

Reducing the cost of seeds in *Sambangi* (*Polianthes tuberosa*) flower Cultivation and other Innovations

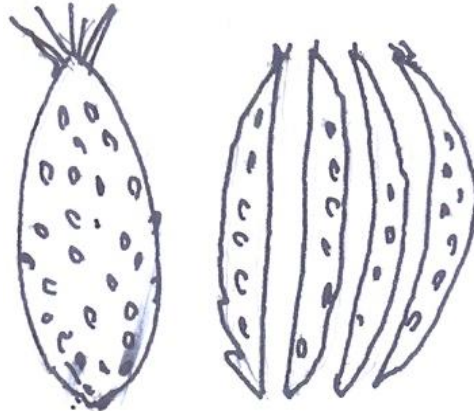


Mrs. Banu (aged 49) studied up to 8th standard and after her marriage she looks after agriculture in Gengampatti village in Thiruvannamali district. The land area is 6 acres for her family and she lives in the farm itself. She has tried flowering plants viz. jasmine, mullai, kakkattan, etc but come across less profit and harvesting difficulties of women. Women has to bend too much to harvest small sized flowers; due to this she shifted to tuberose cultivation. For the last 17 years she is cultivating *Sambangi* flower. Her husband is working as senior foreman in Neyveli Lignite Corporation. She has 3 daughters and two have been married. She developed many innovations in Sampangi cultivation simple technique in reducing the seed cost by splitting the tuber rhizome into 4 parts.

1. Reducing the cost of seeds and seed treatment method

She prefers hybrid variety *Prajwal* of tuberose as this is tall and picking of flowers is easy for women compared to local variety. For planting 1 acre 360 kg of seed materials (rhizome or bulbs) are needed. It costs Rs. 36,000 at Rs. 100 per kilo. She has to travel Hessarghatta, Bangalore IHR centre for procuring the seed material, By reducing the seed material into 90 kg the 75% of the seed materials cost is saved. Besides transport problem also reduced considerably.

The rhizome looks like edible yam *karunaikilangu* and her mother cut into few pieces mistakenly for cooking purpose. The cut pieces of rhizome then were thrown into the heap after realizing this tuber not meant for cooking but as seeding material. After one week the cut pieces become germinated in the heap but fungus attack suppressed further germination. By seeing this Mrs. Banu decided to cut into pieces instead of dibbling single bulb of rhizome. Later on she standardized the method of planting based on her experimentation.



She has watched a video in one farmers training session of SPIC in 2009 where Chinese farmers planted rhizomes of flowering plant in a unknown growth promoter solution. She thought of preparing nutritious solution on her own and clues of organic farmers practices in a farmers meeting organized by SPIC company. She collected birds excreta and diluted in water and later added cow products too.

Over the last 3 years she standardized the practice of sowing of *Sambangi* seed material. The tuber rhizome is split into 4 pieces longitudinally (whole weigh about 40 gm and bulblet 10 gm) as shown in the figure. About 3" length. The pieces are dipped in a solution made up of the following ingredients.

Cow dung – 10 kg , cow urine – 10 litre, mixed flour of cereals and pulses (ragi, bajra, blackgram, green gram or waste flour collected in flour mill) *vibuthi* 500 gm (10 kg cowdung is mixed with 1 kg ghee and dried and made into holy ash after burning), birds excreta 500 gm, fish- jaggery solution 1 lit (waste fish and jaggery placed in a vessel for on equal quantity and kept as such for few days and it will be dissolved into liquid form). Seed materials are dipped in the solution as per timing for drying shown below:

First day morning soak the seed bulb material for few minutes and dry them for one hour in the sun (6-7 a.m.) and this method is repeated in the evening (5-6 p.m.) too. Second day the same materials dipped for few minutes and dry them in sunlight for 2 hours. Repeat this method in evening too. 3rd day after dipping them in the solution drying in sun extended for 4 hours and in the 5th day drying time under sun extended for 8 hours.

Then dibble the splitted rhizomes (bulbs) in polythene bags (nursery bag) separately filled with soil and manure. Sprinkle water for 15 days in the nursery bags. After 15 days the buds will put into young leaf up to 3" height and now it is ready for planting. While planting 2" should be underground and 1" above the ground.

