

# VEGETABLES FOR INSTITUTIONS IN THE HIGHLANDS

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## INTRODUCTION

Many institutions in the highlands grow some of their own food. These institutions include schools, corrective services institutions and health centres. One of the best types of foods for institutions to grow is vegetables, especially leafy greens. Many of the institutions in the highlands grow introduced vegetables, such as cabbage and lettuce, rather than the traditional Papua New Guinean species.

Two trials have been done at Aiyura to compare the yields of 25 species of introduced and traditional vegetables. These trials have now been completed and we can make some recommendations about which vegetables to grow at institutions. The yields and times to start and finish bearing for 10 species are given in Table 1.

There are a number of things to consider about a vegetable before deciding to grow it at an institution. These are the characteristics that a vegetable must have to be useful for an institution:

1. It must give a good yield.
2. It must be acceptable to the students, patients or prisoners.

3. It must have high nutritional value.
4. It must be easy to cultivate.
5. It must have an extended harvest period.
6. It must be easy to prepare for cooking.

Based on these factors, we can now recommend four vegetables for highlands institutions. These are pumpkin, silverbeet (Swiss chard), rungia (moku), and oenanthe (nase). Cabbage gives a good yield. But we do not think cabbage is such a good crop to grow because it is not so nutritious and is more difficult to grow.

## RECOMMENDED VEGETABLES

### Pumpkin

Pumpkin is an introduced vegetable in Papua New Guinea, but it is now widely grown by village people. It is very high yielding because it has

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two parts that can be eaten. These are the fruit and the tips. It is liked by people in the highlands. Both the tips and the fruit are nutritious, as they are rich in Vitamin A. Pumpkins are easy to grow. It can take a while before fruit are ready for harvest (about five months). But then both the fruit and the tips can be harvested for over a year.



*A pumpkin crop. Pumpkin is one of the recommended vegetables for institutions to grow in the highlands. It is high yielding and can grow on poor soil.*

The best varieties to grow are local ones which are adapted to Papua New Guinea. Varieties that are grown from seed from overseas often do not grow as well as local ones.

Spacing is not too important with pumpkins because the vines can cover the ground easily. If you have enough seed, plant the seed in a square pattern 1.5 m by 1.5 m apart. Because pumpkin grows so well in the highlands, it can smother other crops. So it should not be

planted too close to other crops, especially if the soil is very fertile. Pumpkins grow well on fertile soil, but they can also be grown on poor soil.

Because pumpkins are slow to start growing, a quick growing crop like amaranthus could be planted near the pumpkin seeds. This way you can have another crop before the pumpkins have covered up the soil.

### Silverbeet

Swiss chard is another name for silverbeet. It is an introduced vegetable that is not grown a lot in Papua New Guinea. The leaves and stems of the plant are eaten. It is high yielding, rich in Vitamin A, and the harvest period lasts for almost one year. Where it has been tried in institutions, it has been accepted.

Silverbeet can be grown from seedlings raised in a seedbox or by planting seed directly in the soil. It is easier to plant seed direct at the place where it is to be grown rather than to use seedlings. The spacing between rows is 30 to 40 centimetres. The spacing between plants in each row is 20 to 30 centimetres. Silverbeet grows best on fertile soils.

### Oenanthe

This is a traditional vegetable species that grows all through the highlands. It can also be grown in the lowlands. The leaves look a bit like the tops of carrot plants. Oenanthe has many traditional names. In the Eastern Highlands, people call it by a local pidgin name, 'nase'. Some traditional names are 'dina' (Simbu), 'takai' (Enga), 'tege' (Mendi), and 'kun' (Mount Hagen).



Oenanthe has all the properties needed for a vegetable for highlands institutions. It is high yielding. It is probably nutritious. It is well known and liked by highlanders. It is easy to grow. It is ready to harvest 14 weeks after planting and can be harvested for over a year.

Oenanthe is grown from stem cuttings. Cuttings should be planted about 50 cm apart. It prefers wet places and it grows quite well in swampy places. It can also be grown on well drained soils, but it does not grow so well. It does best on fertile soils, but still produces many leaves on poorer soils.



*Oenanthe. This traditional green is also recommended to institutions. It gives a high yield and is easy to grow.*

TABLE 1. FRESH YIELD AND TIME TO FIRST AND LAST HARVEST OF SOME VEGETABLES AT AIYURA (AVERAGE OF TWO TRIALS)

Vegetable	Part eaten	Yield over total harvest period (t/ha)	Time to first harvest (weeks)	Time to last harvest (weeks)
Pumpkin	Fruit	59.8	19	71
Pumpkin	Tips	8.4	16	74
Silverbeet	Leaves and stem	16.4	16	63
Cabbage	Head (leaves)	10.5	20	63
Oenanthe	Young leaves and stem	9.7	14	76
Rungia	Young leaves and stem	6.4	15	76
Pak choi	Leaves and stem	3.4	20	25
Climbing beans	Green bean	3.3	15	25
Aibika	Young leaves and stem	2.8	24	76
Highlands pitpit	Stem	3.1	17	69
Spinach	Leaves and stem	0.3	27	34



## Rungia

This is also a widely grown traditional vegetable in the highlands. The leaves are very dark green in colour. Some of the local names for rungia are 'moku' (Eastern Highlands pidgin), 'agunba' (Simbu), 'kiangap' (Enga), 'tani' (Mendi) and 'kenkaba' (Mount Hagen). Like oenanthe, rungia shows all of the things that are important for a vegetable for an institution. Because the leaves are a dark green colour, it is likely to be rich in iron, protein and vitamins.



*Rungia is another traditional highland green that we recommend. It is nutritious and gives a high yield when grown on good soil.*

Rungia does best in moist places but not in really wet places. Stem cuttings are used for planting. These should be planted about 40 cm apart. Rungia grows best on very fertile soil. If it is planted on poor soil it will not yield very well.

Both rungia and oenanthe can be eaten cooked or raw. Both of them make good snack foods.

## Cabbage

Cabbage gave a high yield in our trials. It is well known to highlanders. However other aspects of this crop are not so desirable, so we do not want to recommend it to institutions. It is not as nutritious as pumpkin, silverbeet, oenanthe or rungia. It is more difficult to grow. Seedlings have to be raised in a nursery. Insect pests are often a big problem with cabbage. For these reasons it is not a recommended vegetable for institutions in the highlands.

## SOIL FERTILITY

All of these vegetables grow best in fertile soil that is rich in nitrogen and organic matter. It is a good idea to fertilize the soil with organic fertilizers such as animal manure, coffee pulp or compost. A side dressing of animal manure or a nitrogen fertilizer such as urea will make the plants produce for a longer period. A side dressing is applied when the plants are growing and producing.

## CONCLUSION

Two large trials have been done at Aiyura to find out the best type of vegetable for institutions to grow in the highlands. These trials have shown that the best vegetables are pumpkin, silverbeet, oenanthe and rungia. At many institutions vegetables such as cabbage, lettuce and Chinese cabbage are grown. These are difficult to grow and are not as nutritious as the recommended species. School teachers, warders and Health Extension Officers should be encouraged to plant the recommended vegetable species.



## FURTHER READING

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