

Drought Tolerant New Moringa Variety Developed by Mr.Alagarsamy



Mr.Alagarsamy (60) lives in Pallapatti village, Nilakottai Taluk of Dindigul district of TamilNadu. He studied upto MA and he worked in Government for few years and left his job and he is now full time farmer. He developed new variety of Moringa by crossing with local cultivars of Moringa viz. Thondamuthur, Aravakurichi, Chinnatharapuram and Pallapatti during 1980-2002 and chosen the best performing one as mother plant. He developed air layering method for vegetative propagation of plant material. .

Mr.Alagarsamy developed air layering method for producing quality planting material. Barks (1" length) of selected branch of the mother tree are removed. Panchakavya soaked coir pith is placed over this portion and covered with polythene sheet. Both the end of polythene has to be tied with thread. Root growth is seen in 20 days after layering. Then the rooted air layers are separated from the mother tree. Polythene sheet is removed and the air layers are planted in polythene bags after filling along with the organic mass. This bag contains mixture of sand, red soil and farm yard manure. These polythene bags are placed in the nursery for 20 days. After that air layers are ready for distribution for planting. Mr.Alagarsamy named this new moringa variety as "Pallapatti Alagarsamy Vellimalai Murugan (PAVM)" Moringa.

Salient Features of the New Moringa Variety

Now most of the farmers in the Dindigul region have started planting this new variety as it fetches them a better price and has improved their economic situation. This variety can also be planted in drought prone area. In these areas irrigation is given at fortnight interval initially i.e. upto 5 months and monthly interval later. Compared to other high yielding short duration moringa variety, it requires less water and withstand drought as similar to perennial moringa trees.

200 seedlings are to be planted per acre. Spacing is 20x20 feet between plants. In each pit (pit size 1.5 feet depth and width) two plants are planted. Mr. Alagarsamy has only rooted cuttings of Moringa seedlings. Propagation through seeds will result in segregation of variety and therefore it is discouraged. The trees started yielding from 5 – 6th month of planting. It yields through out the year. About 200-500 kg of matured pods can be harvested per tree per year from 2nd year onwards. Average yield is 4 tons in 2nd year and 6-7 tons from 3rd and 4th year and increase in trend is noticed in advancing years with maximum of 25 tons per acre. If organic farming practices are followed the fruits are fleshy with 2.5 feet length and 200 gm weight each. The keeping quality of harvested pods also increased upto one week. From one tree one can earn a profit of Rs.2000 per year. Harvesting is through out the year except during 3 months of rainy season in block cotton soil during October-December. Farmers in Ottanchatiram area who adopted this new variety are deriving good income and tell that they derive an income of Rs.3 lakh per acre per year in the initial years. This crop yield profusely higher in red soil area and farmers income is between Rs.3,00,000 to Rs.4,00,000; and in block cotton soil average income is about Rs. 2,00,000 or more per acre. This new variety has been tested by Tamil Nadu Agricultural University, Coimbatore during 2006 and test report is shown in Annexure.

Double planting in a single pit

Usually Moringa seedlings (air layers) are planted at about 6 meter distance. In each pit one seedling is planted. The double planting helps to use the land, soil and water in a more efficient way.

- The seedlings are planted in pits of 30 cm (1ft.) diameter and 30 cm (1ft.) depth.
- In order to conduct double planting, two adjacent pits with the same diameter and depth are dug, at about 60 cm distance to each other.
- The pits are filled with soil mixed with compost. Additionally, *azospirillum* (100 g), *phosphobacterium* (50 g) and *neemcake* (50 g) can be added.
- After grown up, the single tree is prone to damage by winds. Due to the intertwining of branches, the trees planted in a double pit not only withstand heavy wind speed better. They also lead to an increased number of pods of drumstick per acre (hectare), due to enhanced cross-pollination by wind. Pollen are able to spread better and reach other flowers, as the trees are closer.

After planting in the main field the seedlings of the perennial Moringa type start bearing fruits from 6 months onwards until 10-15 years of age.



Advantage of Double planting in a single pit

- The double air-layering method increases the number of layers in a given time per tree. Annually 60-70 rooted cuttings can be produced in the new method in a tree compared to about 40 cuttings in the conventional system. The income is enhanced by at least 60 %.
- There are 40-50 side branches in each tree and they support each other by intertwining each other. This partially prevents lodging due to heavy winds.
- The watering and manuring cost per tree is less in the double planting method, as it takes care of two trees at a time. Water and fertilizer use is more efficient. The overall cost of watering and manure is higher though, because more water and manure have to be applied to raise the saplings.

