recognize the method of seed treatment</p>
3	Demonstrate effective water management and seed management techniques for millet cultivation	<p>3.1 Describe the various methods of irrigation</p> <p>3.2 Explain the importance of drainage facility for millet crops</p> <p>3.3 Recognize the names of important pest and diseases found in millet cultivation</p> <p>3.5 Demonstrate different methods of pest management in millet cultivation</p>
4	Execute efficient harvesting methods and post-harvest processing techniques for millet, including proper timing of harvesting, appropriate drying and threshing practices.	<p>4.1 Identify the maturity sign of different millet crops</p> <p>4.2 Explain the crop duration of different millet crops</p> <p>4.3 Describe various harvesting methods of millet crops</p> <p>4.4 Illustrate the productivity of different millet crops</p> <p>4.5 Explain the processing methods of millet seeds after harvesting</p>

Module No.	Outcome	Assessment Criteria
5	Demonstrate post-harvest practices and value addition for millet, procedure encompassing knowledge of appropriate storage methods, value-added product development	5.1 Explain various storage methods suitable for millet. 5.2 Implement cleaning and grading procedure to remove impurities, damaged grains and ensuring better quality 5.3 Explain various post harvest processing methods for millet. 5.4 Identify and assess potential value addition opportunities for millet. 5.5 Ensure food safety and hygiene practices to maintain the quality and safety of millet products.
6	Develop comprehensive marketing strategies that effectively address market challenges, drive business growth viz. Kishanmandy, Sufal Bangla or farmer producing company etc. and meet organizational objectives.	6.1 Conduct market analysis for millet products. 6.2 Identify consumer behaviour for tailoring marketing strategies. 6.3 Develop the concept of product positioning and be able to differentiate millet products from other grain alternatives. 6.4 Select and contact different govt. and non govt. agencies for sailing their product 6.5 Follow ethical marketing practices and importance of promoting sustainable agriculture and fair trade principles in the marketing of millet products.

List of Tools, Equipment & materials needed for 30 Trainees

Sl no.	Name of Items	Qty	Specification
1	Spade	Fifteen	
2	Khurpi	Thirty	
3.	Sickle	Fifteen	
4.	Crow bar	Three	
5.	Buckets	Six	30 kg
6	Baskets	Fifteen	1 kg each
7	Tynes	Six	
8	Seed (Millets)	Five to six type samples	
9	Wooden plough	Three	
10	Mould board plough	One	
11	Harrow	Two	
12	leveler	One	
13	Cultivator	One	
14	Hand hoe	One	
15	Marking pegs	Fifty	
16	Plank	One	
17	Winnowing tool	One	
18	Trays	SIX	
19	Foot sprayer	One	20 liters
20	Knapsack sprayer	One	15 liters
21	Power sprayer	One	Battery operated (10 l)

22	Seed treating drum	One	
23	Insect killing bottle	Five	
24	Insect net	Five	
25	Seed storage bins	Six	3 kg each
26	Soil auger	Three	
27	Sampling tube	Three	
28	Soil and water test kits	Two	
29	Soilcolour chart	One	
30	Rain gauge	One	
31	Physical balance	One	30 kg
32	Weight box	One	
33	Measuring tape	Five	50 meter
34	Insect cabin box	Six	
35	Chemical balance	One	Up to 200 gram
36	Magnifying glass	Five	

Marks Distribution

Outcome	Outcome Code	Total Th Marks	Total Pr. Marks
Describe different cultivated food grain crops in West Bengal along with nutrient value of millets for human growth and development	AGR/0260/OC1	30	130
Implement sustainable millet cultivation practices, incorporating soil health management strategies such as crop rotation, organic matter incorporation, soil nutrient balancing, improve soil fertility and long-term	AGR/0260/OC2	20	140
Demonstrate effective water management and seed management techniques for millet cultivation	AGR/0260/OC3	20	90
Execute efficient harvesting methods and post-harvest processing techniques for millet, including proper timing of harvesting, appropriate drying and threshing practices.	AGR/0260/OC4	20	90
Demonstrate post-harvest practices and value addition for millet, procedure encompassing knowledge of appropriate storage methods, value-added product development	AGR/0260/OC5	30	130
Develop comprehensive marketing strategies that effectively address market challenges, drive business growth viz. Kishanmandy, Sufal Bangla or farmer producing company etc. and meet organizational objectives.	AGR/0260/OC6	30	70
OJT	AGR/0260/OC7	0	150
Employability Skill-60 Hrs	DGT/VSQ/N0102	50	0