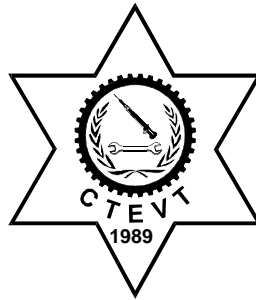


CURRICULUM
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Community Agriculture Assistant
Short term Curriculum
(Competency Based)



Council for Technical Education and Vocational Training
Curriculum Development Division
Sanothimi, Bhaktapur
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Table of contents

Introduction	3
Aim	3
Objectives.....	3
Course description.....	3
Duration.....	3
Target group	3
Group size.....	3
Medium of Instruction.....	3
Pattern of attendance	3
Focus on curriculum.....	4
Entry criteria	4
Follow up suggestions.....	4
Certificate Awarded	4
Grading System.....	4
Students' evaluation.....	4
Trainers qualification	4
Trainer-trainees ratio.....	4
Suggestions for instructor.....	5
Suggestions for instruction	5
Suggestion for the performance evaluation of the trainees.....	5
Suggestion for skill training.....	5
Other suggestions.....	6
Course structure	7
Module:1: Introductory agriculture & social mobilization.....	8
Sub-module:1.1: Introduction to agriculture	8
Sub-module:1.2: Social mobilization	9
Module:2: Soil, Nursery, fertilizer and pesticide management	10
Sub-module:2.1: Nursery management.....	10
Sub-module:2.2: Soil/Fertilizer management	11
Sub-module:2.3: Pesticide management	13
Module:3: Horticulture, agronomical crops, post harvest and seed production.....	14
Sub-module:3.1: Vegetable production.....	14
Sub-module:3.2: Fruit production.....	16
Sub-module:3.3: Ornamental plant production.....	17
Sub-module:3.4: Cereal, pulses, and cash crops production	18
Sub-module:3.5: Post harvest agriculture.....	20
Sub-module:3.6: Seed production.....	20
Module:4: Mushroom, Sericulture, beekeeping, fish and duck farming	21
Sub-module:4.1: Mushroom	22
Sub-module:4.2: Beekeeping(Apiculture).....	22
Sub-module:4.3: Fish farming(Pisciculture).....	23
Sub-module:4.4: Sericulture.....	23
Sub-module:4.5: Duck farming	25
Module:5: Marketing, communication and entrepreneur development	26
Sub-module:5.1: Agricultural product marketing	26
Sub-module:5.2: Communication	27
Sub-module:5.3: Entrepreneur development	28
Reading materials.....	29
List of tools, materials and equipment	30
Facilities	29

Introduction:

This curriculum for community agriculture assistant is designed to produce lower level technical workforce equipped with knowledge and skills related to agriculture production and management occupation. It makes the trainees able to get opportunities for wage and self-employment in the related occupational field.

Aim:

To produce lower level agriculture workers (community agriculture assistants) able to provide agriculture services in the community being an entrepreneur/employee/self employed.

Objectives:

After the completion of the training program, the trainees will be able:

- To be familiar with agriculture production/management
- To be familiar with social mobilization
- To manage nursery, fertilizer, and pesticides
- To produce vegetable, fruits, ornamental, cereal, pulses, and cash crops / seeds
- To carry out sericulture, beekeeping, fish farming, and duck farming
- To market agricultural products
- To communicate with others and
- To be familiar with entrepreneur development

Course description:

This curriculum provides skills & knowledge necessary for community agriculture assistant. There will be both demonstration by instructors/trainers and opportunity by trainees to perform skills/tasks specified in this curriculum. Trainees will practice & learn skills using typical tools, materials, equipment & machines necessary for the program.

After successful completion of this program the trainees will be equipped with the knowledge and skills related to social mobilization; nursery, fertilizer, and pesticide management; vegetable, fruits, ornamental, cereal, pulses, and cash crops / seed production; sericulture, beekeeping, fish farming, and duck farming; agriculture product marketing; communication; and entrepreneur development.

Duration:

The total duration of the course will be of 390 hours (three months).

Target group:

All interested individuals in the field of agriculture with educational prerequisite of class eight pass.

Group size:

Maximum of thirty

Medium of instruction:

Nepali or English or both

Pattern of attendance:

- 80% attendance in theory
- 90% in practical/ performance

Focus of curriculum:

This curriculum emphasizes on competency /performance. 80% time is allocated for performance and only 20% for related technical knowledge. So the focus will be on performance of the specified competencies in the curriculum

Entry criteria:

- Minimum of eight class pass or equivalent
- Minimum of 16 years of age
- Should pass entrance examination

Follow up suggestions:

In order to assess the success of this program and collect feedbacks/ inputs for the revision of the curriculum a schedule of follow up is suggested as follows:

- First follow up: - Six months after the completion of the program
- Second follow up: - Six months after the completion of the first follow up
- Follow up cycle: - In a cycle of one year after the completion of the second follow up for five years

Certificate Awarded:

The related training institute will provide the certificate of "Community Agriculture Assistant". Again, individuals who complete module (s) of the curriculum will receive a certificate of completion of the particular module(s).

