SEED PROPAGATION PROTOCOL

This form collates the information about the best method for seed propagation and growing up of the target species.

Authorship *(that contributed propagation information)*: *Fandey H. Mashimba, Jameseth Lazaro*

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Logo/s of the affiliated organisation(s):

GENERAL INFORMATION

Taxon name	*Scientific name of the propagated species*	*Bussea eggelingii*	**Name/s of propagator/**	*Name(s) of the person or people that carried out the propagation*	*Fandey H. Mashimba and Jameseth Lazaro*
Family	*Plant family of the propagated species*	*Leguminoseae*	**Organisation**	*Organisation(s) where the propagation was carried out*	*TFS (Newala in Lindi District and Vikindu, in Temeke District in Dar Es Salaam)*
Origin of seeds	*Site(s) and country where seeds were collected*	*Rondo Nature Reserve, in Tanzania*	**Site and country**	*Site(s) and country where the propagation took place*	*Newala and Temek in Tanzania*

SEED DESCRIPTION & PROCESSING

Description of the seeds and the processing of the seeds before seed sowing.

Time of year for seed collection	*List month/s of the year when seed collection is best*	*End of October-early 1 st week of November 2023*
Fruit/seed transport	*Describe how fruit/seeds have been stored during transport from the field to the nursery*	*Fruit were collected over the damp ground (post-dispersal collections), put into clothing bag immediatedly transported to the nursery for germination.*
Processing of fruits/seeds	*Describe how the fruits/seeds are processed in situ or in the nursery (seed extraction methods, seed cleaning, handling of fruits/seeds...)*	*Individual seeds were collected (no seeds were found remained into their respective pods.* *Seeds were soaked into cold water (room temperature) until they embibed. 1 germination count was oberved after 4th day after planting.*
Method to assess seed viability	*Describe method used to estimate seed viability (e.g. floating test, cut test, tetrazolium test, X-ray test)*	*Germination test (on-going)*
% Estimated seed viability	*(Number of viable seeds) x 100 / (Total number of seed for which viability was estimated)*	*Bussea eggelingii seedlings are being raised (116 seeds have been raised at TFS NEWALA tree nursery (instead of Masasi) where the germination was 87% (eq. to 101 seedlings) and 141 seeds were sent to TFS MKURUNGA Tree Nursery where germination was 76% (equivalent to 107 seedlings). In both sites scoring is ongoing untill January 2024.*
Type of seed	*Choose one of these options: Orthodox, Intermediate, Recalcitrant or Unknown*	*Orthodox*

Seed size	*Include a measuring unit (e.g. mm, cm…)*	*Petals: 4 lower and lateral ones 21–27 mm. long, 14.5–20 mm. wide, the fifth upper one 14–17 mm. long, 9–10 mm. wide. Pods 12–16 cm. long, 2–2.8 cm. wide; valves flattened or concave, but not conspicuously grooved, seeds crossection: 8-12 mm, Longitudinal: 15-25mm*
Number of seeds per gram	*Count a reasonable number of seeds and weigh them. Then, divide the number of seeds by their weight (e.g. 100 seeds / 5 g = 20 seeds/g)*	*2 seeds*
Seed storage	*If seeds have been stored before germination, mention storage facilities (seed bank, fridge, freezer), and describe conditions (humidity, temperature), type of container, and storage time length.*	*None*

+ ***Add photographs of the fruit and seeds. Make sure to include a detailed description of the photo, such as the growth stage, date, activity or process.***

