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Accelerated vocational training in agriculture
curriculum of module on
fruit trees table grape production



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This project, led by FAO is implemented in cooperation with the Ministry of Agriculture, United Nations International Children's Emergency Fund (UNICEF), International Labour Organization (ILO), AVSI and WARD. It aims to upgrade the management and services of the agricultural technical schools of the Ministry of Agriculture in a sustainable manner to provide high-quality agricultural technical training to Lebanese and Syrian youth for increasing their employability skills. It also aims to review and update the Agriculture BT program and curricula following competency based training (CBT) and labour market needs along reviewing and updating its related institutional arrangement.

It further aims at building linkages for agricultural technical schools with private sector and setting contractual arrangement for work based learning. Also, it seeks to provide a healthy and protective learning environment for youth growth and development through the rehabilitation of school buildings and equipping school laboratories field demonstrations.

A student textbook is developed for this curriculum (in Arabic)

Introduction

Unit: fruit trees: table grape production duration: 40 hours

Grape is one of the most important agricultural crops in Lebanon. It is considered one of the most important commodities exported by Lebanon, especially to the Gulf countries.

The adoption of good agricultural practices for various agricultural crops, including grapes, contributes to improving the quality of production and raising its efficiency in order to increase competitiveness and give added value to Lebanese products.

Educational instructions

Accelerated vocational training is based on the principle of free participatory and constructive education. The basis of education is that trainees share their information with each other (no matter what level they are) and build upon them after correction. Trainees' experience is one of the most important pillars that helps them to appreciate themselves and to link what they learn to what is needed in the labour market. On this basis, the training strategy aims to guide trainees and help them enter into a production cycle. It also aims to change their behaviour (especially those who have dropped out of general education or who have different difficulties to prevent their active participation in society) and to ensure a sound and effective integration into the labour market. Therefore, the trainer must be careful to implement the following things/steps:

1. Focus on collaborative work in small groups.
2. Encourage trainees to discuss, dialogue and open exchange of information and experiences.
3. Respect for colleagues at work, employer, public safety laws, rules of health and environmental protection.
4. Give equal opportunities to participate.
5. Adopt the deductive method in education because it is most suitable for this type of teaching.
6. Link practical steps to theoretical steps that is, starting from applied work to the conclusion of theories.
7. Stay away from purely technical information, simplify things, and increase experience.
8. Pay attention to each trainee individually and monitor his/her work and correct what is necessary to maintain his/her safety and the safety of his/her colleagues and his/her work.
9. To consider "class workshop" as one of the most important teaching strategies used in this field, where the reality of work is applied directly to the reality of work or similar to the reality of work, theoretical learning is not separate from the application and the processes of discovery continue.
10. Emphasize that the trainee performs the cleaning and sterilization operations with emphasis on replication with high quality.
11. Consider field training (in practice) as one of the most important learning strategies that can be adopted.
12. Individual follow-up of the trainee during and after the educational process to ensure the achievement of the procedural objectives and acquire the necessary skills as the basis for his/her work in the labour market.
13. To consider the general objectives as the basis for the work of the trainee in the labour market, so it is necessary to verify their acquisition and acquire the necessary skills through the individual follow-up of the trainee during the learning process and during field training.
14. Work to motivate trainees to learn and push them to explore, extract and apply information frequently in order to acquire the required skill and focus using different active and interactive methods. Examples: scientific observation, field visits and projects, as well as experience and practice which are considered the most important elements of training.
15. The use of multiple educational aids to facilitate the absorption process, especially films and computer programs specialized in this area or websites.

Table 1: The competency of the unit and its stages

	texts			
competency	At the end of this unit, and when facing a problem- a situation, the trainee is able to propose a solution to this situation by employing resources (knowledge, skills, skills, techniques ...) related to the cultivation of the vine in Lebanon and how to take care of it.			evaluation criteria of a complex situation
competency stages	14 hours At the end of the first stage of efficiency, and when facing a problem-situation, it makes sense to him, the trainee will be able to propose a solution to this situation by using it in a combination of resources related to the cultivation and grafting of the grape vine choose the right rootstocks and varieties.	20 hours At the end of the second stage of efficiency, and when facing a problem-situation, the trainee will be able to propose a solution to this situation by employing resources related to good agricultural practices for growing the grape vine (soil, irrigation, fertilization and pruning.).	6 hours At the end of this unit, and when facing a problem-situation, the trainee will be able to propose a solution to this situation by using resources related to control measures to achieve integrated pest management.	evaluation criteria of a complex situation

Didactical tools

Learning by experience and class workshop contributes to enabling the trainee to acquire the skills he/she needs. Field training (in fields and farms) is one of the most reliable tools.

