Seed procurement and documentation

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Introduction

High quality of seeds is closely linked to a good record and documentation systems.

To procure is to acquire or obtain by care (or effort). This means that at all stages during the process of procurement, whether it is for tree seeds, pens or books, certain aspects need to be observed.

Some general principles of procurement

The most important aspects that need to be attended to very carefully are identification of suppliers, product quality, pricing, capacity of the supplier, lead-time and ability to deliver as well as customer service.

Identification of suppliers: Before making a decision to procure any material, the buyer must identify suitable suppliers.

- Identify suitable local or international seed suppliers: National Tree Seed Centers or extension services can assist in providing seed or list of local seed suppliers or through use of ICRAF’s Tree Seed Suppliers Directory

- Send out requests for the seed you need with specifications of species, when you need the seed, how much you need and a description of the environment of the site where the seeds are to be planted. Seed out the request well in advance of planting times

Pricing: Different suppliers may have similar quality goods but they may present very diverse pricing structures. Ideally, high quality goods should fetch a better price. For the various prospective suppliers, the buyer must objectively compare the prices and take
the lowest, but if you must pay a bit more for better quality, then it is the way to go. Good quality should not be compromised for low prices.

**Capacity of the supplier:** It is very important to consider the supplier’s capacity. This is the ability to deliver (large quantities). Some suppliers will require to be paid in advance for goods that they will then go and buy from elsewhere before delivery. Such suppliers should be avoided as much as possible. You must select a supplier who is ready and able to prepare an order without asking for upfront payments.

**Lead-time:** The amount of time taken before goods are delivered, also known as Lead-time, is also very important. This is because sometimes the goods are needed urgently and if the supplier takes unnecessarily long to deliver, then the goods may arrive late for the purpose they are required.

**Customer service:** Even in case the supplier has good product quality and they have poor customer relations then they should be avoided. The buyer should consider other matters like after sales follow up, replacement of bad supplies, and other matters that require the supplier’s attention even after the actual sale and transfer of goods is completed.

**Preparations required for tree seed procurement**

Before obtaining tree seed, it should be known clearly

- What the seeds are needed for
- What species of trees are required
- What quantity of seed is needed
- When the seed should be obtained
- What information is required together with the seed
- What regulations and quarantine requirements should be looked at when moving the seed?

**What are the seeds needed for?**

This is perhaps the most important issue to consider before ordering tree seed. There are thousands of tree species suitable for a very wide range of requirements. Before deciding on what is needed, it should be known what products will be needed from the trees to be planted. Common goals for the practice of agroforestry include soil fertility replenishment, provision of livestock fodder, production of poles, fuelwood or medicines, and planting of fruit trees.

In essence, there are no single-purpose trees. Most if not all of the tree species have more than one application on-farm. In this way, once the purpose of planting is known then the choices can be narrowed down.

The biophysical environment in which the trees will be planted is also very important. Certain tree species perform better in given conditions of soil, rainfall and temperature.
Extreme conditions of soil pH, or too little rainfall may hinder the cultivation of some tree species.

Consideration should also be accorded to the type of work the trees are needed for. If trees are required for research purposes, a buyer may select a wider range of species that when they are needed for dissemination work. Final choices will depend a lot on literature surveys and what is available in the market.

**What species (and provenance) to choose?**

Tree species in the same genera will not necessarily perform as well in different environments. Selection of trees for different environments must be carried out very carefully and with a lot of consultation. Literature should be reviewed to find scientific basis for selection of different species and provenances. Important issues to consider include disease and pest matters, and if the species have potential for development of weediness. If detail of available information allows, selection should be up to the provenance level.

In all cases try as much as possible to use local species and provenances (avoid exotics unless there are extremely compelling reasons).

**What quantity of seed is required?**

The quantity of seed required can be determined fairly accurately if complete information about the uses to which the seeds will be put is available. Seeds for research will be required in small quantities - depending on the scale and design of the experiment. Seeds for dissemination activities will be in larger quantities.

When determining the quantity of seed required, basic information to use will include; the area of land to be planted, the spacing at which the trees will be planted, the number of seed per kilogram of the respective species, average level of purity of the seed, expected germination percentage for the species, and expected mortality of seedlings in the nursery (or expected density of sowing for direct-seeded species) and after planting in the field. You should also think of thinning that will be done later.

