Finger millet (Eleusine coracana (L.) Gaertn.) is an important subsistence cereal in parts of Africa and south Asia. The species has two subspecies, africana (Kenn.-O’Byrne) K.W. Hilu & de Wet and coracana (L.) Gaertn. Subspecies africana has two races, africana and spontanea, while subspecies coracana has four races: elongata, plana, compacta and vulgaris (Prasada Rao et al. 1993). Finger millet is mostly self-pollinating, with some amount of cross-pollination (1%) mediated by wind (Jansen and Ong 1996; Purseglove 1972). Finger millet is very adaptable to a wide range of environmental and climatic conditions, thrives at higher elevations than most other tropical cereals and tolerates salinity better than most cereals.
**Choice of environment and planting season**

**Climatic conditions**
- Finger millet grows best in an environment with medium rainfall, an annual temperature range of 11 to 27°C and a soil pH of 5.0 to 8.2 (Duke 1978, 1979). Areas with low precipitation and low relative humidity during seed ripening and maturation are best for regeneration.

**Planting season**
- Carry out regeneration in the rainy season as finger millet requires moist conditions for germination.

**Preparation for regeneration**

**When to regenerate**
- When seed stocks are <50 g.
- When germination drops below 75%.
- If the percentage of seeds infected by one or more of the following fungi is >25%: *Alternaria, Aspergillus, Cladosporium, Curvularia, Fusarium, Macrophomina, Penicillium, Phoma* and *Rhizopus* spp.

**Seed sample**
- To maintain genetic integrity use seed from the original source, if possible.
- A minimum of 40 plants is required for regeneration.
- At least 3 g seeds are required for regeneration of a germplasm accession.
- Finger millet seed is small; take care when preparing the seed samples.
- For each accession, prepare one seed packet for planting each row.
- Label packets with identification number and row number and arrange them according to field lay-out.

**Field selection and preparation**
- Choose a field which was not under millet during the previous two years to reduce risk of volunteer plants.
- Keep the field well drained throughout the growing period and free from weeds at sowing.
- Prepare a fine tilth by deep ploughing, followed by three or four harrowings as plants will not grow in soil which is not well compacted.
- Make ridges 75 cm apart on a levelled field.

**Method of regeneration**
Finger millet is a self-pollinated crop and seed regeneration does not require any pollination control. Leave a distance of 3 m between accessions.

**Planting layout, density and distance**
- Divide the field into plots (also known as tiers), leaving a 1-m walking space between them. Plots should be at least 4 m wide.
• Mark rows 75 cm apart across each tier, perpendicular to the length of the field, giving rows of at least 4 m long or more, depending on the width of the plot.
• Distribute seed packets according to field plan.
• Ensure a minimum of 3 m between accessions.
• Assign row numbers in serpentine pattern (i.e. planting from left to right in the first row followed by right to left in the second row or vice versa).

**Planting method**
• Sow seeds by hand at a depth of 2.5 cm in a furrow and close the furrow after sowing.

**Labelling**
• Label each accession with a tag fastened to a stake about knee height.
• The tags should be of strong paper to withstand weathering.

**Crop management**

**Weed management**
• Weed by hand 21 days after planting.
• Remove alien plants.

**Thinning**
• Thin plants when seedlings are 2–3 weeks old, leaving 10 cm spacing between the plants and a minimum of 40 plants per accession.

**Fertilization**
• Apply fertilizers on the basis of soil test results. In the absence of a soil test apply diammonium phosphate at 100 kg/ha as a basal dose before sowing and 100 kg urea/ha as top-dressing 21 days after sowing.

**Irrigation**
• Apply supplemental irrigation after sowing if the soil is not moist enough; irrigate again if leaves wilt at any stage of crop growth and to ensure enough moisture in soil at flowering.

**Common pests and diseases**
Contact plant health experts to identify pests and diseases and appropriate control measures. Some of the major pests and diseases of finger millet are:
• Blast (*Pyricularia grisea*)—produces lesions on leaves, peduncle and ear. Severe infection may result in death of seedling
• Leaf blight (*Helminthosporium nodulosum*)
• Shoot fly (*Atherigona milliaceae*)
• Pink stem borer (*Sesamia inferens*)

**Harvesting**
• Finger millet cultivars are known to vary in time to maturity but ear heads can be harvested about 40 days after flowering to facilitate easy threshing.
• Harvest manually by cutting ear heads below the base.
• Collect ear heads from each row in a clearly labelled muslin cloth bag and dry in the shade for about 1 week.

**Post-harvest management**
• Dry panicles in shade to about 12% seed moisture content — ideal for hand threshing.
• Clean the seeds of debris by winnowing.
• Bulk equal amounts of seed from each plant to make up the accession.
• Avoid spillover and contamination during threshing and subsequent handling.
• Send a representative sample for observations on seed traits, seed health and viability testing.
• Reject seed samples with a high percentage of infection and list for next regeneration.
• Do not apply chemical treatment to seed intended for storage.
• Collect seeds in a labelled muslin cloth bag for further drying, preferably at a lower temperature and relative humidity.
• Dry seeds to 8–9% moisture content for medium-term conservation. For long-term conservation, dry the seeds to 5–7% moisture content using forced ventilation at 15°C and 15–20% relative humidity.
• If a drying room and forced ventilation facilities are not available, dry seeds to a moisture content of 5–7% with silica gel or another appropriate desiccant.
• Pack seeds in airtight containers for conservation and distribution.

**Monitoring accession identity**

**Comparisons with previous passport or morphological data**
• Verify accession identity using seed traits.

**Documentation of information during regeneration**
Collect the following information during regeneration:
• Regeneration site
• Name of collaborator
• Plot reference
• Sowing date
• Field layout used
• Field management details (watering, fertilizer, weeding, abnormalities recorded, others)
• Environmental conditions (altitude, precipitation, soil type, others)
• Germination in the field or greenhouse
• Number of plants established
• Days from sowing to flowering
• Breeding system
• Harvest date
• Number of plants harvested
• Quantity of seeds harvested
• Viability of seeds harvested
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