By applying this practice, more than 300 farmers gave good feedback on this technique. They procured the seedlings from the presented nursery and adopted the new technique of double seedlings in a single pit at 6 meters (20ft.) distance; in a row two adjacent pits are dug at about 60 cm spacing at every 6m distance

Dissemination of New Variety

Over the last 18 years he has so far sold more than 1,60,00,000 number of grafted seedlings of Moringa to about 40,000 farmers planted in 80,000 acres in Tamil Nadu, Andhrapradesh, Telengana, Odisha, Gujarat, Madhyapradesh, Karnataka. In Tamil Nadu larger area is planted in Dindigul, Madurai ,Theni ,Karur and Coimbatore districts. There are good enquiries and many farmers visited his field and he is expanding his nursery. There are regularly 55 women are employed in his nursery for grafting the seedlings and his nursery gives employment of 55 women labourers.

Awards and Honours

He has been conferred with the following awards as per list given below:

1. SRISTI Sanman Award by SRISTI , Ahmadabad, Gujarat (2006)
2. Golden Achiever Award, Bharti Cultural Association, Chennai (2006)
3. Organic agricultural gyaani award, Tamil pannai, Dindigul (2006)
4. CITI Bank South zone national award for micro entrepreneur, Citi group, New Delhi (2008)
5. CITI Bank South zone national award for social responsibility, Citi group, New Delhi (2008)
6. Best innovator award by Dindigul Farmer Association (2008)
7. Mahindra Samriti National Agri winner award, New Delhi (2013).
8. Confederation of Indian Industry Award 2013 at Festival of Agriculture Innovations

Advantages of Invention in Drumstick Cultivation with New Drumstick Variety

1. 20-25 tons of pod yield per acre in Moringa garden after 3 years of planting
2. Shelf life of the drumstick increased upto 1 week compared to ordinary variety it is upto 3 days.
3. Generated employment for 60 women daily for production of air layered seedlings in the nursery.
4. Withstand drought
5. Area spread is 80,000 acres by 50,000 farmers in 7 states
6. Standardized organic farming practices for drumstick with increased net income.

A Case Study with a farmer who planted New Moringa Variety

Mr.Kuppusamy of Srirangagoundanpudur village, Dharapuram Taluk, Erode District has been cultivating new moringa variety in 1 acre land procured from Mr.Alagarsamy. He is having an open well and he irrigates the moringa seedlings once in a week initially and nowadays it will be an interval of about 15 days. Now the moringa trees are 7 years old. Initially he planted 200 grafts in 1acre and spent about Rs.12,000 for procuring grafts, planting and manuring. It started yielding from 6 months onwards. Annually he has to attend inter cultural operations such as weeding, application of manure, plant protection and harvesting of pods and the total expenses in a year wis about Rs.50, 000. The harvesting operation is performed weekly once and he harvests about 4 bags each time (A bag weighs 500 kilos). Bearing of fruits is noticed throughout the year except during rainy season i.e. 3-4 months there will not be any yield. However in well drained red gravel soil bearing of fruits is seen without interruption. He disposes the pods at market and it fetches about Rs.20 - 300 per kilo depending upon the consumers demand. Annually about 20 tonnes of moringa pods can be obtained at the average of 100 kilo per tree with 200 trees in one acre. The yield of trees in hedges exceeds 200 kilos but less yield from those trees inside the field. A farmer can get a gross income of Rs.4,00,000 and after allowing Rs.80,000 (including capital expenses & depreciation) towards recurring expense a net profit will be around Rs.3.20 lakhs in one acre.

Address of Innovator:

Mr. Alagarsamy. P,
6/39, South Street,
Pallapatti,
Nilakottai Taluk,
Dindigul District
Tamil Nadu state
Mobile: 98653 45911 / 97917 74887



Mr. Alagarsamy and his new moringa variety.



Women Labourers engaged in the production of Air layers



Airlayers are planted in polythene bags for developing seedlings



Mr. Alagarsamy has been awarded as best farmer by vice chairman of Planning Commission, New Delhi in 2008.

New Drumstick Variety Test Report by Tamil Nadu Agricultural University

Tamil Nadu Agricultural University

Dr. K. Palanisami, Ph.D.,
Director.

Office of the Directorate of CARDS
Coimbatore - 641 003.

No. D/CARDS/E/SEVA/Evaluation of Innovations/2006, dt. 26.12.2006

Sir,

Sub: Evaluation of Grass roots Innovations – Details of financial commitment – Requested – reg.

