



Natural Resources Conservation and Development Level II

Learning Guide-12

**Unit of Competence: Assist in Planting Material
Collection and Processing**

**Module Title: Assisting in Planting Material
Collection and Processing**

LG Code: AGR NRC2 M04 LO-3 LG-12

TTLM Code: AGR NRC2 M04 TTLM 0919v1

LO3: Implement seed collection plan



Instruction Sheet	Learning Guide # 12
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Selecting and checking equipment and resources appropriate to work requirements for operational effectiveness in accordance with manufacturer's recommendations
- Liaising relevant individuals, bodies and groups with as required using appropriate interpersonal communication
- Assessing visually and checking plant species and condition to ensure the collection of healthy seeds
- Selecting and applying method of seed collection without causing damage to health of parent plant
- Collecting seeds from a range of plants and from different areas of plants to maintain genetic diversity
- Placing seed in clean containers and accurately labeling in accordance with industry, site and organizational requirements
- Carrying out seed collection in accordance with quality standards for seed collection
- Identifying limitations and assistance sought as required in accordance with workplace procedures

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, you will be able to:

- Select and checking equipment and resources appropriate to work requirements for operational effectiveness in accordance with manufacturer's recommendations
- Liaise relevant individuals, bodies and groups with as required using appropriate interpersonal communication
- Assess visually and checking plant species and condition to ensure the collection of healthy seeds
- Select and applying method of seed collection without causing damage to health of parent plant
- Collect seeds from a range of plants and from different areas of plants to maintain genetic diversity



- Place seed in clean containers and accurately labeling in accordance with industry, site and organizational requirements
- Carry out seed collection in accordance with quality standards for seed collection
- Identify limitations and assistance sought as required in accordance with workplace procedures

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 and 4.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3, Sheet 4 and Sheet 5”.
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3, Self-check 4 and Self-check 5” in page -5, 7, 9, 12 and 15 respectively.



Information Sheet-1

Selecting and checking equipment and resources

1.1 Equipment and resources;

Equipment and resources appropriate to work requirements should be selected and checked for operational effectiveness in accordance with manufacturer's recommendation. Equipment and resources may include; personnel, vehicles, pruning and shaking equipment, sheets, tarpaulins, clean containers for holding seeds, vacuum seed collecting machines, ladders or elevating work platforms, personal protective equipment Good seed-collection tools include A hook for bending branches towards the collector. Fix a metal hook to a wooden handle 2 m long. Provide a 2 m length of rope so that the climber can tie the hook and the branch to himself, so that he has both hands free to pick the fruits and put them in the collecting bag, A strongly made hook can also help in climbing the tree.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What method of collection you use if the seed tree is short? (10 points)
2. What are essential materials for seed collection?(10 points)
3. How hook uses as seed collection tool? (5 points)

Note: Satisfactory rating - 25 points

Unsatisfactory - below 25 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions



Information Sheet-2	Using appropriate interpersonal communication
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2.1 Using appropriate interpersonal communication

Communication has been variously defined as the passing of information, the exchange of ideas, or the process of establishing a commonness or oneness of thought between a sender and receiver. This definition suggests that for communication to occur there must be some common thinking between two parties and information must be passed from one person to another (or from one group to another).

This may include technical report writing, use of telephone, notice board, personal communication and using other communication facilities, which may:

- include verbal and non-verbal language, constructive feedback, active listening, questioning to clarify and
- confirm understanding, use of positive, confident and cooperative language,
- use of language and concepts appropriate to individual social and cultural differences, control of tone of voice and body language

The communication process is often very complex. Success depends on such factors as the nature of the message, the audiences' interpretation of the source and the medium used to transmit the message may also affect the ability to communicate, as do many other factors. Words, pictures, sound, and color may have different meanings to different audiences, and people's perceptions and interactions of them vary.



Self-Check -2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List out the important of communication. **(5 points)**

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions



Information Sheet-3	Liaising Relevant individuals, bodies and groups
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3.1 relevant individuals, bodies and groups

Liaising is the act of cooperate on a matter of mutual concern link to assist communication between two parties. When we prepare seed collection plan, we should participate different bodies and groups like forest expert, local communities.



Self-Check -3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define Liaising (5pts.)

