

Syllabus for Chilli Grower

Course Name	Chilli Grower
Sector	Agriculture
Course Code	AGR/2024/CHGR/371
Level	4
Occupation	Chilli Grower
Job Description	A Chilli Grower is responsible for overseeing all aspects of Chilli production from understanding the botany and taxonomy of Chilli plants to implementing effective crop management techniques and post-harvesting practices. This role also involves advising on land selection and preparation, seed and seedling preparation, and cultivation techniques aimed at maximizing yield and quality while minimizing risks such as pests and diseases.
Course Duration	Total Duration 450 Hrs (T- 120, P- 210, OJT-60 and ES-60)
Trainees' Entry Qualification	<ul style="list-style-type: none"> • 12th grade pass • Completed 2nd year of 3-year diploma (after 10th) • Pursuing 2nd year of 3-year regular Diploma (after 10th) <ul style="list-style-type: none"> • 10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent. • 8th pass plus 2-year NTC plus 1-Year NAC plus 1-Year CITS • 10th grade pass and pursuing continuous schooling (for 2-year program) <ul style="list-style-type: none"> • 11th Grade Pass and pursuing continuous schooling • Previous relevant Qualification of NSQF Level 3.0 with minimum education as 8th Grade pass with 3-year relevant experience Previous relevant Qualification of NSQF Level 3.5 with 1.5-year relevant experience
Trainers Qualification	B.Sc in Agriculture / Botany with 2 yrs experience in relevant field OR M.Sc in Agriculture/ Botany with 1 yrs experience in relevant field

Structure of Course:

Module No.	Module name	Outcome	Compulsory/ Optional	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
1	Botany and taxonomy	Identify different varieties of Chilli and its culinary uses	Compulsory	10	20	30
2	Land selection and preparation	Identify and prepare land for chilli cultivation	Compulsory	20	40	60
3	Seed and seedling preparation	Demonstrate sowing of seeds and transplanting procedure for Chilli	Compulsory	20	40	60
4	Chilli Cultivation	Demonstrate Chilli cultivation from plantation to harvesting	Compulsory	40	50	90

Module No.	Module name	Outcome	Compulsory/ Optional	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
5	Crop management techniques	Implement crop management techniques including intercultural operations, weed, nutrient, water, and pest management.	Compulsory	20	40	60
6	Post-Harvesting	Execute post-harvesting techniques for Chilli.	Compulsory	10	20	30
7	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	Compulsory	--	60	60
8	Employability Skill	As per guided curriculum	Compulsory	60	--	60
TOTAL:				180	270	450

SYLLABUS:

Module No 1: Botany and taxonomy

Outcome: Identify different varieties of Chilli and its culinary uses

Theory Content:

- Botany and taxonomy of Chilli and its uses and identify the morphological characteristics (leaf, stem, flower, economic part, etc.) of Chilli.
- Understand the importance of Chilli plants in various industries, including culinary, medicinal, and agricultural sectors.
- Types and uses of Chilli and role of Chilli producers in West Bengal.
- Value addition of common plants, different value-added products using Chilli.

Practical Content:

- Identify different varieties of Chilli plants based on their botanical characteristics such as leaf shape, stem structure, flower color, and fruit size.
- Identify different types of Chilli commonly cultivated in West Bengal, such as Ghotki, Jwala, and Byadgi, and learn about their unique flavor profiles and culinary uses.
- Explore the culinary uses of Chilli peppers with different cooking techniques and recipes that incorporate fresh, dried, or powdered Chilli.
- Prepare different value-added products using various Chilli, such as processing and packaging.

Module No 2: Land selection and preparation

Outcome: Identify and prepare land for chilli cultivation.

Theory Content:

- Prepare maps or mark areas on maps showing the area of cultivation of Chilli along with their production.
- Land selection and climatic requirement (season, temperature, rainfall, etc.) of Chilli

- Soil types and land situations for Chilli
- Land ploughing, levelling and basal fertilizer application
- Area, production and yield of Chilli
- Land ploughing, levelling and basal fertilizer application
- Transplanting time and method of vegetable seedlings from nursery

Practical Content:

- Select land suitable for cultivation of Chilli
- Collection of soil samples, understand the methods of soil testing, nutrient information in soil health card, and finalize fertilizer application schedule for Chilli
- Understand climatic requirement, and agro-advisory services (weather forecasting in print, audio, audio-visual and social media)
- Understand soil type and land situation for Chilli
- Measurement of land area
- Understand the technical know-how for operation of power tiller
- Prepare land and make lines/furrows/holes following spacings
- Calculate the requirement of manures and fertilizers and apply basal dose
- Land levelling, ploughing until it turns uniform texture, basal dose of fertilizer application.