Grading System:

- Distinction: passed with 80% or above
- First division: passed with 75% or above
- Second division: passed with 65% or above
- Third division: passed with 60% or above

Students' evaluation:

- Continuous evaluation of the trainees' performance is to be done by the related instructor/ trainer to ensure the proficiency over each competency under each of the sub-module.
- Related technical knowledge learnt by trainees will be evaluated through written or oral tests.
- Trainees must secure minimum marks of 60% in an average of both theory and practical evaluations.
- There will be three internal evaluations and one final evaluation in each module.
- The entrance test will be conducted by the concerned training institute

Trainers' qualification:

- I. Sc. Ag or equivalent in related field
- Good communicative and instructional skills
- Experience in related field

Trainer-trainees ratio:

- 1:10 for practical classes
- For theory, as per the class room situation

Suggestions for instructor:**Suggestions for instruction:****1. Select objectives**

- Write objectives of cognitive domain
- Write objectives of psychomotor domain
- Write objectives of affective domain

2. Select subject matter

- Study subject matter in detail
- Select content related to cognitive domain
- Select content related to psychomotor domain
- Select content related to affective domain

3. Select instructional methods

- Teacher centered methods: like lecture, demonstration, questions answer inquiry, induction and deduction methods.
 - Student initiated methods like experimental, field trip/excursion, discovery, exploration, problem solving, and survey methods.
 - Interaction methods like discussion, group/team teaching, microteaching and exhibition.
 - Dramatic methods like role play and dramatization
4. Select Instructional method (s) on the basis of objectives of lesson plans and KAS domains
 5. Select appropriate educational materials and apply at right Time and place.
 6. Evaluate the trainees applying various tools to correspond the KAS domains
 7. Make plans for classroom / field work / workshop organization and management.
 8. Coordinate among objectives, subject matter and instructional methods.
 9. Prepare lesson plan for Theory and Practical classes.
 10. Deliver /conduct instruction / program
 11. Evaluate instruction/ program

Suggestion for the performance evaluation of the trainees:

1. Perform task analysis
2. Develop a detail task performance checklist
3. Perform continuous evaluation of the trainees by applying the performance checklist.

Suggestion for skill training:

1. Demonstrate performance
2. Demonstrate task performance in normal speed
3. Demonstrate slowly with verbal description of each and every step in the sequence of activity of the task performance using question and answer techniques.
4. Repeat 2 for the clarification on trainees demand if necessary
5. Perform fast demonstration of the task.

Provide trainees the opportunities to practice the task performance demonstration:

1. Provide trainees to have guided practice
2. Create environment for practicing the demonstrated task performance
3. Guide the trainees in each and every step of task performance
4. Provide trainees to repeat and repeat as per the need to be proficient on the given task performance
5. Switch to another task demonstration if and only trainees developed proficiency in the task performance.

Other suggestions:

1. Apply principles of skill training.
2. Allocate 20% Time for Theory classes and 80% Time for task performance while delivering instructions.
3. Apply principles of adult learning.
4. Apply principles of intrinsic motivation.
5. Facilitate maximum trainees involvement in learning and task performance activities.
6. Instruct the trainees on the basis of their existing level of knowledge, skills and attitude.

Course structure

Community agriculture assistant (CAA)

Modules/Sub modules	Nature	Total hours		
		Th	Pr	Tot
1. Introductory agriculture & social mobilization	T/P	12	21	33
1. Introduction to agriculture		4	4	8
2. Social mobilization		8	17	25
2. Soil, nursery, fertilizer and pesticide management	T/P	15	56	71
1. Nursery management		5	23	28
2. Soil/Fertilizer management		8	18	26
3. Pesticide management		2	15	17
3. Horticulture, agronomical crops, post harvest and seed production	T/P	34	101	135
1. Vegetable production		4	16	20
2. Fruits production		7	21	28
3. Ornamental plants production		4	13	17
4. Cereal, pulses, and cash crop Production		5	15	20
5. Post harvest in Agriculture		4	6	10
6. Seed production		10	30	40
4. Mushroom, sericulture, bee keeping, fish and duck farming	T/P	27	74	101
1. Mushroom		4	10	14
2. Beekeeping(Apiculture)		6	16	22
3. Fish farming(Pisciculture)		7	18	25
4. Sericulture		4	14	18
5. Duck farming		6	16	22
5. Marketing, communication and entrepreneur development	T/P	20	27	47
1. Agricultural product marketing		6	6	12
2. Communication		8	8	16
3. Entrepreneur development		7	15	22
Total:		110	280	390

