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Application of growth hormones and nutrients to induce flowering and fruiting in Appe Midi at Govinkovi, Honnali Taluk



Introduction

Mango is one of the popular fruits in the world due to its attractive color, delicious taste and excellent nutritional properties. Known for its sweet fragrance and flavor, the mango has delighted the senses for more than 4000 years. Although mangoes in India are grown in a number of places, there is a particular variety called Appe midi mango that is used for pickles and found exclusively in the Western Ghats. It best grows naturally in the riverine areas of Aghanashini river in Uttara Kannada. 'Midi' means tender in Kannada language and appe midi is known to be the king of the tender mango varieties and is perfect for pickles. While the demand has increased, the number of this mango tree has declined due to constant neglect and destruction. The Karnataka Forest Department undertook the task of protecting the species by established plots from the grafts of original trees raised at Sirsi Research Nursery and established Appe midi trial plots in 8 research stations in late nineties in the state.

But barring one or two stations, the trees have totally failed to bear flower / fruits. Hence, it was decided in one of my field trip in Shivamogga to try induce flowering by every method known in this regard at the Govinkovi Research Plot. Here also these plants have failed to yield even after 18 years.

With an objective of inducing flowering / fruiting, an experiment was designed by using known growth hormones and nutrients to the mango trial plot (1998) at Govinkovi Research Station in Honnali Taluk, Shimoga. Lot of research papers from the internet were studied along with consultation with Horticulture Department.

Methodology

The study was conducted in Govinkovi Research Plot in Honnali taluk, Shivamogga. The area receives low rain fall. In 1998 total 90 appe midi plants were planted, now there are 71 plants surviving and these 71 trees are used for the study. According to records and local watcher who has been there since the beginning, the trees have never yielded fruits and there has been hardly any flowering. There are 9 rows and each row contain 6 to 9 plant and each row is considered for one treatment. This was carried out in January, 2016 and regular observation were made till May, 2016.

Results and Discussion

The experiment was started during January 2016 which consisted of six foliar applications, two soil application and one control. After we have given treatment the following observation are made.

| Treatment Name | No. of Trees in each Treatment | Observations recorded | No. of Trees Flowered | No. of Trees Fruited | Inference | | |
|---|--------------------------------|-----------------------|-----------------------|----------------------|-----------|----------|----------|
| | | | | | Low | Medium | High |
| T1-Control (No Treatment) | 6 | Nil | Nil | Nil | - | - | - |
| T2-Foliar application of KNO ₃ 1/2kg/50 ltr. | 8 | Flowering | 4 | 1 | - | Medium | - |
| T3-Foliar application of NAA@50ppm | 6 | Flowering | 2 | 1 | Low | - | - |
| T4-Foliar application of PBZ@400ppm | 9 | Flowering | 7 | 6 | - | - | High |
| T5-Foliar application of Ethrel@200ppm | 8 | Flowering | 6 | 3 | - | - | High |
| T6-Foliar application of PBZ@500ppm | 8 | Flowering | 4 | 3 | - | Medium | - |
| T7-Foliar application of PBZ@600ppm | 9 | Flowering | 4 | 1 | - | Medium | - |
| T8-Soil application of FYM@25kg/tree | 8 | Flowering | 4 | 2 | - | Medium | - |
| T9-Soil application of Saw dust @3kg /tree | 9 | Flowering | 6 | 4 | - | - | High |
| Total | 71 | - | 37 | 21 | - | - | - |

Conclusion

From the data on effect of different treatments under experiment it is evident that T4-Foliar application of PBZ @400ppm (out of 9 trees 7 trees flowered and in 6 fruiting occurred) has yielded good results. Shashi K.S., *et al.* (2011) also reported PBZ 500ppm given good result in mango. After T-4, other treatments like T9-Soil application of saw dust @3kg/tree and T6-Foliar application of PBZ @500ppm here also given good results. The flowering was very encouraging but quantity of fruiting was less. Mango trees (other variety) in the plot also had less fruiting last year after profuse flowering. Never the less it was heartening to see the trees fruit & flower for the first time and the person satisfied the most appeared to be the watcher who was around since the beginning of this plantation. It is to be noted that control (No treatment) did not result in any flowering / fruiting despite watering.

This experiment was carried out in all seriousness by I.M. Nagaraj, ACF, Research Sub Division,

Shivamogga and Vijaykumar Kalappanavar, RFO, Research, Shivamogga. We intend to repeat the experiment this season also. We acknowledge the help from Horticulture Department in the studies.

