



AFRICAN DEVELOPMENT BANK GROUP
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Orange-Fleshed Sweetpotato Technologies

A Guide to Key Technologies Supporting Farmers, Nutrition, and Livestock Systems



OFSP Varieties

Improved OFSP varieties are bred to tolerate biotic and abiotic constraints such as drought, heat, and common sweetpotato viruses. Many also resist weevils, aphids, and whiteflies, reducing crop losses in harsh climates. Their high beta-carotene content makes them ideal for nutrition and income generation. Several of these varieties thrive in semi-arid regions, offering reliable harvests even with erratic rainfall. Early maturing improved OFSP varieties can be ready for harvest in as few as 90–120 days, while most improved varieties mature within 3–5 months after planting. They can be eaten fresh or processed into flour, puree, chips, and baked products. Planting materials of these varieties are available through certified multipliers and national programs.



OFSP varieties multiplied at Wondo Genet Research Centre

Triple S Method (Storage in Sand and Sprouting)

The Triple S (Storage in Sand and Sprouting) method ensures farmers in long dry-season areas have early, reliable planting material. At the end of the rains, farmers select healthy, undamaged roots and store them in dry, clean sand in a cool, protected place. Six to eight weeks before the rain, the roots are removed and allowed to sprout in a warm, protected environment, then planted in small, well-watered nursery plots near the home. By the time rain begins, the plants have produced vigorous vines, providing abundant and timely planting material.



The sand covers the root by 5cm



Growing sweetpotato vines.

Early-Generation Seed Technologies (EGS)

Early-Generation Seed (EGS) systems produce the clean, virus-tested pre-basic and basic planting material that underpin reliable sweetpotato seed chains. The EGS process begins with tissue culture (TC) plantlets produced in laboratories, which are then transferred to screenhouses for pre-basic seed production. Pre-basic seed is subsequently multiplied in net tunnels or screenhouses to produce basic seed, which is then supplied to certified multipliers, seed enterprises, and farmer groups for further multiplication and distribution to farmers.



Rapid vine Multiplication Technology (RMT)

Rapid Vine Multiplication Technology (RMT) enables fast production of large quantities of clean, quality vines in open nurseries. Farmers use virus-tested starter materials, prepare nursery beds (commonly around 6 m × 1.2 m), and plant short vine cuttings at close spacing to promote rapid growth. Regular watering, weeding, roguing, and pest and disease monitoring ensure healthy planting material. Vines are ready within 3–4 weeks, and repeated harvesting (ratooning) allows multiple cuttings over time, producing large quantities of vines from a single bed. To maintain quality, planting material should be periodically renewed from clean sources.



OFSP Puree

OFSP puree transforms fresh tubers into a stable, nutritious ingredient for year-round use. It replaces 30% of wheat flour in breads, chapatis, cakes and snacks, lowering production costs while boosting vitamin A content. Puree is made by cleaning, steaming and pureeing fresh roots and can be stored for up to 12 months when vacuum-packed without refrigeration. With strong consumer acceptance and growing market demand, puree processing creates opportunities for bakeries, youth groups and small enterprises to develop profitable, healthy OFSP-based products.



Making OFSP purée from steamed, peeled roots

Good Agronomic Practices (GAPs)

GAP combines simple, yield-boosting actions — right planting material, correct spacing, timely land preparation, weed control, balanced organic/inorganic nutrients, and pest/disease scouting and roguing — to greatly improve root yields and quality. Practical GAP packages (e.g., raised/heaped beds, proper hill spacing, timely weeding and hilling, and careful post-harvest handling) raise average yields, reduce losses and make downstream processing and seed multiplication more profitable.

Difference in yield



a) With gap



b) without gap

Double S Method

Double S Technology helps farmers store fresh Orange-Fleshed Sweetpotato (OFSP) roots safely for months, ensuring food, nutrition, and income security. After harvest, healthy, carefully selected roots are layered in dry, clean sand in a shaded, ventilated box, pit, or raised floor. The sand maintains root moisture, prevents rot, and extends shelf life for up to 4 months in savanna areas and up to 7 months in cooler highland environments. Stored roots can be used for home consumption, sold later at higher prices, or kept for planting. This simple, low-cost method reduces post-harvest losses, improves year-round availability of nutritious OFSP, and supports household food security while enabling better market timing and income generation.