Ref: i. This Office letter No. D/CARDS/E/SEVA/Evaluation of Innovations/MOU/2006, dated 7.9.2006
ii. Letter No. Nil, dated 21.08.2006 of Thiru P. Vivekanandan, SEVA, Madurai

I wish to inform that a MOU has been signed between TNAU and SEVA for undertaking evaluation of innovations at grass root levels. As per the provisions of the MOU, the financial commitment arising on the field and laboratory research and development programmes shall be met by the party concerned, who is undertaking the Research and Development works. Hence, the financial commitment for undertaking the evaluation of innovation may kindly be indicated to Thiru P. Vivekanandan, SEVA, Madurai and the amount may be collected from him. The action taken in this regard may kindly be informed to this office.

K.B
Director, CARDS.

To
The Dean, Horticultural College and Research Institute, Periyakulam.
The Dean, Agri. Engineering College and Research Institute, Kumulur with a request to send the evaluation results and financial commitments

✓ Copy to Thiru P. Vivekanandan, SEVA, Madurai.

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Tamil Nadu Agricultural University

Dr. K. Palanisami, Ph.D.,
Director.

Office of the Directorate of CARDS
Coimbatore - 641 003.

No. D/CARDS/E/SEVA/Evaluation of Innovations/2006, dt. 26.12.2006

Sir,

Sub: Evaluation of Grass roots Innovation – Report on Moringa hybrid Variety – sent

Ref: Your letter No. nil, dated 21.08.2006

The evaluation report on the new moringa hybrid developed by Thiru P. Alagarsamy, Pallapatti by the Dean, Horticultural College and Research Institute, Periyakulam is enclosed herewith. The financial commitment for evaluating the above innovation would be indicated by the Dean, Horticultural College and Research Institute, Periyakulam and hence, the amount may be paid to him at the earliest.

Encl: As above

K.B
Director, CARDS

To
✓ Thiru P. Vivekanandan, SEVA, Madurai.
Copy to the Dean, Horticultural College and Research Institute, Periyakulam

Submitted to the Dean, Horticultural College and Research Institute, Periyakulam

Report on the new hybrid moringa variety 'PAVM' developed by Thiru. P. Alagarsamy, 6/53 Pallapatti – 624 233 Nilakottai, Dindigul District

The following observations were made on the claim of new moringa variety PAVM developed by Thiru. P. Alagarsamy 6/53, Pallapatti - 624 233, Nilakottai, Dindigul district after visiting his field on 26.08.2006. Thiru. P. Alagarsamy said that the new hybrid moringa variety was developed by hybridizing perennial moringa types collected from Coimbatore, Pallapatti, Aravakurichi, Usilampatti and the evaluation of resultant hybrids since 1998. The best hybrid is named as 'PAVM' hybrid moringa and mass propagated vegetatively through air layering.

On the day of visit, only three trees which were allowed for seed for medicinal use alone had fruits numbering 150. All the other trees are being used for the production of air layers. The fruit length, girth, no. of seeds and individual fruit weight were 58.6 cm, 5.82 cm, 22.4 and 130 g respectively. The women labourers are engaged for the production as well as maintenance of air layers in the nursery.

His claim of bearing throughout the year, 2m length fruits, 500-1000 kg per tree yield, drought tolerance, fruit quality and premium price offered in market needs further investigation with standard check varieties.

Similarly the beneficial effects of organic liquid manure, root stimulant for air layering have to be investigated further. He was report to be interviewed by SUN TV and JAYA TV. He has shown the xerox copies of his work published in 'Thamilaga Vivasayi Ulagam' October 2005, 61-64, November 2005, 71-74, December 2005, 9-10, Velanmai, April – June, 6-8, Thai Manne Vanakkam, November 2005, 29-30, Dinamani date Nil.

He has given three addresses of farmers who cultivate his moringa variety.

1. Thiru. Samilamm Ganesan
Kosavpatty, Thangachiamma Patty (Via),
Oddanchairam,
Mobile: 9842257376.
2. Thiru. P.S. Sadyappan,
Odaipatti, Ambilikkal (Via),
Oddanchairam,
Mobile: 9442915755.
3. Thiru. Natudurai,
Porulur (Palani Area),
Mobile: 9843770521.

Thiru. P. Alagarsamy's systematic efforts to promote perennial moringa cultivation and his bioformulations to promote organic farming are commendable.

P. Alagarsamy
Professor and Head
Department of Vegetable Crops
Horti. College and Res. Institute,
Periyakulam East – 625 604.

FARMER'S NOTEBOOK

A farmer's experimentation leads to a highly popular drumstick variety

The farmer has earned about Rs. 6 lakhs in a year from his nursery

M.J. PRABU

In agriculture, personal experience and an inquisitive mind are two known ingredients for success.

