

## **Seed Multiplication of *Telfairia occidentalis* (Fluted Pumpkin); A Mechanism to Aid Large Scale Production**

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### **Abstract**

Planting of *Telfairia occidentalis* before now was done at the backyard of houses by people from the southern and eastern Nigeria, because the vegetable was not popular. But presently, the vegetable is consumed by not just every part of the country but is also a highly sorted after vegetable for export. This development has caused this vegetable to become cultivated in large commercial quantity all around the country. Due to this reason, being a crop propagated through seed, demand for seeds outweighs the supply, hence, new means has to be sorted for, in order to reduce the high cost of planting material. Using the method here, about 50% - 75% reduction on cost of planting material can be obtained.

**Keywords:** *Telfairia occidentalis*; Planting Material; Vegetable

### **Introduction**

*Telfairia occidentalis*, commonly known as fluted pumpkin is a tropical leafy vegetable from the family cucurbitaceae and is indigenous to South-Eastern Nigeria [1]. It is cultivated for both leaves and seeds as the immature seeds is a delicious and nutritious delicacy eaten by the Akwa Ibomites in Southern Nigeria. The seeds are in high demand as commercial growers in the Middle Belt zone of Nigeria source *Telferia* seeds from South-Eastern States of Nigeria at very exorbitant rate [2].

The shoots contain high level of potassium and iron and the seeds are made up of 27% crude proteins and 53% fat. As a result of its haematinic properties, its leaf extracts can be used in the treatment of anaemia. A common practice by the Southern and Eastern Nigerians is the blending of the leaves into juice, taken once in a while.

Due to its high acceptance in all regions of the Country and beyond, this vegetable which was usually cultivated as a garden vegetable is fast becoming a commercial commodity, cultivated for local market and export.

Planting of *T. occidentalis* is done using the seeds between March and May of every year depending on how soon the rain starts. Some farmers grow vegetable for seed production but most farmers grow for leaves but end the cycle by leaving some stands to produce fruit pods. Depending on weather conditions, cycle can last for about 7 - 9 months, so vegetables are harvested from first month to sixth month and staked to encourage fruiting.

Fruit pods are preserved without opening and can last for 2 - 3 months this way but once opened, seeds are prepared and planted within five days since they are viviparous. The recalcitrant nature of the seeds adds to the scarcity of the planting materials as not all seeds make it through germination.

With the high cost of planting materials, methods have been devised to multiply planting materials for yam, plantain, banana, cassava, etc. so same should be obtained for *T. occidentalis*. With the plant population of about 30,000 to 40,000/ha [3], around 600,000 to 800,000 naira is needed for just planting on a hectare of land. Hence, planting material multiplication has a big role to play in this vegetable commercial cultivation.

### Materials and Methods

#### Materials Used

- *T. occidentalis* seeds (50) for the sake of this experiment
- Saw dust
- Compost manure
- Culturing medium
- Knife
- Water.

#### Method

- The sawdust was steamed for one hour and allowed to dry under shade so as to kill germs and other unwanted microbes.
- After drying, the sawdust was mixed with the compost manure at a ratio of 25 kg:15 kg and filled in the culturing medium which was made with wood and net.
- The substrate was wetted thoroughly a day before planting.
- Planting was done a day after preparation of the culturing medium with the hilum facing down.
- A week after planting, the seeds were brought out of the substrate, having just radicle with no plumule.
- The seeds were split open into two carefully to ensure each side has roots and further cut each half into two and treated with fungicide.
- Each part was planted back into the substrate.
- One week after replanting, the seedlings sprouted and were allowed in the culturing chamber for two weeks.
- The seedlings were transplanted to the field with organic manure and watering was done morning and evening.

### Result and Discussion

S/N	No of Seeds Planted	No of Setts Gotten After Division	No of Successful Sprout	No of Successful Transplant
1	50	200	190	186

**Table 1:** Seedling success rate from various stages of experiment.

From the table above, 50 seeds were planted in the culturing chamber, after week one, they were sub divided into four each giving a total of 200 seeds and replanted. Out of the 200, 190 seedlings sprouted and were transplanted, from which 186 plants succeeded in the field.

To ascertain the Percentage (%) Success of this experiment:

$$\frac{186}{200} \times \frac{100}{1} = 93$$

There was a 93% success in the work from division into setts to actual success on the field.

So, if you need 30,000 seeds to cultivate a hectare of land, using this method, the Cost Reduction on planting material will be as follows:

If one seed gives four potential seedlings, to get 30,000 seedlings on one hectare of land,

$$\frac{30,000}{4} = 7,500$$

This means you will need a little above 7,500 seeds to get 30,000 seedlings.

To get the Percentage Cost Reduction (PCR)

$$\text{PCR} = \frac{30,000 - 7,500}{30,000} \times \frac{100}{1}$$

$$\text{PCR} = 75\%$$

This means using this method brings about 75% reduction in the cost of planting materials.

However, considering the fact that cost will be incurred in setting up the culturing chamber, substrate and compost manure, the percentage reduction can be said to be at 50%. This method by far reduces the cost on commercial farm set up and encourages commercial cultivation of *T. occidentalis*.

### Conclusion

Although this method may not be straightforward as just acquiring seeds and planting directly, but with the help of a trained agronomist, this method just as is done with other planting materials can go a long way in reducing the high cost of fluted pumpkin farm set up which is based almost on cost of planting materials. This, if it's given full attention like that of plantain, it could revolutionize the industry in a positive way.

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