Module No 3: Seed and seedling preparation

Outcome: Demonstrate sowing of seeds and transplanting procedure for Chilli

Theory Content:

- Varieties/ planting suitable for different regions
- Sources for collection of varieties / planting materials
- Identification of seeds / planting materials of different types / varieties based on characteristics
- Land preparation, and shaping if required
- Recommended rate of seeds and planting materials, and their treatment as protective measures
- Nursery for raising Chilli saplings
- Spacing for lines / furrows / holes in main field
- Sowing of seeds / planting of saplings following standard spacing

Practical Content:

- Select suitable varieties for specific situation and purpose of use
- Calculate seed rate for Chilli
- Understand the methods of seed treatment
- Sow the seeds / plant the saplings following standard methods
- Understand seedling stages of Chilli
- Thin Chilli seedlings to maintain optimum plant population
- Transplanting procedure of Chilli

Module No 4: Chilli Cultivation

Outcome: Demonstrate Chilli cultivation from plantation to harvesting.

Theory Content:

- Detailed package and practices of cultivation of Chilli
- Understanding harvesting time and methods for Chilli.
- Explain the ways of harvesting of Chilli.

- Explain the methods of estimating the yield of Chilli based on land conditions.

Practical Content:

- prepare nursery area with appropriate slanting slope
- cover the nursery area with shade net and insect proof nylon net
- mix cocopeat with neem cake to prepare portraits
- plant the seed at correct depth and appropriate spacing
- water the seedling at appropriate time with appropriate method
- Determine the optimum time of harvesting based on crop stage
- Demonstration of manual and mechanical harvesting methods for Chilli.
- Hands-on practice of different harvesting techniques for Chilli.

Module No 5: Crop management techniques

Outcome: Implement crop management techniques including intercultural operations, weed, nutrient, water, and pest management.

Theory Content:

- Intercultural operations (thinning, and pruning training)
- Weed management (manual, chemical, and integrated)
- Nutrient management (recommended doses of manures and fertilizers, their nutrient content, time of application, and integrated nutrient management)
- Water management and drainage options (surface drainage, contour drains, etc.)
- Insect-disease management including damage symptoms of major insects (thrips, aphid, yellow mite etc.) and diseases (damping off, die-back or anthracnose, Chilli leaf curl etc.) of Chilli, and their management (use of resistant varieties, cultural practices, use of pesticides, and integrated pest management)

Practical Content:

- Understand different growth stages of plants
- Identify different types of weeds (grass, sedge and broad leaf) and remove them by manual method
- Demonstrate the use of sprayer in field and its maintenance
- Understand pre- and post-emergence herbicides, calculate their requirement as per recommended dose and spray for chemical control
- Understand integrated weed management
- fertilizers to the standing crops
- Understand critical stages of crop growth and irrigate Chilli crops following suitable methods (flood, furrow and sprinkler)
- Drain out excess water in case of heavy rainfall (surface drainage, contour drains, etc.)
- Identify major insects and diseases, understand their damage symptoms
- Adopt insect-disease management through manual and chemical methods and understand integrated pest management
- Calculate required quantity of pesticides, and their applications
- Understand hazards of agro-chemicals on health (skin diseases, breathing problems, etc.) and environment (residual effect in soil, pollution in near-by water bodies), and safety measures to be taken (use of gloves, masks, etc.).
- Pruning and training operations for determinate and indeterminate varieties of Chilli

Module No 6: Post-Harvesting

Outcome: Execute post-harvesting techniques for Chilli.

Theory Content:

- Washing, cleaning, sorting, grading processing and packaging of Chilli
- Transportation technique of Chilli
- Traditional storage in villages and Cold storage of Chilli
- Sale of Chilli and supply-chain from producer to consumer
- Price of Chilli and export quality standards
- Cost of cultivation, gross return (economic produce and by-products), net income and benefit : cost ratio

Practical Content:

- Estimate the yield of Chilli produces
- Sorting, grading and packaging of Chilli produces for marketing and storage
- Seed extraction and drying for seed production

Module No 7: OJT

Outcome: Work in real job situation with special emphasis on basic safety and hazards in this domain

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 (60 Hrs)**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.	Identify different varieties of Chilli and its culinary uses	<p>After completion of this module students will be able to:</p> <p>(1.1) Explain botany and taxonomy of Chilli and its uses.</p> <p>(1.2) Explain the role of Chilli producers in West Bengal.</p> <p>(1.3) Explain the plant characteristics and important traits (like fruit yield and quality) of suitable varieties of Chilli.</p> <p>(1.4) Identify the morphological characteristics (leaf, stem, flower, economic part, etc.) of Chilli.</p> <p>(1.5) Prepare different value-added products using various Chilli.</p> <p>(1.6) Use Chilli peppers in culinary with different cooking techniques</p>
2.	Identify and prepare land for chilli cultivation	<p>After completion of this module students will be able to:</p> <p>(2.1) Explain the suitable conditions of cultivation (land, soil and weather) of Chilli.</p> <p>(2.2) Prepare maps or mark areas on maps showing the area of cultivation of Chilli along with their production.</p> <p>(2.3) Operate the power tiller for land preparation.</p> <p>(2.4) Explain different ways of land preparation and shaping required for the crop.</p> <p>(2.5) Define agro-advisory services and state its importance.</p> <p>(2.6) Identify different farm implements (power tiller, seed drill, nail weeder, sprayer, etc.)</p> <p>(2.7) Describe the name, functions and purpose of use of different farm implements.</p>
3.	Demonstrate sowing of seeds and transplanting procedure for Chilli	<p>After completion of this module students will be able to:</p> <p>(3.1) Identify the seeds of different varieties of Chilli, their sources of collection, and suitability</p>

