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SWEET POTATO POST HARVEST MANUAL

Kenya Horticulture Competitiveness Project (USAID-KHCP)

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BACKGROUND

The goal of USAID-KHCP is to achieve a highly competitive horticulture industry and improve food security through increasing on-farm productivity, enhancing value-added processing, improving coordination among horticulture value-chain participants, and increasing the capacity of local organizations to provide improved technical services to smallholders. The Orange Fleshed Sweet Potato (OFSP) is a focus value chain in USAID-KHCP because of its potential to contribute to Kenyan household nutrition and income. However as well as current smallholder yields are between one-third and one fourth of their potential there is a lack of knowledge and experience in reducing postharvest losses and achieving/maintaining export quality .

Within the sweet potato value chain, USAID-KHCP is promoting new cultivars and building the capacity of partners, farmer groups and their members with a focus on good agricultural practices. The program invited Dr Chris Bishop, an expert in post-harvest handling with almost three decades of experience, to Kenya to provide advanced training in postharvest best practice for sweet potato; build technical capacity of farmers and extension agents; establish an awareness of what is required in export and how to achieve it; develop skills and expertise necessary to meet export standards for quality; and enhance technical linkages to harmonize research and best practice recommendations. This technical manual was developed in conjunction with the trainings, and highlights specific processes for post-harvest handling of export quality sweet potatoes.

I.0 AFTER HARVEST

The sweet potato is still a live product after harvest and can lose moisture, become diseased or bruised depending on what happens. Export crops have two prices; full price or no price. There are a number of operations that need to be done to ensure a well grown crop does not become a waste. All the following steps are important and not a selection.

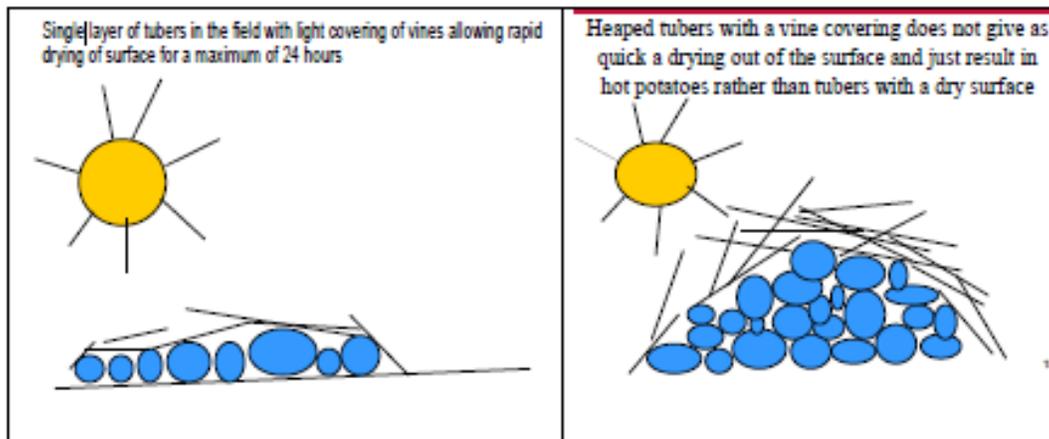
It is ABC:

- **A**void cuts in harvest,
- **B**eware of grazes, scratches in handling and washing
- **C**ut out dehydration with placing in cool storage

I.1 Curing

Cure in the field for at least 24 hours after harvest:

- After harvest the tuber may have a cut surface or skin removed, this is an ideal place for disease to enter and for moisture to be lost, so as soon as possible after harvest the tubers should be cured which means that a new skin forms on the damaged parts of the tuber, this needs airflow to just dry the surface.
- We need to seal the surface to give a better product and price, but once the surface is sealed take from the field
- Single layer of tubers in the field with light covering of vines allowing rapid drying of surface for a maximum of 24 hours





1.2 Sizing and Grading

Plastic crates (that can be washed) should be brought out to the field and the first size grading be made in the field before the tubers are brought back to the pack house, it may well be that one “size” is reject potatoes that are badly broken. The bottom of the crate should have either a small amount of potato haulm or a plastic weaved sacking material so that the hard plastic does not damage the tubers.



I.3 Cleaning sorted potatoes

Once the tubers are brought into the packhouse they are ready for washing. First the crates of tubers should be immersed in a tank of water for at least 4-5 minutes so that the soil on the surface is softened and then wash using water under pressure.



Using a hose to clean pre-soaked tubers, for large quantities more tanks are needed at the correct height to avoid back problem



Putting tubers in a tank for pre-soaking

I.4 Crate-dipping

Put in chlorine tank at a concentration of 200ppm for 10 seconds

Crate dipped for 10 seconds, note the bucket for mixing and bag of chlorine pellets – care is taken in mixing and getting the concentration correct



I.5 Final curing process

Put on racks or in half-filled clean plastic crates to dry and final cure for 1-2 days



Stack crates carefully, do not drop them onto each other



Allow clear passages



Note gaps between the columns of crates to allow airflow for drying after washing.

I.6 Pack and despatch



Selection into four sizes of what is acceptable for export



2.0 WHAT CAN GO WRONG

Symptom	Solution
Dehydration	Less time cooling and drying in the racks see "timings" below
Bruising	Harvest system – better explanation to harvesters putting into crates with "padding" in the field washing less roughly
Cuts	Harvest with further soil loosening prior to removing tubers from ground Finger nails in washing
Weevils	Soil issue

3.0 TIMING

The actual duration for the operation from harvest to packing can vary;

Hot Dry Conditions	Cool, damp conditions
Day 1 - Harvest early and cure in field, picking up same day (late)	Day 1 – Harvest and cure in field
Day 2 - Wash, disinfect and dry	Day 2 – Pick up from the field
Day 3- Pack and put in cold store for despatch	Day 3 – Wash, disinfect and dry
	Day 4 – Dry in racks or crates
	Day 5 – Pack and put in cold store