+ *Bussea eggelingii* pods and seeds

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GERMINATION

Description of procedures, materials for seed germination and the germination success.			
Procedures	**Seed treatment**	*Describe treatment applied to the seed before sowing (e.g. mechanical scarification, chemical scarification, soaking, stratification, smoke treatment…). If applied, include the duration of the treatment.*	*Soak in cold water until seeds imbibed*
	Seed sowing media	*Media composition: include percentages/ratio for the different components*	*We used potting mixture of 1 fine cow manure 2 forest top soil and 1 sand loam.*
	Container	*Describe size and material of the container in which seeds are sown*	*4 inches Polythene tube*
	Seed spacing	*Describe the recommended spacing between the seeds when sown. Include a measuring unit (e.g. mm, cm…)*	*Direct seeding (1 seed in each tube)*
	Seed depth	*Describe how deep the seeds are sown. Include a measuring unit (e.g. mm, cm…)*	*Cover seeds with soil 3 times its thickness (1 cm approx)*
	Watering technique	*Describe watering tool, technique and frequency during sowing and germination*	*Moderate once a day (24 hrs interval)*
	Germination facilities	*Describe the facilities where the germination of seeds took place (e.g. close case, outdoor shaded area, heated bench, covered/bagged container...)*	*Open field nursery (light demanding species) or in the laboratory*
	Environmental conditions	*Describe the environmental conditions where germination took place (temperature, humidity, and photoperiod)*	*Open field (flactuating temperature 20^0C-32^0C and humidity 60%-80%)* *In the laboratory: Temperature should be maintained at a constant level (preferably between 18^0C and 25°C) and the humidity should also be kept reasonably steady at about 50%.*
Success	**Time of year for seed germination**	*List month/s of the year when seed germination is best*	*Open field: Summer* *In laboratory: Anytime*
	Duration of germination	*Average number of days/months/years until seeds germinated*	*30 days or more*
	% Germination success	*(Number of seeds germinated) x 100 / (Total number of seeds sowed)*	*Above 70%*
Materials		*List the materials needed for seed germination to help with the planning of this activity. E.g. trays, sieves, dibbers, labels, ruler…*	*Trays/root trainers, labels, dionised water, sieves, polythene tubes, potting soil*

+ ***Add photographs of the germination process. Make sure to include a detailed description of the photo, such as the growth stage, date, activity or process.***

\+ ***Fresh seeds*** ***4 days after planting***

6 days after planting

13 days after planting

20 days after planting

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FIRST POTTING			
Description of procedures and materials for the cultivation of the plants and the success of the growing of the plants.			
Procedures	**Growing Media**	*Media composition: include percentages/ratio for the different components*	*1:2:1 (Cow manure: Forest top soil: sandy loam)*
	Container	*Describe size and material of the container in which plants are potted*	*4 inches polythene tube*
	Fertiliser	*If used, include: type (organic or inorganic); nutrient composition and its ratio; and application (added to soil, dissolved on water, foliar application)*	*Cow manure*
	Watering technique	*Describe watering tool, technique and frequency while growing the plants*	*Sprinklers or watering can (every morning before 10 am)*
	Plant growing facilities	*Describe the facilities where the plant growing took place (e.g. glasshouse, outdoors, shaded area...)*	*Open fiel nursery*
	Environmental conditions	*Describe the environmental conditions where the plant growing took place (temperature, humidity, light levels)*	*Open field (flactuating temperature 200C-320C and humidity 60%-80%)* *In the laboratory: Temperature should be maintained at a constant level (preferably between 180C and 25°C) and the humidity should also be kept reasonably steady at about 50%.*
Success	**Number of days until first potting**	*Average number of days since the start of seeds sowing until first potting*	4 days
	Duration until established plants	*Average number of days/month/years for which the plant growth was monitored until the establishment of plants*	2 months
	% Plants established	*(Number of plants established) x 100 / (Total number of plants potted)*	*80%*
	Health observations	*Record any signs of pest or disease, nutrient deficiency, damage... and the stage when they were observed (e.g. during germination, growing of seedlings, growing of plants....)*	98% healthy seedlings
Materials		*List material needed for potting to help with the planning of this activity. E.g. pots, dibbers, labels...*	Polythene tubes, potting soil mentioned above, shedney (50%-60% shading)

+ ***Add photographs of the pricking out, potting, and the growing of plants. Make sure to include a detailed description of the photo, such as the growth stage, date, activity or process.***


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