If you know the weight of seeds, you can calculate the weight of seed that you require. It is however better to order for a specific number of seeds than for a specific weight of seeds. This reason is that seed weights for the same species may vary among sources or among years.

**When is the seed needed?**

The time at which the seed is required should also be known. This is because some species have recalcitrant seed that cannot be stored for long by suppliers (if they are collecting the seeds). In such cases, seed will be collected and delivered immediately. For tree species with orthodox seed, and if the buyer has the appropriate storage facilities, seed can be ordered for at any time.
Other information to accompany the seeds

Movement of tree seeds should be accompanied by the following information:

- Species name
- Location of the seed source-altitude, latitude, longitude and mean annual rainfall
- Number of parent trees
- Quantity of the seed (in kg/ g),
- Expected germination level of the seed
- Purity of the seed (optional)
- Pre-sowing treatment for the seed (if any)

After selecting the supplier(s)

After getting all the details about the seeds that will be procured, it is important to keep in constant touch with the supplier(s). This should be on a fortnightly basis. It is critical to remind the supplier that the seed will be required at a given time and in the right quantities. This is mainly because some suppliers may be tempted to sell the seed elsewhere especially if they can fetch higher prices. If the species (or provenance) you are ordering is in short supply then it may be advisable to pre-pay. This assures the supplier that you are serious about getting the seed.

Constant communication also helps if several import and export papers have to be obtained. In some cases if certain documents are not obtained in time, the seed may be destroyed or kept in quarantine during transit to its destination. The buyer should be kept aware of all the routes the seed will take before delivery. All arrangements, including, airway bills and points of entry, should be communicated to the buyer by the supplier - and it is the duty of the buyer to ensure that the supplier provides all these information.
When the seed has been procured

Tree seed is probably the most important input in all agroforestry projects. The timely availability of correct quantities of seed will dictate the success rates to be observed on most projects. This means that seed should be used in the best way possible. When seed has arrived from suppliers to the buyers, appropriate short-term storage facilities should be provided if it is not to be used immediately. For recalcitrant seeds, nurseries should be set up well before the seed arrives so that it may be sown immediately.

For buyers with basic laboratory facilities, purity, moisture content and viability of a sample of the seed should be determined. Apart from confirming the information from the supplier, these tests also enable the buyer to know what to expect when the seed will be sown. It may also help to inform the supplier to provide more seed.

Usage of the seed

Tree seed is a valuable and at times a very costly resource. It thus should be used in the best way possible. At times, experimentation with different methods of sowing and nursery management may be used to ensure that no seed is wasted due to improper usage.

Buyer/supplier follow up

The buyer needs to keep in close communication with the supplier even after the order has been delivered. This is necessary especially if issues like seed replacement come up due to poor performance of seeds or if there is need for additional quantities for other activities. Some suppliers of research materials also normally want to know how the resultant seedlings/tees perform.
Seed Documentation

SUMMARY

Why should I document seeds?

- Seeds should be documented to give them an identity. You may for instance want to plant more seeds of a similar identity at a later stage, or want to conduct an impact assessment of seed distribution activities.

- Documentation allows verification of seed quality by the client and by the producer. Quality seed = seed + documentation.

- Documentation removes the burden of memorizing details during all stages in seed production and distribution. It also allows for continuity of activities after changes of staff.

Which are the common documents?

- Seed source documents
- Seed collection and handling documents
- Seed quality test results documents
- Seed storage documents
- Seed dispatch documents
- Seed stand establishment records

Which other documentation could be important in seed production?

- Cost of operations
- List of seed sources or seed catalogue
- Research records and publications
1 Why should I document seeds?

High quality of seeds is closely linked to a good record and documentation system.

When you document seeds, you give the seedlot an identity. The species, the seed source, the date of collection and the method by which the seed was collected determine the identity of the seedlot. Some seed dealers give different seedlots different numbers so that all documentation of the same seedlot can be cross-referenced by that number. If you give a seedlot a number, it is better if you use some meaningful codes that refer to species, origin, and year of collection. For example Sesses-Kak-99-3 could refer to the third collection of Sesbania sesban from Kakamega Forest in 1999.