This method of splitted bulbs will sprout into 4 primordial stems instead of single stem as in full bulb planted. Therefore she is able to harvest 4 times higher yield. Usually a single day picking on an average weighs 15 kilo of flowers in conventional planting while this is 4 times higher i.e. 60 kg minimum. By seeing this innovation

many farmers around 150 number in Viluppuram and Cuddalore districts follow this method till date. Now Mrs Banu supplies seed material harvested from 4 year old Sampangi plants from her own farm. Bulbs harvested from plants of less than 4 years old will not give expected germination and yield she claims.

2. Standardising the Plot size in the main field for easy harvest and more Productivity :

By experience she has standardized the plot size. A plot with 6' width and 50' long will be enough for planting 4 rows with 11/2 feet spacing between the plants. One should not enter inside the plot to avoid damage of adventitious roots but by standing outside the plot, flowers of two rows on either side can be harvested easily. Irrigation is done only in channels and not in the main field bed. The channels are 1½ 'width and 1' feet depth. Water will percolate into the field bed of about 2 feet height through moisture spread and not direct watering to the crop. At every ten feet she raises marigold too to control the pests. She raises ground nut crop in the initial 6 months of planting and this practice will control nut grass weeds. It takes about 6 months duration for initial flowering in tuberose. The plant survives well for 4 years and crop rotation followed with paddy and groundnut and again tuberose.

3. Manuring the plant:

Plants fertilized with inorganic fertilizer will result in flowers which fade away with in 24 hours. But in her experience fertilized organically will withstand upto 4 days. Her method of preparation of organic liquid fertilizer is shown below:

Different types of oilcake – 1kg
Azospirillum - ½ kg
Rhizobium - ½ kg
1 bullock cart load of cow dung
poultry manure – 2 bags
Pig manure – 5kg
Horse manure – 5kg

Mix all the ingredient together well and sprinkle water daily for 4-5 days. Then this manure is mixed with ordinary compost/manure at 1:4 ratio and applied in the field. Immediate after application of manure irrigate the field.

She experimented in 10 cents of land with intensive organic manure application and to her surprise she was able to harvest 200 kilo in 4 months (normally 40 kg is expected). She realized that heavy soil feeding with organic fertilizer boost the yield while chemical fertilized lead to dropping of flowers.

4. For Rootrot disease:

Ash 100gm is diluted in 10 lit. of cow urine and sprinkled over the crop by using small bunch of neem leaves. In this solution no water is added. By the smell of the solution the root infecting organisms will become inactive. Irrigation is once in a month. If irrigated more often then it is susceptible to rootrot disease as the plant is more

sensitive to water allergy. Irrigation is done only in channels and not in the main field bed. The channels are 1½ 'width and 1' feet depth. Water will percolate into the field through moisture spread and not direct watering to the crop. Flowering starts by 6th month of planting and then it flowers throughout the year till 4 years of planting. After that grow another crop viz. paddy and repeat the cultivation of flowering *sampangi* crop. Intercultivation of groundnut will suppress the growth of nutgrass (*Korai*)

5. For Profused flowering:

Flowers weight will be more and flowers are robust during rainy or winter season. In 1kg of weight there are about 450 flowers. If more flowers are seen in given weight then we have to adhere spraying organic fertilizer viz. coconut extract mixed with butter milk. Ten coconut is ground to get the extract or coconut milk and mixed with tender coconut water ½ litre, curd 2 ½ litre or buttermilk 5 lit. are added and fermented for a week and then sprayed in one acre.

Increased Productivity and Harvests

Her method of planting increased the yield of flower 4 times. In a year 5400 kg flowers are harvested in one acre conventional planting method but in her farm she harvests not less than 22,000 kg. The flowers are highly fragrant and good market through out the year and she has been recently awarded a cash prize of Rs. 5000 by CENDECT KVK in Theni district on 6 May 2018.

Address of the farmer:

Smt. Banu Pannerselvam,
Banu Illam,
239 Kubera Nagar,
Near Arivu Thirukkovil
Vengikal
Thiruvannamalai- 606 601
Cell: 9442657618

Documented by : P.Vivekanandan,SEVA
17 July 2018.