In addition to the above, it is important that the trainer uses various didactical tools that contribute to reduce learning difficulties and facilitate the learning process of the trainee on the other hand. In this context, it is preferable to use active instructional materials than using the passive ones, because of the nature and type of training, and in accordance with the levels of understanding and knowledge of trainees.

Some of the most important media are:

1. computer, monitor and internet;
2. television, CD player and specialized films;
3. specialized books and magazines;
4. wall paintings; and
5. various visual and digital tools and materials to facilitate the process of explaining the theoretical content in the classroom and the practical applications in the field (safety masks, gloves, pruning shears, trees, etc.).

Add to that, websites are full of films, videos and information on the subject, which we recommend to use on the one hand and encourage trainees to look at them and search them.

chapter	items/ materials needed	quantity per school	unit
1	Video about grape vine cultivation	1	Video
2	Field visit to grapes vineyards	1	Visit
3	Monitoring soil moisture by tensiometer	1	Piece
2	Pruning Shears	7	Pieces
2	Grafting knife	7	Pieces
3	Field visit to learn tillage methods and vegetative fertilization	1	Visit
4	Vine yard visit to observe disease, learn how to mix pesticides and learn prevention methods	1	Visit
1-2-3-4	Safety shoes	Each trainee	Pairs
1-2-3-4	Protective hat	Each trainee	Pieces
1-2-3-4	Protective goggles / glasses	Each trainee	Pieces
1-2-3-4	Rubber gloves	Each trainee	Pairs
1-2-3-4	Safety masks	Each trainee	Pieces
1-2-3-4	Coverall	Each trainee	Pieces

Table 2: Didactical tools and material

Evaluation of professional competencies

This curriculum is based on two pillars: specific objectives and competencies and their stages.

A. Evaluation of specific objectives

- true / False questions;
- matching questions (here the number of items in the second list must be greater than the number of items in the first list);
- fill in the blank questions;
- multiple choice questions;
- exercises; and
- follow specific implementation stages.

B. Competency and its stages evaluation:

The formative and corrective function of the evaluation is the most important central function, as it allows to valuing achievement and discover the learning difficulties to address them and correct the course of learning through feedback. It also seeks to develop of the higher thinking skills, especially the skill of self-assessment and critical sense and mutual evaluation among trainees, which develop their sense of responsibility. Because the measurement of the development of higher thinking skills can only be achieved by solving the problem of a complex problem or carrying out a complex task¹ in which a number of factors overlap, the trainee is linked, coordinated and separated. Therefore, it is essential that the complex situation be characterized by the following components and characteristics:

Complex situation components¹:

- Context describing the environment in which the situation takes place.
- Document which is a set of physical, hypothesis or real elements provided to the student: text, pictures, drawings, and so on. To be used in resolving the situation, the document contains information that may be complete or incomplete, both basic and non-essential.
- The function that determines the purpose of production required, a social function.
- Instruction: A set of work instructions that are explicitly given to the student, which is a translation of the task to be accomplished.

¹ Complex and not complicated: "Complex" means that the trainee has all the resources necessary for the solution, and only has to coordinate and connect with each other to accomplish the solution or task while "complicated" means that resources have not yet been acquired by the trainee

Complex situation properties:

The complex situation should be:

- appropriate for any target efficiency;
- specialized resource that employs resources; and
- motivating the trainee, meaning that it raises his/her interests.

The standardized evaluation is ideal for verifying the extent to which a trainee acquires competencies and their stages through a complex situation or a complex task. The criteria adopted in this approach are:

- Relevance of the learner's product: meaning match of the production of the trainee with instructions for the task required of the trainee to do, regardless of whether the production is true or not. Did the trainee answer what he/she asked for? Was the answer within or beyond the subject? And so on. In other words, the trainee's understanding of the situation in general and of instruction in particular. If the instruction, as it is supposed to be, is composed of a complex procedural act and a cognitive content, the answer is appropriate if procedural action and cognitive content are taken into account.
- Proper use of the tools of the material: the use of concepts, theories and knowledge relating to the question properly.
- Coherence in answers, arguments, and intellectual context. The logical sequence in a trainee's product, the coherence of ideas, and the unit of meaning in a product. Is the answer logical, reasonable, acceptable, or likely to be, even if it is wrong? Is there a contradiction in the trainee's answer? And so on.