Modules and sub modules

Module:1: Introductory agriculture & social mobilization													
<p>Description: It deals with the knowledge and skills related to Introductory agriculture & social mobilization.</p>													
<p>Objectives: After its completion the trainees will be able:</p> <ol style="list-style-type: none"> 1. To introduce agriculture occupation 2. To be familiar with the concept of social mobilization 					<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Time(hrs)</th> </tr> <tr> <td style="width: 50%;">Th</td> <td style="width: 50%;">12</td> </tr> <tr> <td>Pr</td> <td>21</td> </tr> <tr> <td>Tot</td> <td>33</td> </tr> </table>	Time(hrs)		Th	12	Pr	21	Tot	33
Time(hrs)													
Th	12												
Pr	21												
Tot	33												
<p>Sub-modules:</p> <ol style="list-style-type: none"> 1. Introduction to agriculture 2. Social mobilization 													
Sub-module:1.1: Introduction to agriculture													
<p>Description: It deals with the knowledge and skills/tasks related to introductory agriculture. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.</p>													
<p>Objective: After its completion the trainees will be able:</p> <ul style="list-style-type: none"> • To introduce agriculture occupation 													
<p>Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:</p>													
Th.(4 hrs) + Pr.(4 hrs) = Tot.(8 hrs)			Time(hrs)										
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.								
1.	Introduce Agriculture with their branches	<ul style="list-style-type: none"> • Definition, scope importance 	1	-	1								
2.	Define common agricultural terms	<ul style="list-style-type: none"> • Common agriculture terms: cultivation, tillage, training, pruning, propagation, manuring, irrigation, cropping system, cropping intensity 	1	-	1								
3.	Perform basic agricultural activities	<ul style="list-style-type: none"> • Basic ag. activities: field preparation (ploughing, digging, levelling), manuring, irrigation, intercultural operation (weeding, hoeing, earthing up), disease/pest management, harvesting, threshing 	1	3	4								
4.	Develop concept on cultivation & management of common agriculture crops	<ul style="list-style-type: none"> • Requirements of soil, climate and other factors for cultivation of common crops: cereal crops(rice, maize, wheat, buckwheat, finger millet, barley), pulses (horse gram, black gram, lentil, chickpea, mung bean, soya bean, cowpea), oilseed (groundnut, linseed, mustard, sunflower) 	1	1	2								
5.													
Total:			4	4	8								

Sub-module:1.2: Social mobilization

Description: It deals with the knowledge and skills/tasks related to social mobilization. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To be familiar with the concept of social mobilization

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

Th.(8 hrs) + Pr.(17 hrs) = Tot.(25 hrs)			Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce Social Mobilization	<ul style="list-style-type: none"> • Definition, concept, scope and importance 	1	-	1
2.	Select community sites	<ul style="list-style-type: none"> • Background information (Location, General Socio economic condition) • Number of communities, target objectives • Rapport building 	1	3	4
3.	Prepare village profile	<ul style="list-style-type: none"> • Techniques , social environment • Tools for keeping records 	1	3	4
4.	Collect information from other organizations about their activities	<ul style="list-style-type: none"> • Targeted details about the organizations, keeping records • Analysis of current status of target group • Target group identification, tools and methods, report writing 	1	3	4
5.	Conduct household survey	<ul style="list-style-type: none"> • Data collection, checklist/questionnaires preparation, sampling methods, keeping records • Historical analysis of household (Tools and methods, report writing) 	1	3	4
6.	Conduct individual interview	<ul style="list-style-type: none"> • Key informants, checklist/questionnaires preparation, sampling methods, keeping records 	1	1	2
7.	Conduct group interview	<ul style="list-style-type: none"> • Checklist/questionnaires preparation, time management, keeping records 	1	3	4
8.	Prepare cropping calendar	<ul style="list-style-type: none"> • Cropping plan: principle procedure and application 	1	1	2
Total:			8	17	25

Module:2: Soil, nursery, fertilizer and pesticide management

Description: It deals with the knowledge and skills related to nursery, fertilizer and pesticide management.

Objectives: After its completion the trainees will be able:

- To improve soil quality
- To manage nursery
- To manage fertilizer
- To manage pesticide

Time(hrs)	
Th	15
Pr	56
Tot	71

Sub-modules:

1. Nursery management
2. Soil/fertilizer management
3. Pesticide management

Sub-module:2.1: Nursery management

Description: It deals with the knowledge and skills/tasks related to nursery management. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To manage nursery

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

Th.(5 hrs) + Pr.(23 hrs) = Tot.(28 hrs)			Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce Nursery	Definition, concept, scope and importance	1	-	1
2.	Select site for nursery	Criteria for site selection	1	2	3
3.	Collect seed	Types, variety, source	-	3	3
4.	Treat soil/seed	Method, chemicals, duration	1	3	4
5.	Prepare nursery bed	• Type (raised, flat, sunken beds), nursery bed layout	-	3	3
6.	Make tunnel	• Size, materials & their quality (plastic, bamboo, pegs), equipments, raising seedling	1	3	4
7.	Sow / plant Seed	• Planting distance, method, time of plantation	-	3	3
8.	Grow seedling	• Duration of growth, water requirement, weed, disease and pest management	-	3	3
9.	Carryout propagation	• Types (sexual and asexual) and method (cutting, grafting, budding and layering), appropriate time	1	3	4
Total:			5	23	28