References

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2. Y. N. Tandel and N. L. Patel (2011). Effect of chemicals on growth, yield and economics of mango (*Mangifera indica* L.) *Karnataka Journal of Agricultural Sciences*, 24 (3):(362 – 365).
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Note on use of Imported Timbers in Bangalore

A Survey has been conducted to study the use of imported timbers in Bangalore City for building construction and other purpose. Selected leading Saw mills were visited in this study. During survey it was surprising to note that among local timber only the timber of *Hevea brasilensis* (Rubber) is being largely used for furniture and other works. Main reason for not using other local timber is the non-availability as the demand of these timbers is very high and supply is less. To meet the ever increasing demand, timber is being imported by saw mills in Bangalore. The list of imported timber with source country is given below.

| SI. No. | Species | Country from which imported |
|---------|---|--|
| 1 | <i>Tectona grandis</i> (Teak) | African countries a. Ghana b. Equador c. Nigeria d. Sudan e. Costa Rica |
| 2 | <i>Pterocarpus marsupium</i> (Honne) | Indonesia |
| 3 | <i>Shorea robusta</i> (Saal) | Malaysia |
| 4 | <i>Xylio xylocarpa</i> (irulu, pinkadu) | Cambodia |
| 5 | <i>Pinus glabra</i> (Pine) | U.S.A. |
| 6 | <i>Fagus sylvatica</i> (Beach wood) | Europe |
| 7 | <i>Shorea acuminata</i> (Red meranti) | Malaysia, Indonesia |
| 8 | <i>Juglans nigra</i> (American walnut) | U.S.A. |
| 9 | <i>Fraxinus</i> (White ash) | Europe |
| 10 | <i>Acer pseudoplatanus</i> (Maple/Sycamore) | Europe |
| 11 | <i>Milletia laurentii</i> (Wenge) | Africa |
| 12 | <i>Entandrophragma cylindricum</i> (Sapeli) | Africa |
| 13 | <i>Quercus petraea</i> (White oak) | U.S.A. and Europe |

Timber is imported mainly through Tuticorn, Chennai, Bombay and Mangalore ports.

During this survey an attempt was made to study the end usage of these timber, their present market rate, the equivalence (approximately) to the Indian timber in terms of physical properties. The details are provided in Table 1.

Table 1 – Current market rate and usage of imported timber

| Sl. No. | Species | Market Rate per (cft) | Usage | Remark |
|---------|---|-----------------------|---|---|
| 1 | <i>Tectona grandis</i> (Teak) | Rs. 2800 to 6000 | Doors, Windows Carving, Furniture etc. | Alternate to local Teak |
| 2 | <i>Pterocarpus marsupium</i> (Honne) | Rs. 1000 to 1500 | Doors, Shutters, Frames | Alternate to local Honne |
| 3 | <i>Shorea robusta</i> (Saal) | Rs. 900 to 1500 | Door and Window Frames | Alternate to local Nandi |
| 4 | <i>Xylia xylocarpa</i> (irulu, pinkadu, Jambe) | Rs. 1000 to 1500 | Frames | Alternate to Mathi, Jambe more used in coastal area |
| 5 | <i>Pinus glabra</i> (Pine) | Rs. 650 to 950 | Packing cases, Paneling, cabin construction, Ceiling etc. | Alternate to Ala, Arali & Hebbevu |
| 6 | <i>Fagus sylvatica</i> (Beach wood) | Rs. 1050 to 1550 | Framing, partitions, cabinet making etc., | Alternate to white cedar (Devadar) |
| 7 | <i>Shorea acuminata</i> (Red meranti) | Rs. 950 to 1250 | Beams, Door, Windows, Flooring Furniture etc. | Alternate to Honne |
| 8 | <i>Juglans nigra</i> (American walnut) | Rs. 3500 | Veneer, Fine furniture paneling, Fixtures Rifle stock, Gun stock etc. | – |
| 9 | <i>Fraxinus</i> (White ash) | Rs. 1650 | Boat building, Cabinet making tables, Furniture components etc. | – |
| 10 | <i>Acer pseudoplatanus</i> (Maple/Sycamore) | Rs. 1650 | Furniture, organ pipes, Sports, Flooring etc. | Alternate to white cedar (Devadar) |
| 11 | <i>Milletia laurentii</i> (Wenge) | Rs. 3800 | High end furniture, Carvings, Living room suites, Kitchen cabinets etc. | Alternate to Rosewood, Mathi |
| 12 | <i>Entandrophragma cylindricum</i> (Sapeli) | Rs. 1950 to 2350 | Decorative veneer, Cabinet making, Domestic flooring, Office furniture, paneling etc. | Alternate to Mahogany |
| 13 | <i>Quercus petraea</i> (White oak) | Rs. 2650 | Framing, Flooring, Furniture, TV cabinet etc. | – |

This survey has been carried out by S.T. Muralidhara, ACF, Forest Utilisation, Bengaluru and K.T. Manjunatha, RFO, Forest Utilisation, Bengaluru.

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