

Seed collecting from wild plants requires care, resourcefulness and determination. There are many different collecting techniques. The most appropriate technique will depend on the species, particularly the type of dispersal unit. This information sheet outlines the manual techniques most commonly used to make seed collections of the highest possible initial viability and of sufficient quantity for long-term conservation.

Refer to [Technical Information Sheet 02](#) - Assessing a potential seed collection - before collecting in the field. This will help to ensure that the seed collection is adequate for project needs, and that the survival of the source population is not compromised.

Hand picking of whole fruits

The most basic and flexible of techniques, hand picking or plucking (Fig. 1), has many benefits. Consider though, if you can use a more efficient technique.

Plucking is particularly suitable when:

- target fruits can easily be selected by eye (e.g. due to colour or texture change of fruit coat, or swelling of fruit);
- non-target (e.g. immature or damaged) fruit cannot be excluded from the collection by more efficient techniques;
- fruits are easily accessible and collectors can tie buckets or similar containers around the waist, releasing both hands for collecting;
- collecting many-seeded fleshy or dry indehiscent fruits; and
- making small seed collections.



Figure 1: Hand picking fruits and collecting into a cloth bag.



Figure 2: Collecting tree seeds using pruners over a tarpaulin.

Pruning clusters of fruit

This technique is typically used to collect tree seeds (Fig. 2). Cut groups or clusters of fruits using secateurs or tree pruners. Assess for ripeness and damage before adding seeds to the collection.

This is a very effective technique when:

- seed is clustered at the distal (terminal) parts of branches;
- the species is abundant and a small associated loss of branch and foliage is acceptable; and
- seed is beyond reach of the collectors and has to be obtained using tree-pruners.

Shaking branches

Careful shaking of branches will sometimes dislodge the best available seed, which can be collected in buckets or on a tarpaulin held or spread out beneath the plant.

Start with gentle taps, and carefully check each sample of seed dislodged. Light shaking will often dislodge fully ripe fruits and seeds, leaving immature, poorly developed and damaged seeds to be retained on the parent plant.

Too-heavy beating of branches may cause damage to the tree, and may also dislodge other plant material and associated insects, necessitating additional cleaning of the collection.

Shaking branches may be useful when collecting:

- dehiscent fruits with medium-large seeds;
- seeds with irritant plumes (e.g. *Cercocarpus* of the Rosaceae);

- spiny trees such as *Prosopis* (Fabaceae); and
- on level, open terrain suitable for tarpaulin use.

This technique may not be suitable for light, plumed seed from Malvaceae and Apocynaceae, which may be carried away by air currents.

Stripping entire seed-heads

This is a popular technique for collecting seed from grasses and may be suitable for other species with erect inflorescences (seed-heads). Grasp the seed-head at the base with a gloved hand and slide the hand upwards, dislodging many or all of the seeds. This technique may introduce a proportion of immature seeds into the collection. Such seeds might need further post-harvest ripening which can be time consuming and is best avoided.

The stripping technique is most suitable for:

- dense, mono-specific stands of target species with no weed or other species present; and
- inflorescences which are completely and consistently at the natural dispersal stage.

Bagging seed-heads

If there is frequent access to the collecting site, and if seeds would otherwise be lost, fix a well-tied mesh bag loosely over pre-dispersal seed heads. Seeds are captured as soon as they are shed, and can be periodically removed. This method has been successfully used on a small scale, e.g. for collecting *Fouquieria* spp.

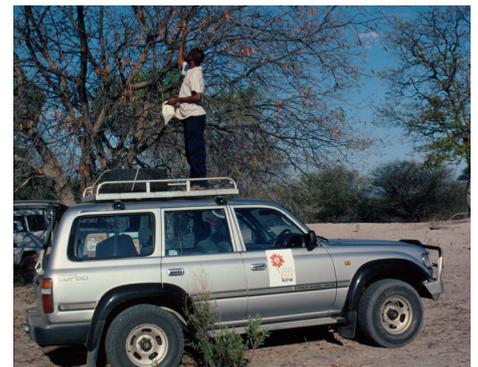


Figure 3: Using a vehicle to reach fruit clusters in a tree.