Sub-module:2.2: Soil/Fertilizer management

Description: It deals with the knowledge and skills/tasks related to fertilizer management. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To improve soil quality
- To manage fertilizer

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(8 hrs) + Pr.(18 hrs) = Tot.(26 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce soil	<ul style="list-style-type: none"> • Definition of soil • Physical, Biological and Chemical composition of soil • Soil depth/profile • Importance of top soil 	1	-	1
2.	Determine soil texture by feeling method	<ul style="list-style-type: none"> • Types of soil texture and their importance 	-	1	1
3.	Apply integrated soil management practices	<ul style="list-style-type: none"> • Role of organic and inorganic manure and fertilizer 	1	-	1
4.	Take soil sample	<ul style="list-style-type: none"> • Importance and methods of sampling 	-	1	1
5.	Determine soil P ^H	<ul style="list-style-type: none"> • Definition of soil P^H • Methods of pH determination 	-	2	2
6.	Apply soil erosion control	<ul style="list-style-type: none"> • Definition, concept, types and control of soil erosion • SALT method (sloping agriculture lands technology) 	1	-	1
7.	Identify common deficiency symptoms of fertilizer	<ul style="list-style-type: none"> • Deficiency symptoms of major nutrients (N.P.K.) 	-	2	2
8.	Explain importance of organic manure	<ul style="list-style-type: none"> • Importance of compost/FYM/Green Manure/ Verni compost/Bokasi 	1	-	1
9.	Determine quality of chemical fertilizer by local method	<ul style="list-style-type: none"> • Local methods of quality determination 	-	1	1
10.	Introduce manure/ fertilizer	<ul style="list-style-type: none"> • Types, advantage and disadvantage, 	-	1	1
11.	Prepare compost	<ul style="list-style-type: none"> • Materials, methods, type 	1	2	3
12.	Improve FYM	<ul style="list-style-type: none"> • FYM methods of improvement 	-	2	2
13.	Identify common fertilizer	<ul style="list-style-type: none"> • Name, nutrient composition 	-	1	1

14.	Calculate fertilizer requirement	<ul style="list-style-type: none"> • Mathematical calculation, dose, nutrient composition, area of requirement 	1	2	3
15.	Apply micro / macro nutrients	<ul style="list-style-type: none"> • Nutrient category • Source of micro nutrient. • Required amount 	1	1	2
16.	Apply fertilizer	<ul style="list-style-type: none"> • Method, timing 	1	1	2
17.	Store inorganic fertilizer	<ul style="list-style-type: none"> • Storage condition 	-	1	1
Total:			8	18	26

Sub-module:3: Pesticide management

Description: It deals with the knowledge and skills/tasks related to pesticide management. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To manage pesticide

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(2 hrs) + Pr.(15 hrs) = Tot.(17 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce pesticide	<ul style="list-style-type: none"> • Types, concept, advantage and disadvantage 	1	-	1
2.	Identify common pesticides	<ul style="list-style-type: none"> • Name, chemical composition, limit of danger (colour, signs), mode of action (contact or systemic) 	-	2	2
3.	Prepare botanical from local materials	<ul style="list-style-type: none"> • Identification of common plants and materials for botanical preparation • Importance of pesticide • Locally available bio-pesticide • Proportion of materials • Application of bio-pesticide 	-	2	2
4.	Calculate quantity requirement of pesticide	<ul style="list-style-type: none"> • Label reading • Active ingredient (a.i.), dose, area of application, mathematical calculation (formula, unitary method etc.) 	-	2	2
5.	Prepare solution / dilution	<ul style="list-style-type: none"> • Ratio of preparation • Precaution 	-	2	2
6.	Apply pesticides	<ul style="list-style-type: none"> • Dose, waiting period, time of application, method, precaution measures 	-	2	2
7.	Store pesticide	<ul style="list-style-type: none"> • Storage condition, precautions 	-	2	2
8.	Explain pesticide rules	<ul style="list-style-type: none"> • government policies, name and type of pesticides, targeted pest, precautions, bonded pesticides, source(whole sellers, dealers and companies), market channel 	1	2	3
9.	Apply traps for against pest	<ul style="list-style-type: none"> • Types of traps • Types of different pheromone traps, targeted insect/pest 	-	1	1
Total:			2	15	17

Module:3: Horticultural, agronomical crops, post harvest and seed production

Description: It deals with the knowledge and skills related to vegetable, fruit, cereal, pulses, and cash crops as well as seed production.

