PROMISING VARIETIES OF SWEET POTATO AT KERAVAT

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INTRODUCTION

At Keravat, preliminary investigations are being carried out to select superior varieties of sweet potato for distribution to farmers. This involves testing different varieties against recommended varieties and selecting those which perform well.

So far, three trials have been completed. More are planned. This article reports on the promising varieties selected as a result of these trials. Definite recommendations will be made when further trials have been completed both at Keravat and at other sites in the New Guinea islands region.

THE TRIALS

Selection of promising varieties is based on the results of testing for the following characteristics:

- High and stable tuber yield
- High proportion of marketable tubers
- High acceptability (i.e. good to eat)
- High crude protein
- Good resistance to pests and diseases.

The soil in Keravat where the tests are being done is a fertile, well-drained, loamy sand derived from volcanic pumice and ash. However, much of the ground has been cropped many times over the years. Rainfall is high and seasonal. There is a definite dry season, but it is usually not severe.

VARIETIES

Most of the varieties tested so far are local to East New Britain, but a few have been introduced from other lowland provinces and overseas.

At present two varieties, K9 and K13, are recommended as a result of earlier selections. Following the three recent trials a number of other varieties have been selected. These are now being multiplied for further testing both on and off the station, to compare them with K9, K13 and other local varieties.

The varieties are K4, K10, K44, K49, K61, K126 and K130. They are all local varieties. Their characteristics are shown in Table 1.

YIELDS

Intermediate to high yields can be obtained from these selected

TABLE 1. CHARACTERISTICS OF SELECTED VARIETIES OF SWEET POTATO AT KERAVAT (RESULTS OF THREE TRIALS)

Varieties	Plant type	Leaf shape	Immature leaf colour	Mature leaf colour	Tuber skin colour	Tuber flesh colour	Av.yield (t/ha)	Crude protein (% dry wt)	Time to harvest (months)	Weevil susceptibility	Scab resistance
K9	Moderately spreading	Entire with slight lobing	Purple	Green	Pink	White or cream	23	5.6	4	Susceptible	High
K13	Spreading	Lobed	Yellow-green	Green	Pink	White	19	4.3	5-6	Susceptible	High
K4	Spreading	Entire	Yellow-green	Green	Purple	Purple	22	3.5	5-6	Susceptible	High
K10	Spreading	Lobed	Purplish green	Green	White or cream	Cream or yellow	19	3.9	5-6	Susceptible	High
K44	Spreading	Entire with slight lobing	Yellow-green	Green	White or cream	Cream or yellow	22	2.9	5-6	Susceptible	High
K49	Spreading	Deeply lobed	Purplish green	Green	Red	White or cream	19	5.9	5-6	Susceptible	High
K61*	Spreading	Entire	Yellow-green	Green	White or Cream	White	25	2.0	5-6	Susceptible	High
K126*	Spreading	Deeply lobed	Purple	Green	Pink	White	20	2.0	5-6	Susceptible	High
K130*	Spreading	Entire	Yellow-green	Green	Pink	White	17	-	5-6	Susceptible	High

* Grown in one trial only

varieties. K9 is especially interesting because it is able to produce a high yield in a shorter time. Therefore two croppings are possible per year with enough time for proper land preparation between crops.

Sweet potato varieties vary a lot in productivity. The trials have shown that yields range from 7 t/ha to 30 t/ha with different varieties (average over three crops). The overall average yield over these three trials is about 16 t/ha.

Under a subsistence system, these yields could sometimes be much lower because of a lower level of management practices. Changes in soil and climate can also cause yields to vary. Because of this, the high-yielding varieties selected are chosen also because they give stable yields (i.e. not too much difference in the yield for each crop, even if conditions are different).

Table 2 shows that most of the selected varieties are fairly stable in productivity.

K9, K4 and K49 seem to be the most stable. The yield differences recorded between different crops were 1, 3 and 4 t/ha respectively. Only K13 has shown a big variation in yield (over 10 t/ha). Varieties K61, K126 and K130 have only been tested once. Investigations are continuing. It is possible that some of these varieties will be taken off the list of promising varieties and new ones added.

ACCEPTABILITY

All varieties have a good taste, but K9, K44 and K130 are most preferred by the workers at Keravat.

CRUDE PROTEIN

The crude protein contents of the various varieties were determined, as % of dry weight,

TABLE 2. HIGHEST AND LOWEST YIELDS OF SELECTED VARIETIES RECORDED IN THE EXPERIMENTS (RESULTS OF THREE TRIALS)

Varieties	Highest yield (t/ha)	Lowest yield (t/ha)	Differences (t/ha)
K9	24	23	1
K13	25	13	12
K4	24	21	3
K10	23	17	6
K44	26	18	8
K49	23	19	4
K61*	25	-	-
K126*	21	-	-
K130*	17	-	-

* Grown in one trial only

by the Chemistry Section, D.P.I., Konedobu. The results are shown in Table 1. The percentages given are averages of a number of tubers from the same crop.

Crude protein in sweet potato varieties has been reported to range from 1.3 to 9.3%. So, the highest levels of 5.9% for K49 and 5.6% for K9 are quite high. Levels in the others are low.

PESTS AND DISEASES

Sweet potato weevil

The weevil is one of the major pests of sweet potato. It feeds on leaves, vines, roots and tubers and can be serious in drier areas where soils crack easily. Large populations are known to occur at Keravat. Losses as high as 40% have been recorded from a few varieties but generally infestation is low. All selected varieties are susceptible, but with some degree of tolerance. Most have recorded less than 10% losses.

For more details about the sweet potato weevil, see the Entomology Bulletin on pp. 90-93 of this issue.

Scab

Leaf scab on sweet potato is caused by a fungus. Most local varieties at Keravat are resistant. Usually symptoms are seen only on a few leaves on a few of the plants. More information about sweet potato leaf scab is given in the Plant Pathology Note on pp. 99-100 of the issue.