Often, we come across reports of some farmer developing a low cost invention which becomes popular. Mr. Alagarsamy in Dindigul district Tamil Nadu has developed a high yielding moringa (drumstick) variety named PAVM which yields for nearly 8-9 months a year, says Mr. P. Vivekanandan, Executive Director, Sustainable Agriculture and Environmental Voluntary Action (SEVA), Vintpatha, Madurai.



PATHBREAKING: The farmer Mr. Alagarsamy in his drumstick farm at Dindigul in Tamil Nadu. PHOTO: SPECIAL ARRANGEMENT

All praise

The variety has become such an instant hit with hundreds of farmers in Dindigul, Coimbatore and Erode areas that even scientists from the Horticultural College and Research Institute (under the Tamil Nadu Agriculture University), Periyakulam are all praise for Mr. Alagarsamy's path breaking finding.

"I am basically a post-graduate in arts and my 10 acres of land, unemployment and an inquisitive mind led me to develop the new variety," says Mr. Alagarsamy.

Through a procedure called air layering, selected branches from the main tree are cut and soaked in Panchagavya solution and coir pith placed over them.

A polythene sheet is spread over them and secured with a thread. In about 3 weeks the grafts grow new roots after which they are separated from the main tree. The layers are then planted in polythene bags after removing the polythene sheet. The polythene bags are

placed in the nursery for about 20 days after which they can be planted in the main field.

Less water requirement

Compared to other high yielding varieties, PAVM requires less water and starts yielding from the 5th or 6th month after planting. "About 150-200 kg of matured pods can be harvested from a single tree from the second year of planting," says Mr. Alagarsamy.

If organic practices are followed, the fruits become fleshy and weigh about 200 gm each and stay fresh for nearly a week.

Mr. Rajendran, a farmer from Dindigul who has planted this variety says:

"I got an income of rupees one lakh from my one acre in a year as this variety yields substantially in my red soil, is resistant to diseases, and responds well to organic practices."

Another farmer Mr. Kuppusamy from Erode district, Tamil Nadu says:

"Initially I planted about 200 grafts in my one acre and spent about Rs.50,000 (for one year) for labour, seedling and manures. The trees came to harvest from the sixth month and the harvesting is done once a week. At present, I am harvesting about four bags a week (a bag weighs 500 kilos). The pods are sold at the rate of Rs.5 to Rs.20 in the local market."

Harvesting tonnage

"Annually about 20 tonnes of moringa pods can be harvested (at an average of 100 kilos per tree with 200 trees in an acre) from this variety," says Mr. Alagarsamy.

In some fields the trees planted along the hedges recorded more yield than those planted inside the field. A farmer can easily get a gross income of Rs. 2 lakh a year and after deducting

Rs.75,000 as expenses, a net profit of Rs.1.25 lakhs can be obtained.

Mr. Alagarsamy so far sold more than 10 lakh graded seedlings to nearly 3,000 farmers in Dindigul, Madurai and Coimbatore districts. Nearly 6,000 acres in these three districts come under this variety.

Annual profit

In a year about 2.5 lakh seedlings are produced from his nursery which fetches him a profit of Rs. 6 lakh a year. Mr. Alagarsamy has been conferred a host of awards from several organisations for his effort.

Readers can contact Mr. P. Alagarsamy at No.6/509, south street, Pallapatti, Nilakottai Taluk, Dindigul, Tamil Nadu, mobile: 98603 40911 / 97917 24887 and Mr. P. Vivekanandan, email: vivek@seva-tan.org.in, phone: 0452-2380082 and 2380943.

...hanously. Why? ...ocular (eye) phe... a LCD screen in... ch can sense the... vision. The basic... the three dimen... ered by the scen... e projections. The... n of scenes to the... k. The eye move... yoked cart or the... e independently... s moving the eye... from childhood... fixation of the... he brain, in the... r portion of the... ation... are poor... of stereoscopic... ysis of muscles... a double scene... and cannot in... otoscopic vision... o close one eye... rnal to see two... ded to that the... l be bright, and... em since exact... nes will not be... two visions at a... ents to project... them through... brain cerebral... NAGARAJAN... Neurosciences... sity, Chennai... herence Center... technology).



Krishi Samrat Samman

National Award Winner (Male - More than 20 acres)

Sbri. P. Azhagar

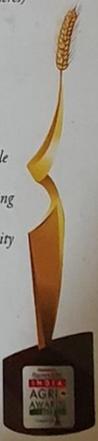
This award is being conferred on him for breaking established stereotype and being

instrumental in driving sustainable & scalable

innovative farming technologies, thereby making

a positive impact on the agricultural community

and enabling them to RISE.



Mr. Anand Mahindra
Chairman & Managing Director,
Mahindra & Mahindra Ltd.