Time(hrs)	
Th	34
Pr	101
Tot	135

Objectives: After its completion the trainees will be able:

- To produce vegetable crops
- To produce fruit crops
- To produce ornamental plants
- To produce cereal crops
- To produce pulses crops
- To produce cash crops
- To handle harvested products
- To produce seeds

Sub-modules:

1. Vegetable production
2. Fruit production
3. Ornamental plants production
4. Cereal, pulses, and cash crops production
5. Seed production

Sub-module:3.1: Vegetable production

Description: It deals with the knowledge and skills/tasks related to vegetable crop production. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To produce vegetable crops

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(4 hrs) + Pr.(16 hrs) = Tot.(20 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Explain Importance of vegetable production	• Types, concept, scope and importance	1	-	1
2.	Select seed/ varieties	• Criteria for selection of seed and varieties according to soil, climate and other factors	-	2	2
3.	Prepare soil	• Field preparation (ploughing, digging, leveling), manuring	-	2	2
4.	Identify major vegetables	• Cole, solanaceous, root, leafy, cucurbits, leguminous and bulb crops	1	-	1
5.	Transplant seedlings	• Direct method of planting, time, method, planting distance	-	2	2

6.	Carry out intercultural	<ul style="list-style-type: none"> • Weeding, hoeing, earthing up, irrigation, top dressing 	-	2	2
7.	Protect vegetable plant	<ul style="list-style-type: none"> • Pest/disease management (symptom identification, pest identification, method of protection(IPM/ICM/ IPNS/IDM, chemicals or organic 	1	3	4
8.	Harvest vegetable	<ul style="list-style-type: none"> • Maturity judgment or maturity index, harvesting method, time of harvest 	1	3	4
9.	Prepare fresh vegetable for sale	<ul style="list-style-type: none"> • Market demand • Price value of well prepared fresh vegetable • Consumers choice 	-	2	2
Total:			4	16	20

Sub-module:3.2: Fruit production

Description: It deals with the knowledge and skills/tasks related to fruit crop production. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To produce fruit crops

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(7 hrs) + Pr.(21 hrs) = Tot.(28 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce fruit production	• Types, concept, scope and importance	1	-	1
2.	Introduce major fruits crops at local area	• Tropical, subtropical and temperate fruits	1	-	1
3.	Make plan	• Site (topography, soil, aspects, area)	1	3	4
4.	Perform layout	• Measurements, calculation, planting system and methods	-	2	2
5.	Transplant fruit sampling	• Time of plantation, field preparation, fertilizer calculation and manuring, planting distance, irrigation (method and water requirement), pit digging	1	3	4
6.	Carryout intercultural	• Weeding, hoeing, earthing up, irrigation, training& pruning, mulching, Mulching, chemicals (for disease and pest) spraying/manuring	-	2	2
7.	Prepare bordeaux mixture/ paste/paints	• Preparation methods and application	-	2	2
8.	Protect fruit plant	• Pest/disease management (symptom identification, pest identification, method of protection(IPM/ IDM, chemicals or organic)	1	3	4
9.	Carryout training / pruning	• Training/pruning: methods and timing	1	3	4
10.	Harvest fruit	• Maturity index, method and time of harvest	1	3	4
Total:			7	21	28

Sub-module:3.3: Ornamental plant production

Description: It deals with the knowledge and skills/tasks related to ornamental plants production. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To produce ornamental plants

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(4 hrs) + Pr.(13 hrs) = Tot.(17 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce ornamental plants	• Types, concept, scope and importance	1	-	1
2.	Identify ornamental plants	• Scientific/English/common name/varieties and family, morphological character and habit, type	-	2	2
3.	Make plans	• Site (topography, soil, aspects, area), designing	1	1	2
4.	Carryout plantation	• Time of plantation, field preparation, fertilizer calculation and manuring, planting distance, irrigation (method and water requirement)	-	2	2
5.	Carryout intercultural operation	• Weeding, hoeing, irrigation, top dressing, training& pruning, chemicals (for disease and pest) spraying	-	2	2
6.	Protect plant	• Pest/disease management (symptom identification, pest identification, method of protection(IPM/ IDM, chemicals or organic)	-	2	2
7.	Carryout training / pruning	• Training/pruning: methods (specific to plants) and timing	1	2	3
8.	Harvest flower/plant	• Maturity index, method and time of harvest	1	2	3
Total:			4	13	17

Sub-module:3.4: Cereal, pulses, and cash crops production

Description: It deals with the knowledge and skills/tasks related to cereal, pulses, and cash crops production. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To produce cereal crops
- To produce pulses crops
- To produce crops

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge.

Th.(5 hrs) + Pr.(15 hrs) = Tot.(20 hrs)			Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1	Introduce cereal, pulses, and cash crops	• Types, concept, scope and importance	1	-	1
2	Prepare land	• Land preparation(ploughing, leveling, manuring)	1	3	4
3	Sow seeds / transplant seedling	• Time of plantation, planting distance, planting method (broadcast, line sowing, transplantation)	-	3	3
4	Carryout intercultural operation	• Weeding, hoeing, irrigation, top dressing	1	3	4
5	Protect plant	• Pest/disease management (symptom identification, pest identification, method of protection(IPM/ IDM, chemicals or organic)	1	3	4
6	Harvest crop	• Maturity index, method and time of harvest	1	3	4
Total:			5	15	20

Sub-module:3.5: Post harvest Agriculture

NEED TO REVIEW

Description: It deals with the knowledge and skills/tasks related to post harvest agriculture. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To handle harvested Agricultural products
- To store harvested Agricultural products