OFSP Recipes

OFSP roots or puree made from OFSP roots offer excellent opportunities for home nutrition and income generation through diverse, locally acceptable recipes. Popular products include buns, chapati, mandazi, biscuits, cakes, porridge, crisps, chips, and fresh nutritious puree for infants. OFSP can also be processed into dried leaf relish, juice, and enriched complementary foods combining sweetpotato with grains, milk, and groundnuts and several other nutritious foods. These products improve family diets with vitamin A, while opening new commercial avenues for youth and women processors in bakeries, restaurants, and community markets



Various OFSP products.

Nutrition Messaging

Orange-Fleshed Sweetpotato significantly improves household nutrition because its beta-carotene converts to vitamin A, supporting immunity, eyesight and child development. Improved OFSP varieties also offer high dry matter, good yields and wide consumer acceptability. OFSP fits easily into daily meals and can be boiled, roasted, or processed into breads, chapatis, porridge, puree, crisps and baby foods. By promoting OFSP consumption, communities reduce vitamin A deficiency, enhance health outcomes, and generate income from both roots and vine products.



A child 1-3 years old needs 300 µg Retinol Activity Equivalents(RAE) of vitamin A daily.

Healthy Baby Toolkit

The Healthy Baby Toolkit supports improved feeding practices for children aged 6–23 months. It includes a portion-marked bowl indicating age-appropriate meal sizes, a slotted spoon to guide proper food thickness, and illustrated counselling cards for caregivers. The toolkit is a behaviour change communication tool that guides families on meal frequency, dietary diversity, hygiene, and safe food preparation using locally available foods, including OFSP. By promoting preparation of thick, nutrient-dense porridges and mashed foods, it helps reduce the risk of malnutrition and supports children's physical and cognitive development. Sweetpotato leaves are nutrient-dense greens rich in vitamins A and C, some B vitamins, minerals, and moderate amounts of protein. They are an underutilized food resource that complements OFSP roots.

1 A slotted spoon to guide optimal thickness/texture of infant foods and complementary foods. If the food does not drip through the holes in the spoon, it is thick enough to ensure sufficient energy and nutrient density



2 A bowl with lines and symbols that cue age appropriate meal **frequency** and **volume** for children at different ages : 6-9 mos, 9-12 mos, 12-23 mos.



Sweetpotato Leaf Consumption

Sweetpotato leaves are nutrient-dense greens rich in vitamins A, C, some B vitamins, minerals and quality protein. Indicate that it is an under-utilised food resource that complements OFSP roots. Leaves can be harvested repeatedly, eaten fresh or dried as relishes, and integrated into household diets to improve micronutrient intakes. Promoting leaf consumption and simple local recipes increases dietary diversity, adds income opportunities (fresh/dried leaf markets), and makes the whole crop more valuable.

Sweetpotato Vines Silage Technology

Sweetpotato Vines Silage Technology transforms surplus vines into a nutritious, long-lasting livestock feed. The vines, rich in protein and energy, are chopped, wilted, mixed with maize bran, compacted and sealed in airtight polythene silo bags. After 21 days, high-quality silage is ready, and can be safely stored for up to three years. This technology boosts livestock health, enhances milk production, provides feed security during droughts, and creates an income stream from selling silage. With low inputs and simple steps, farmers can significantly improve profitability and resilience.



Chopping and wilting of sweetpotato vines in the process of making silage

Compact contact:

Norman Kwirikiza, Ph.D., OFSP Compact Coordinator, International Potato Center (CIP)
Cell: +256 782 308031 | E.mail: n.kwirikiza@cgiar.org | CIP website: www.cipotato.org



For more information, please contact:

TAAT Programme Management Unit, IITA HQ, Ibadan – Nigeria

TAAT Clearinghouse, IITA Benin, Cotonou – Benin



TAAT-Africa@cgiar.org



+229 60855188