The seed documentation helps in planning future seed procurement. A client could require more trees of the same seed source at a later stage. The client needs the proper documentation to be able to make a request for those seeds. The seed dealer could also keep a record of the clients and the identities of the seeds that were distributed to them to be able to accommodate future requests.

The most important reason that seeds should be documented is that the client will be able to check the quality of the seed. Seed documentation enables the seed dealer to maintain seed quality at the same time.

Proper documentation removes the burden of having to memorise details. It allows for continuity of activities when staff changes. Make sure that you archive documentation properly. Make backups of information to prevent losses due to fire, theft or computer breakage.

2 Which are the common documents?

Various documents can be used to document seeds. The various documents are typically used during the various stages of seed production. These documents include the following documents:

- **Seed source documents.** These documents contain information on:
  - Name of the species (botanical and local names)
  - Geographical location of the seed source (elevation, temperatures, rainfall, soil types)
  - Geographical location of the original seed source in case of a seed orchard or seed production unit
  - Ecology of the seed source

- Ecology of the original seed source in case of a seed orchard or seed production unit
- Number of trees in the seed source
- Age of the seed source
- Size of the seed source

- **Seed collection and handling documents.**

These documents contain information on:

- Names of the species (botanical and local names)
- Seed source or provenance (from where the seed was collected)
- Date of seed collection
- Number of parent trees from which the seed was collected
- Average distance between seed trees
- Weight of fruit or seed collected
- Number of seed containers filled with the seed collected
- Name of collectors

- **Seed storage documents:** These documents contain information on;

- Seedlot number (a unique identification code to identify the seed collected on a specific year from a specific seed source)
- Names of the species (botanical and local names)
- Weight stored
- Running balance

- **Seed quality test results:** For quality tests, These documents contain information on;

- Seed test number (a unique number that identifies particular results of seedlots. This number is different from seedlot number)
MOODUL 3 – AGROFORESTRY TREE GERMPLASM

- Seedlot number (a unique identification code to identify the seed collected on a specific date from a specific seed source)
- Names of the species (botanical and local names)
- Date of seed testing
- Seed purity percentage
- 1000 seed-weight test or seed weight per kg
- Moisture content percentage
- Germination percentage
- Cutting test.

- Seed Dispatch: For information on seed dispatch. These documents contain information on;
  - Names of the species (botanical and local names)
  - Weight required
  - Weight issued
  - Seedlot number (a unique identification code to identify the seed collected on a specific date from a specific seed source)
  - Date of dispatch
  - Seed test information (purity and germination)
  - Seed advice note
  - Dispatch note.
  - No of parent trees
Seed Labelling: For information on seed dispatch. These documents contain information on:

| Botanical and local name of the species:  |
| Date of collection:                      |
| Seed source/provenance:                  |
| No of parent trees:                      |
| Seed quantity (Kg):                      |
| Purity percentage:                       |
| Viability test result or germination percentage: |
| Method of pre-sowing treatment:          |

3 What other documentation could be important in seed production?

You could be interested in other types of documentation. Such documentation can help you to improve future activities and make proper planning.

One type of documentation that you could keep is that on the costs of all operations. For instance, the cost in seed collection could be calculated as fixed costs (costs that will be same for each collection) and variable costs (costs that will be different for each collection). Fixed costs include items such as the purchase of a vehicle, purchase of climbing equipment, purchase of protection gear and the costs of construction of seed storage and testing facilities. The variable costs in seed collection refer to fuel, allowances and raw material for processing and testing seeds. Keeping good documentation of costs is very important, as it makes it easier to get the cost of seed collection and handling and thus come up with a fair price for the collected seeds and to plan for future activities.

Another type of documentation that could be useful could be a list of seed sources. This list could include all the seed sources that have been identified, selected or established. Such list could be useful if you want to provide your clients with a seed catalogue of the available seeds.

Some documentation may refer to the experimental records collected from the source. One objective that you could have could be to improve seed production in the future. You need to keep records and properly document it so that these data can be properly analysed.

The documentation may also contain a list of the publications that were prepared at the end of the research activity, or a list of other publications that are relevant for your seed production work.
**Suggested Reading**


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