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

Th.(4 hrs) + Pr.(6 hrs) = Tot.(10 hrs)			Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce post harvest technology	• Definition, scope and importance	1	-	1
2.	Handle harvested products	• Harvesting time/methods, cleaning, sorting, grading, waxing, packaging, labeling, transportation and distribution	1	2	3
3.	Process/preserve products	• Types (Drying, caning, freezing, fermentation) and Product preparation methods (Jam, Jelly, Marmalades, Ketchup, Pickle, Chips)	1	2	3
4.	Store products	• Types and methods	1	2	3
Total			4	6	10

Sub-module:3.6: Seed production

Description: It deals with the knowledge and skills/tasks related to seeds production. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To produce seeds

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(11 hrs) + Pr.(29 hrs) = Tot.(40 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
5.	Introduce seed production	• Definition, scope and importance, seed certification	2	-	2
6.	Make plan	• Seed type (self or crossed), site (topography, soil, aspects, area)	1	2	3
7.	Take seed sample	• Importance of seed sampling	1	2	3
8.	Treat seed	• Definition, importance and types	1	2	3
9.	Perform germination test	• Importance of germination test and	-	4	4
10.	Produce / receive foundation seeds	• Concept, source, method (if produced)	1	2	3
11.	Prepare land	• Land preparation(ploughing, leveling, manuring)	-	4	4
12.	Sow seed / plant	• Seed quality (purity, viability), planting distance, isolation distance, method	-	2	2
13.	Carryout intercultural operation	• Weeding, hoeing, irrigation, top dressing	1	2	4
14.	Protect plants	• Pest/disease management (symptom identification, pest identification, method of protection (IPM/ IDM, chemicals or organic)	1	2	3
15.	Perform roughing	• Control quality, inspection, moisture content	1	3	4
16.	Maintain isolation	• Concept, importance, distance	1	2	3
17.	Harvest seeds	• Maturity index, time and method (threshing, curing, cleaning, drying)	1	2	3
Total:			11	29	40

Module:4: Mushroom, sericulture, beekeeping, fish and duck farming

Description: It deals with the knowledge and skills related to **Mushroom**, sericulture, beekeeping, fish and duck farming.

Time(hrs)	
Th	27
Pr	74
Tot	101

Objectives: After its completion the trainees will be able:

- To produce mushroom
- To develop sericulture
- To rear bee
- To produce fish farming
- To rear duck

Sub-modules:

1. Mushroom
2. Sericulture
3. Beekeeping
4. Fish farming
5. Duck farming

Sub-module:4.1: Mushroom

Description: It deals with the knowledge and skills/tasks related to mushroom. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that every task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To produce mushroom

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

Th.(4 hrs) + Pr.(10 hrs) = Tot.(14 hrs)			Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce mushroom	• Definition, types, scope and importance	1	-	1
2.	Make plan	• Structure designing and material selection	1	2	3
3.	Cultivate mushroom	• Methods of cultivation	1	4	5
4.	Protect mushroom	• Identification and management insect pest	1	1	2
5.	Harvest mushroom	• Time, method	1	2	3
Total:			4	10	14

Sub-module:2: Beekeeping (Apiculture)

Description: It deals with the knowledge and skills/tasks related to beekeeping. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To rear bee

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(6 hrs) + Pr.(16 hrs) = Tot.(22 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce Apiculture	• Definition, types of honey bees, scope and importance	2	-	2
2.	Identify species	• Name (Scientific and common) morphological characters(size, colour)	1	4	5
3.	Rear bees	• Methods of bee rearing, care and management	1	5	6
4.	Protect bees	• Danger area identification (highly chemicals used cultivated area), disease predictors, parasites	1	4	5
5.	Extract honey	• Method, precautions, time	1	3	4
Total:			6	16	22

Sub-module:3: Fish farming (Pisciculture)

Description: It deals with the knowledge and skills/tasks related to fish farming. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To develop fish farming

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(7 hrs) + Pr.(18 hrs) = Tot.(25 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce pisciculture	• Definition, scope and importance	1	-	1
2.	Make Plan	• Site (Topography, area, water availability, aspects), structure, designing	1	3	4
3.	Manage fish pond	• Climate/weather condition(temperature, humidity), water condition (temperature, viscosity, sanitation), time of feeding, tools and equipments	1	3	4
4.	Identify species	• Common name, morphological characters (size, colour, body shape etc.),	1	3	4
5.	Rear fish	• Feeding behavior (carnivorous, herbivorous, omnivorous,/bottom or surface feeder), feeding ingredients, source of availability	1	3	4
6.	Protect fish	• Monitoring (time and method), feeding ingredients, temperature management, pond sanitation, symptoms of disease and parasite and management	1	3	4
7.	Harvest fish	• Harvesting methods	1	3	4
Total:			7	18	25

Sub-module:4.4: Sericulture

Description: It deals with the knowledge and skills/tasks related to sericulture. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To develop sericulture