Collecting from the ground

You will frequently find seeds on the ground below trees or shrubs, but they will often be damaged by pests or pathogens. The seeds may have been on the ground for several months, and could even date from the previous year. Such seed will have aged and life-span in storage will be reduced. Inspect the seed carefully, noting any variation in the fruit, seed coat and internal tissues.

In general, only collect from the ground when:

- the parent tree(s) can be determined without doubt;
- you are certain that you are collecting recently dispersed seeds;
- seeds have not suffered significant damage from pests or pathogens; and
- other techniques or collecting options are unsuitable.

Containers

Collect into buckets, cloth or paper bags, and check each person's sample carefully before combining into a single population collection. Using buckets allows you to monitor the quality of the collection whilst enabling insects to escape.

Place collections of dry, ripe seed into cloth or paper bags for transit. Store any awned seed or hooked fruit, that would damage or get stuck in cotton bags, in cardboard boxes or strong paper bags. Never collect or store seeds in plastic bags.

Label all seed containers inside and out with a unique collection number,

and seal them securely. It is best to prepare sufficient labels before filling the containers.

Data

Without good field data, the utility of seed collections is limited. The identification of the collected seed must be verified. Collect herbarium material that is representative of the population for this purpose.

Maintain a record of the number of individual plants sampled, and the approximate size of the population. This data can be valuable for land managers and users of the seed.



Figure 4: Seed collections in cloth / paper bags.

Box 1: Collecting fleshy fruits

- Collect fleshy fruits directly into strong plastic bags or tubs with as much air circulation as possible.
- Pack the bags in a rigid plastic container to ensure that the fruits are not squashed and to help prevent them getting too hot and fermenting during transit.
- You may need to remove the seeds from fleshy fruits either during or immediately after the field trip.
- Refer to [Technical Information Sheet 04](#) for advice on Post-harvest handling.

Acknowledgements

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Further reading

Way M.J. (2021) [Techniques and key issues in collecting crop wild relatives](#). pp155-184 in Dulloo, E. (ed) *Plant Genetic Resources - a review of current research and future needs*. Burleigh Dodds Science Publishing Ltd

Tree seed collection may require use of rope and climbing techniques. Refer to the following publications:

Schmidt L. (2000). *Seed Collection*. In: *Guide to handling of tropical and subtropical forest seed*. Danida Forest Seed Center.

UK National Tree Seed Project (2014). [Seed Collecting Manual](#). Royal Botanic Gardens, Kew, UK.

Equipment specifications*

Description	Model and Supplier
Global positioning system unit (GPS) and maps	GARMIN GPSMAP 64 www.garmin.com
Compass	Silva Explorer www.silva.se
Altimeter	Locally available
First aid kit	Locally available
Field identification guides / flora	Often locally available. Can be supplemented with herbarium data and images from online sources including GBIF.org , POWO.science.kew.org , TROPICOS.org .
Hand lens (x10 or x20 magnification)	Folding magnifier in case www.nhbs.com

Description	Model and Supplier
Secateurs	Felco Model No. 2 Original www.worldoffelco.co.uk
Pruners	Wolf Garten Anvil Tree Lopper RCM & Telescopic Handle ZMV4 www.worldofwolf.co.uk
Pocket knife with scissors	Outdoor multi-tools www.swissarmy.com
Leather gloves	Locally available
Collecting buckets / tarpulin	Locally available
Permeable cloth / paper bags	Locally available
Herbarium press, card and blotter papers	Locally available
Field data recording sheets	See example in Seed Data Resources

*Please note that the above equipment is used by the Millennium Seed Bank and has been chosen carefully using our many years' experience. The list of suppliers is for guidance only and does not represent an endorsement by the Royal Botanic Gardens, Kew. The manufacturer's instructions must be followed when using any of the equipment referred to in this Information Sheet.