**The Key Points for Adapting to Drought**

Ben Heyward, David Askin, David and Anna Kulimbao

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1. Before we experience drought: Plant / crop diversity is important. Every year, we must plant drought reserve foods like:

* Kongkong taro Cassava (tapioca)
* Strong bananas such as 'Kalapua', 'Minju', 'Mase'
* Everlasting Bean Tupaita (Dolichos Lallab or Lablab Bean)
* Sago, 'Saksak' o 'Kai'
* African Yam & l ocal Yam varieties

1. We need to store food:
   * Dry seeds of corn, rice and beans can be stored away from rats, mice and insects.
   * Seeds must be very dry.
   * Check they are dry by sealing in a plastic bottle or bag and put out in the open. If moist, the sides of the bottle will have moisture build up.
2. We need to modify our way of planting sweet potato like this:
   * Compost our mounds or plots with clean, disease free, green material.
   * Select disease free sweet potato vines (especially ones without gall mite (lumpy/bumps on the vine and leaves, containing a tiny insect too small to see) for planting.
   * Rotate around our crops from garden plot to garden plot and to new garden sites
   * Cut and place thick layers of green mulch over the mounds especially Wild Sunflower. This will help to protect soil from heavy rain (when it comes)… stopping the soil from washing away. The mulch will reduce weeding.
   * Plant short runners, 3 leaves above the ground, 3 nodes below
   * Plant the stems flat ie. plant in an L-shape- with the main in-ground part of the cutting – flat/horizontal for best yield of even sized tubers. Information supplied by NARI.
3. When the rains return:
   * Corn, beans and greenleaf crops, 'kumu', will yield well and quickly mature.
   * Also plant pumpkins early.
   * Plant sweet potato after you harvest the corn.
   * If you plant sweet potato straight after the drought it will go to leaf with few tubers.
   * If you insist on planting kaukau straight away – and you will need to… then cut leaves for your own cooking greens and for feeding your pigs, goats or rabbits. Also planting corn with the kaukau will help to reduce the freely available Nitrogen, helping the kaukau to form tubers. (This is a common practice following drought).
4. Plant Potatoes, 'Samua', at the start of a dry period
   * Potatoes can use water deep in the soil and after harvest can keep in a dry, cool, dark place for some months and you can sell them for money for store food.
5. Hold your topsoil, 'Yuu kungum', in your gardens and make new topsoil:

The first 4 techniques help keep topsoil in the garden beds or on the mounds.

* Mulch all of your sweet potato mounds and plots
* Plant White and Kenyan white clover at the base of sweet potato mounds. These plants will need management or they too will become weeds. You may want plant the clovers in ditches that carry water. The clover can be fed to pigs, rabbits and goats/sheep. The leaves and stolons of clover in ditches will reduce soil loss.
* Between your large food plants like Cabbages and Pineapples plant small food plants like Spring Onion, Garlic, Bulb Onion, Chiles, Soya Bean, Ginger and flowers like Marigolds to cover and protect the topsoil. You can even plant some Tobacco
* Also these small plants with strong smells will keep away some garden pests.

The next 2 techniques catch the topsoil before it leaves the garden.

* Place disease free garden and bush trash in the drains to catch and retain the topsoil.
* Grow clover in the ditches.
* Plant a live fence at the bottom of each group of garden beds to hold the topsoil. An Engan food plant known as Muku may be a most appropriate crop to hold soil and provide food. This may be better than Vetiver as muku is a locally known food crop.

A well proven system is to plant a series of live fences as contour hedgerows then plant your crops in the alleys between them. This is Alley Cropping between Contour Hedgerows. Before you plant each alleyway, or as soon as the shrubs and plants in the hedgerow grow to 2.5 or 3 metres or overgrow the food plants, cut their branches and leaves then mulch or compost the crops in the alleys or in another garden bed.

1. Controlling Fire

* Fire is danger for our food crops like sweet potato, cassava, yams and taro. It threatens our trees, people, houses, home and bush animals, birds, snakes and lizards
* Fire destroys the forest watersheds of our water supplies so that water runs of quickly and the steams dry up quickly
* Fire burns away the shade that we treasure during a drought.

It will be a step forward for communities to make Agreements for Managing Fire around their the Head of their Water Supply, Trees around their place or Village and around their Houses, Schools and Churches.

1. Coping with frost

* Refer document at <http://gutpela-png-gaden.net/library/record/view/id/18>

1. Irrigate during drought

* Siphons, buckets, micro water supplies are a must have for sustainable food production during drought.
* Where farmers are fortunate to have a stream that flows during drought – tapping into this with a gravity fed water supply is a must have.

Then keep taps open! So that water - in the river, that could be used by our villagers for their gardens… is not wasted!