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(4 hrs) + Pr.(14 hrs) = Tot.(18 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1	Introduce sericulture	• Definition, scope and importance	1	-	1
2	Make plan	• Structure designing	1	2	3
3	Cultivate mulberry	• Site of mulberry cultivation (topography, soil, area), method of growing mulberry	1	2	3
4	Identify species	• Name, morphological characters	1	2	3
5	Rear silk worms	• Time and method	-	4	4
6	Feed silk worms	• Time, amount, feeding habit	-	2	2
7	Harvest cocoon	• Time, method of harvesting	-	2	2
Total:			4	14	18

Sub-module:5: Duck farming

Description: It deals with the knowledge and skills/tasks related to duck farming. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To develop duck farming
-

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(6 hrs) + Pr.(16 hrs) = Tot.(22 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Introduce duck farming	• Definition, scope and importance	1	-	1
2.	Make plan	• Site (Topography, area, water availability, aspects), structure, designing	1	3	4
3.	Identify breeds	• Name of breeds, morphological characters	1	4	5
4.	Rear ducks	• Rearing area/mwthods	1	3	4
5.	Feed ducks	• Feeding behavior, feeding ingredients/ feeding methods	1	3	4
6.	Protect ducks	• Sanitation, symptoms of disease and management	1	3	4
Total:			6	16	22

Module:5: Marketing, communication and entrepreneur development

Description: It deals with the knowledge and skills related to marketing, communication, and entrepreneur development.

Time(hrs)	
Th	21
Pr	33
Tot	54

Objectives: After its completion the trainees will be able:

- To market agricultural products
- To communicate with others
- To develop entrepreneurship skills

Sub-modules:

1. Agricultural product marketing
2. Communication
3. Entrepreneur development

Sub-module:5.1: Agricultural product marketing

Description: It deals with the knowledge and skills/tasks related to agricultural products marketing. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To market agricultural products

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

Th.(6 hrs) + Pr.(6 hrs) = Tot.(12 hrs)			Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Store agricultural product	• Grading, storage condition (temp, RH, ventilation)	1	1	2
2.	Season agricultural product	• Perishability, method of handling	1	1	2
3.	Identify market	• Market information: price, demand, supply, market access	1	2	3
4.	Manage transportation	• Means, facilities	1	1	2
5.	Promote sales	• Market policy, price promotion, place, product(type and quality), value chain	1	1	2
6.	Prepare packages	• Quality of both product and package, market availability	1	1	2
Total:			6	6	13

Sub-module:5.2: Communication

Description: It deals with the knowledge and skills/tasks related to communication. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To communicate with others

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(8 hrs) + Pr.(8 hrs) = Tot.(16 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Write job application	• Method, application format, language	1	1	2
2.	Prepare resume	• Format, language, self details	1	1	2
3.	Communicate with senior	• Social value, motivating factors (human ethics), characteristics of good communication	1	1	2
4.	Communicate with junior	• Social value, job accountability, human ethics, characteristics of good communication	1	1	2
5.	Deal with customers	• Subject matter, human ethics	1	1	2
6.	Communicate with other farm owners.	• Relationship, other views and knowledge	1	1	2
7.	Request / purchase tool, supplies, materials and equipment	• Price, quality, uses, source	1	2	3
8.	Fill up leave requisition form	• Language, idea of filling	1	1	2
9.	Communicate with individual, group and mass.	• Farm visit • Format of poster, pamphlet, leaf let, broacher etc.	1	2	3
Total:			9	10	19

Sub-module:5.3: Entrepreneur development

Description: It deals with the knowledge and skills/tasks related to entrepreneur development. Each task consists of terminal performance objective, minimum related technical knowledge necessary to carry out that very task in a competent/ professional manner, and time allocation for the task and its related knowledge.

Objective: After its completion the trainees will be able:

- To develop entrepreneurship skills

Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks together with their related technical knowledge:

		Th.(7 hrs) + Pr.(15 hrs) = Tot.(22 hrs)	Time(hrs)		
SN	Tasks/skills	Related technical knowledge	Th.	Pr.	Tot.
1.	Develop entrepreneurial competencies	<ul style="list-style-type: none"> • Market information, govt. policies, market channel 	1	2	3
2.	Select / identify a project	<ul style="list-style-type: none"> • Scope, market demand, project formulation, project feasibility 	1	2	3
3.	Manage an enterprise	<ul style="list-style-type: none"> • Office establishment, staff selection, human resource management, market channel 	1	2	3
4.	Develop marketing skill	<ul style="list-style-type: none"> • market strategies, market information, company policies, market channel 	1	3	4
5.	Conduct promotional activities	<ul style="list-style-type: none"> • Types (Training, advertisement, fair) 	1	2	3
6.	Prepare a business plan / scheme	<ul style="list-style-type: none"> • Inventory, budget allocation 	1	2	3
7.	Develop communication skills	<ul style="list-style-type: none"> • Type of communication : mass, individual, group and media 	1	2	3
Total:			7	15	22