Module No.	Outcome	Assessment Criteria
		<p>for different regions.</p> <p>(3.2) Explain how to make a nursery for raising Chilli saplings.</p> <p>(3.3) Calculate the seed requirement of Chilli for the unit area.</p> <p>(3.4) Demonstrate the methodology of seed treatment.</p> <p>(3.5) Transplant the seeds/seedlings independently in the field/garden following standard spacing.</p>
4.	Demonstrate Chilli cultivation from plantation to harvesting	<p>After completion of this module students will be able to:</p> <p>(4.1) Determine the optimum harvesting time based on crop growth-age.</p> <p>(4.2) Explain the ways of harvesting of Chilli.</p> <p>(4.3) Demonstrate different harvesting techniques for Chilli.</p> <p>(4.4) Explain the methods of estimating the yield of Chilli based on land conditions.</p>
5.	Implement crop management techniques including intercultural operations, weed, nutrient, water, and pest management.	<p>After completion of this module students will be able to:</p> <p>(5.1) Explain different growth stages of Chilli (like early growth/establishment, vegetative, reproductive and near-harvesting) and the intercultural operations to be carried out in the fields of Chilli</p> <p>(5.2) Demonstrate intercultural operations of Chilli in the field like thinning, earthing up etc.</p> <p>(5.3) Identify different types of weeds (grass, sedge and broad leaf) in the field along with their types and common names.</p> <p>(5.4) Perform weed control activities (manual, chemical or integrated) and to estimate the quantity of herbicides required for the purpose.</p> <p>(5.5) Mention the names of common manures (like cattle dung, rural compost, farm yard manure, vermicompost, etc.) and fertilizers (like urea, single super phosphate, muriate of potash, di-ammonium phosphate, NPK-Sufala, etc.) along with their nutrient content, doses and time of application.</p> <p>(5.6) Demonstrate the use of a sprayer.</p> <p>(5.7) Explain different irrigation methods (like flood irrigation, furrow irrigation, sprinkler/drip irrigation etc.) and drainage options (like surface drainage, contour drains, etc.) suitable for Chilli.</p> <p>(5.8) Identify the major insects (thrips, aphid, yellow mite etc.) and disease symptoms (damping off, die-back or anthracnose, Chilli leaf curl etc.) in Chilli and to suggest suitable control measures (manual, chemical and integrated methods).</p>

Module No.	Outcome	Assessment Criteria
		(5.9) Collect soil samples, and to explain soil testing, soil health card and fertilizer application schedule. (5.10) Explain the hazards of agro-chemicals on health (skin diseases, breathing problems, etc.) and environment (residual effect in soil, pollution in near-by water bodies), and safety measures to be taken (use of gloves, masks, etc.).
6.	Execute post-harvesting techniques for Chilli.	After completion of this module students will be able to: (6.1) Sort the Chilli as per size and bagging of the same. (6.2) Demonstrate pre-cooling of Chilli and bagging/packaging of the same (6.3) Illustrate the extraction procedure (manual and mechanical) of seeds of Chilli. (6.4) Illustrate the procedure for drying of seeds and storage of Chilli seeds.
7.	OJT	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.)
8.	Employability Skill	As per guided curriculum

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl No	Items Name	Specification	Qty
1	Land for cultivation	High to medium land with moderate fertility	1 acre
2	Power tiller		1
3	Measuring tape	100 m	2
4	Calculator		5
5	Balance	General and Precision	2 (1 each)
6	Nirani	Local-made	30
7	Tyne	Local-made	5
8	Weeder	Nail type	2
9	Sprayer	Knap-sack	2
10	Sickle	Local-made	30
11	Spade	Local-made	30
12	Bucket	Poly-made (10-20 litres capacity)	10
13	Plucking basket	Locally available	30
14	Seed bin	Local-made	2

Sl No	Items Name	Specification	Qty
15	Storage room	20 ft × 15 ft	1
16	Open floor / yard for post-harvest activities (drying, sorting, etc.)	50 ft × 30 ft	1
17	Seeds and Planting materials of vegetables	Sources of collection include West Bengal State Seed Corporation Limited, Seed Companies,	Depending on the seed rate per unit area

Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr marks	Total OJT marks
Identify different varieties of Chilli and its culinary uses	AGR/0272/OC1	10	80	0
Identify and prepare land for chilli cultivation	AGR/0272/OC2	30	120	0
Demonstrate sowing of seeds and transplanting procedure for Chilli	AGR/0272/OC3	30	120	0
Demonstrate Chilli cultivation from plantation to harvesting	AGR/0272/OC4	40	130	0
Implement crop management techniques including intercultural operations, weed, nutrient, water, and pest management.	AGR/0272/OC5	30	120	0
Execute post-harvesting techniques for Chilli.	AGR/0272/OC6	10	80	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	AGR/0272/OC7	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0