Box 1: First phase of competency

First phase of competency (14 hours)

At the end of the first stage of efficiency, and when facing a problem- a situation, it makes sense to him/her, the trainee is able to propose a solution to this situation by using it in a combination of resources related to the cultivation and grafting of the grape vine choose the right rootstocks and varieties.

Chapter 1: Cultivation of the vine: how to establish vineyard (6 hours)

Specific objectives: at the end of this chapter, the trainee will be able to:

1. select a site before planting;
2. take soil samples from the suitable site for planting; and
3. Plant Grape vineyard according to the conditions depending on the type of grapes selected.

Theoretical content:

1. choose the right location;
2. determination of soil structure and fertility; and
3. Cultivation of vineyards.

Practical content:

Exercise 1: taking soil samples.

Exercise 2: cultivation of grape vines in the field according to the required conditions and standards.

Chapter 2: Characteristics of the most important rootstock and varieties of grapes (8 hours)

Specific objectives: at the end of this chapter, the trainee will be able to:

1. choose grape rootstocks according to the supervisor instructions;
2. determine the characteristics of wild grape rootstocks;
3. classify Grape varieties in terms of their characteristics (seedless and seeded grapes); and
4. perform the grafting.

Theoretical content:

1. wild rootstock: their characteristics and basic standards to be followed;
2. characteristics of the most important seedless grape varieties; and
3. characteristics of the most important seeded grape varieties Grape grafting.

Practical content:

Exercise 1: power point presentation about planted varieties in Lebanon.

Exercise 2: field visit to more than two vineyards to distinguish between different varieties.

Exercise 3: implementation of grafting.

Box 2: Second stage of efficiency**Second stage of efficiency (20 hours)**

At the end of the second stage of competency, and when facing a problem-a situation, it makes sense to him/her, the trainee will be able to propose a solution to this situation by using it in a combined manner resources related to the good agricultural practices for growing the grape vine (soil, irrigation, fertilization and pruning.).

Chapter 3: Preparation of soil before planting (6 hours)

Specific objectives: at the end of this chapter the trainee will be able to:

1. discover the advantages and disadvantages of tillage;
2. discover the importance of the use of vegetable fertilization crops in soil management; and
3. determine Moisture or dryness of the soil by the use of many devices, including the Tensiometer.

Theoretical content:

1. tillage: advantages and disadvantages;
2. vegetative fertilization: its importance in soil management; and
3. tensiometer: Its importance in soil moisture monitoring.

Practical content:

Exercise 1: field visit to see the most important good agricultural practices: tillage, fertilization.

Exercise 2: monitor soil moisture by the Tensiometer.

Chapter 4: Proper management of fertilization and proper processing of pruning and irrigation (14 hours)

Specific objectives: at the end of this chapter, the trainee will be able to:

1. perform Fertilization according to grape vine age and the growth stage of the crop;
2. define the nutrients deficiency symptoms on the leaves or fruits;
3. discover the importance of pruning and shapes; and
4. Perform traditional and modern irrigation operations.

Theoretical content:

1. symptoms of nutrient deficiency;
2. implementation of fertilization operations;
3. traditional and modern irrigation practices; and
4. pruning: importance and shapes.

Practical content:

Exercise 1: perform pruning in the field.

Exercise 2: distinguish between symptoms of nutrient deficiencies through field visit.

Exercise 3: installation of irrigation system.

Box 3: The third stage of competency**The third stage of competency (6 hours)**

At the end of this unit, and when facing a problem-a situation, the trainee will be able to propose a solution to this situation by using resources related to control measures to achieve integrated pest management

Chapter 5: Pests and diseases and control measures (6 hours)

Specific objectives: at the end of this chapter the trainee will be able to:

1. detect the physiological disorders of grapes: cracking grapes, leaves shot holes;
2. determine prevention methods of physiological disorders;
3. detect the pests that affect the grapes and their control measure; and
4. detect the diseases that affect the grapes and their control measure.

Theoretical content

Pests and diseases: prevention and control measures

1. bud burst and leaves opening stage;
2. vegetative growth phase (branches and twigs);
3. flowering stage;
4. fruit setting stage;
5. the stage of fruit clusters (growth of grapes);
6. prematurity phase;
7. maturity stage; and
8. post-harvest phase.

Practical content:

Pictures and presentation.



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