Reading materials	
<ul style="list-style-type: none"> • Handbook of agriculture By: Indian Council of Agricultural Research(ICAR) • Modern techniques of raising field crops By: Dr. Chnida Singh • Cropping system By: B.N.Chatterjee, S. Maiti, and B.K. Mandal • Fundamentals of horticulture By: Edimond-Senn-Andrews-halfacre • Fundamental of horticulture By: S.M. Shakya et. al. • Laboratory manual on vegetable production and ornamental horticulture By: S.M. Shakya et. al. And communication Center • Krishi Diary By: Agriculture Information 	<ul style="list-style-type: none"> • Vegetable crops <u>By:</u> Rose, Som & Kabir • Plant propagation <u>By:</u> Hortman, Kester & David • Nepalma Adharbhut tarkari kheti <u>By:</u> UMN/N • Balibiruwaka Satru ra Tiniharuka Rogtham <u>By:</u> Prof. Dr. Fanindra Prasad Neaupane • Beekeeping <u>By:</u> L. R. Verma • Sericulture and Silk production <u>By:</u> Prabha Shekhar and Martin Hardingham • Trainers manual on tropical, subtropical and temperate fruits <u>By:</u> Laxman Pun • Trainers manual on vegetable production <u>By:</u> Laxman Pun • Training Manual By: Central Agriculture Training Center
Facilities	
<ul style="list-style-type: none"> • Well equipped enough class/ office rooms • Demonstration farms for various crop species • Demonstration farms for various species of mushroom, bee, duck, fish and silk worms 	<ul style="list-style-type: none"> • Laboratory / library • OHP/computers/ pictures • Multimedia presentation set • Hostel/canteen /drinking water • Electricity • Field for cultivation practices • Transportation facilities

Tools and Equipment

List of Tools and Equipments for 20 Students

S.N	Tools/Equipment	Total Number
1	Kuto	10 pcs
2	Kodalo	10 pcs
3	Plow	1 pc
4	Doko	2 pcs
5	Hand sprayer	1 pc
6	Rope	1 role
7	Sickle	10 pcs
8	Thresher	1 pc
9	Location map	1 pc
10	Measuring tape	2 pcs
11	Hammer	5 pcs
12	Handsaw	5 pcs
13	Rose Can (Hajari)	5 pcs
14	Knife (Budding, Grafting)	20 pcs
15	Scature	10 pcs
16	Rootex (1,2,3)	3 dabba
17	Grafting Tape	3 role
18	Soil sample agar	5 pcs
19	pH meter	2 pcs
20	Calculator	5 pcs
21	Plastic drum (150 Ltr capacity)	2 pcs
22	Bucket (20 leter)	10 pcs
23	Measuring cylinder	10 pcs
24	Pheromone trap	5 pcs
25	Pick	1 pc
26	Sabel	5 pc
27	Planting board	2 pc
28	Refrigerator	1 pc
29	Stove	1pc
30	Packing bottles (250 ml)	20 pcs
31	Peeling machine	2 pcs
32	Seed sampler	3 pcs
33	Petri dish	20 pcs
34	Seed germinator	1 pc
35	Forceps	10 pcs
36	Plastic bag	50 pcs
37	Mushroom seed bottle	5 pcs
38	Drum for heating 100 Liter	1 pc
39	Bee hive	1 pc
40	Apron	2 pcs
41	Smoker	5 pcs
42	Honey Extractor (Small)	1 set
43	Cast net	1 pcs

44	Hook	5 pcs
45	Bread specimen	6 pcs
46	Lab thermometer	2 pcs
47	Feeder	2 pcs
48	Nanglo	5 pcs
49	Wooden rack	1 pc
50	Basila	2 pcs
51	Power tiller/ tractor	1 set
52	Leveller (Dalletho)	3 pcs

आवश्यक स्टेशनरी/विविध सामग्रीहरू

१	कापी	१ दर्जन
२	डटपेन	१ दर्जन
३	सार्पनर टूलो	२ थान
४	करेक्सन पेन	१ दर्जन
५	साइन पेन	३ दर्जन
६	पाइलट/जेल पेन	३ दर्जन
७	इरेजर	३ दर्जन
८	पेन्सील	३ दर्जन
९	फलाटिन कपडा	१० मीटर
१०	नमुना	१२ थान
११	कार्बन पेपर नीलो/सेतो	२-२ प्याकेट
१२	फिलिप चार्ट पेपर	आवश्यकता अनुसार
१३	फ्ल्यास कार्ड	आवश्यकता अनुसार
१४	फोटोकपी पेपर	आवश्यकता अनुसार
१५	फाइल	आवश्यकता अनुसार
१६	हवाइट बोर्ड	१ थान
१७	बोर्ड मार्कर	१ दर्जन
१८	परमानेन्ट मार्कर	१ दर्जन
१९	डिस्टर	२ थान

नोट : तालीमका बखत सैद्धान्तिक विषयको प्रशिक्षणका क्रममा उपलब्ध हुन सक्ने अवस्थामा ओभरहेड प्रोजेक्टर, फिलिपचार्ट बोर्ड, पिन बोर्ड प्रयोगमा ल्याउन सकिनेछ ।