Note: Satisfactory rating – 5 points

Unsatisfactory - below 5 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions



Information Sheet-4

Assessing and checking Plant species and condition

4.1 Assessing and checking Plant species and condition

The major aim in seed collection is to get good quality seeds in sufficient quantities and quality. Specifically, quality in seeds implies:

- Viability
- Germ ability
- Healthiness
- purity
- true-to-type
- resistance(disease, draught etc)
- collected from trees with desirable attributes
- Collected from a diverse gene pool

Flower Survey

Sometimes a preliminary flowering assessment can be conducted in the bud stage (e.g. eucalypts). Flowering often gives an indication of the future fruit crop but the correlation varies from species to species and from year to year.

The time of flower survey is necessary atleast 1-2 months prior to actual collection.

Flower Survey can provide information on:

- Whether flowering is distributed regularly throughout the area,
- If flowering plus trees are distributed throughout the area,
- How many male trees are contributing to pollination,
- Whether male trees are distributed uniformly.

Due to the relatively unreliable connection between flowering and fruiting, floral assessment is usually rated rather than quantified. Rating can, for instance, be done according to the following scale:

4. **Very-good**- Most of the trees in the stand have abundant flowers
3. **Good-Most** of the trees have flowers, some abundant
2. **Intermediate** -Less than 40% of the trees bear flowers, few have many flowers
1. **Poor**- Most trees in the stand have few flowers, edge and exposed trees may flower prolifically
0. **Very poor** -Flowering poor and only on edge trees or isolated exposed trees



Floral assessment and rating require a high degree of knowledge of the species and experience in order to establish an arbitrary reference frame. The relative rating of flowering may be helpful in identifying potential seed sources. Stands with ratings 0 or 1 are excluded, those with score 2-4 are potential sources for further evaluation.

Seed Survey

Flower survey is not enough, as many of the flowers might not develop in to seeds because of abortion, failure of fertilization or other factors. Then, seed survey is a reliable tool towards crop estimation. The information gathered includes:

- Checking existing stock
- Whether the crop is sound (not attacked by insects, disease etc.)
- Whether seeds are mature: Seeds should be harvested when or just before they are matured. It is also important to make sure that a high proportion of it is viable when harvested.



Self-Check -4	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. How can we check the health condition of plant (3points)
2. How to rate seed quality?(**10 points**)

Note: Satisfactory rating – 13 points

Unsatisfactory - below 13 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions



Information Sheet-5	Identifying potential locations for collection of required seeds
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5.1. Concepts of Potential locations for seed collection

Before starting to collect seeds; potential locations for the required seed should identified to collect healthy and enough quantity of seed.

- Identification of potential locations related to questions of

- Which species to collect (species selection)

- Where to collect (seed sources, seed trees)

- From which stand (stand selection)

Thus, potential locations for the collection of required seed needs **approvals** and sought and obtained from **relevant authorities**.

These approvals may include; licenses' and permits required for commercial or non-commercial seed collection and may include government permits and landholder permits.

Relevant authorities may also include;

Local governments, parks/reserves managers, and forestry managers

To collect seed from where the required potential site, liaise or negotiate with bodies or groups internal and external to the organization is necessary.

Prediction of the quantity, quality and harvest time of an expected seed crop is especially essential for species with variable seed crop from year to year, and with short harvest season.

The best seeds are produced in mast year, or in stands with prolific flowering and efficient pollination and few predations.

There is usually a cyclic periodicity of seeds production in which a year of excellent production (seed year) is followed by a varying period in which production is low (off year).

Variability occurs as a function of genetic makeup and the environment (site, climate).

So, we find: Tree to tree variation, and stand to stand variation.

Good sites are likely to induce good quality and quantity seeds than on poor sites (low moisture/low nutrient).



The major aim in seed collection & handling is to get good quality seeds in sufficient quantity & quality. Quality entails: the right species & provenance; genetic & physiological quality and reliable seed source.

To determine the potential location of seed, flower & fruit assessment is necessary.

Seed survey should apply due to flower & fruit assessment is not enough for successful by itself.

The information gathered from seed survey includes:

Checking existing stock

Whether the crop is sound

Whether the seeds are mature

It is also important to make sure that a high proportion of it is viable when harvested.



Self-Check -5	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the importance of identifying seed collection sites? (5 points)
2. What are questions related to Identification of potential locations for seed collection? (5 points)
3. If most seeds are flower prolifically during that year, what be year is called? (5 points)
4. Why fruit and seed assessment be necessary? (5 points)
5. What type of sites is side to be poor site? (5 points)

Note: Satisfactory rating – 25 points

Unsatisfactory - below 25 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions