

Methods to be Adopted to Maximise Production and Development of Improved Strains and Plant Materials *

By

P. V. RAJAPPAN, B.Sc., (Ag.), D.I.H.
Agricultural Research Station, Taliparamba

The fruit breeder wants maximum yield, minimum disease, drought and frost resistance, maximum keeping quality for his produce, the aim being to get the maximum price. These can be attained only by producing improved strains and plant materials and the production of the improved strains is to be maximised so that these can be distributed throughout the state. How to achieve this object?

Introduction of plants: The introduction of plants and trials to acclimatise them is one of the old methods of development of improved strains and types. Once an improved strain or variety gets acclimatised this can be multiplied in large numbers and distributed as in the case of Malta lemon and Singapore jack.

Selection of bud sport: The wide variations of forms that is existing at this time is due to bud sports establishing in the orchard with and without the knowledge of the owner. Some bud sports may have desirable variations and is worthy of perpetuation and multiplication. Two suspected bud mutants in Rubio and October purple have been isolated at Coonoor and seven bud sports of sweet orange are undergoing progeny tests at Kodur.

Selection from chance seedlings: All the so called good varieties of fruit trees like Mundappa, Allumpur baneshan etc., have at one time or other originated as a chance seedling and due to their desirable qualities were multiplied and have now established in all places. The seedling selection of K. O. 2 and K. O. 6 are worth mentioning in this direction. Likewise the selection of good chance seedlings have to be continued and those showing desirable characters should be multiplied.

Hybridisation: This aspect of fruit development has also received attention in our State. The desirable crosses between Himayuddin X Swarnareka and Himayuddin X Neelum combining the desirable characters of each other are worth mentioning in this direction. The coconut hybridisation work and distribution of hybrid seed nuts that is now in progress at Nileshwar are work on these lines.

Other methods: Other methods like, X-ray, heat treatment, treatment by chemicals like colchicine etc., are also worth while trying

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for producing new types of desirable characters though the possibility of this method of approach is likely to be slow and doubtful.

Root stocks : That root stocks also play an important role in the development of fruit wealth is known for some time past. The vigour exhibited by polyembryonic stocks as well as the role played by the "Men Stock" in re-establishing the apple industry in South India is too well known to need emphasis..

After producing an improved strain by any or all of the methods shown above, the next problem that faces the breeder is how to perpetuate the same as well as multiply them for distribution to the public at large.

Maximisation of the production of improved strains: For the plants that respond to vegetative propagation by cutting it is easy to propagate the same by this simple method of operation. But with obstinate cases like mango, inarching or side-grafting is the only way open for multiplication. Among the same species great difference is noticed in the method of vegetative propagation to which each member adapts itself. Malta lemon can be easily raised by cuttings and the other members of the group show more or less adaptability to this method of propagation. Mulberry, pomegranate, fig, and grape vine give high percentage of rooting when raised as cuttings. Guava responds to layering favourably and jack and mango refuses to lend themselves to this method of propagation.

Trials with Seradix B, at Coonoor, has revealed that this increases the percentage of rooting in Cape goosberry. Different kinds of treating the cuttings like oval cut at base, slanting cut at base and other modifications have been found to give increase in the percentage of cuttings rooted at least in the stock pear at Coonoor. In Malta lemon 6" cuttings were found to give as high a percentage of rooting as 12" cuttings at the A. R. S., Taliparamba. Thus the working out of the minimum length of cuttings required to get the maximum percentage of plants in each variety may help to economise scion material as well as increasing the number of plants that can be propagated from one tree.

The percentage of rooting was even found to be controlled by the month of planting and even in the particular month certain periods were found to be more conducive for better rooting than the others. To cite an instance the last week of September was found to be more conducive for rooting than the other weeks of the same month with pear cuttings at Coonoor.

Similarly the best season for the propagational activities also varies from plant to plant. In fig a maximum success of 50% was obtained

during January—February and August at Coonoor. For top-working by side-grafting the months of June to September was found to be more favourable under West Coast conditions.

Difference in size and age of stock also influence the "take" in jack and it is found that thin "stock" gives a higher percentage of success than customary pencil thickness stock.

The above reveals the wide range of adaptability or otherwise shown by different plants regarding the vegetative propagation. The method which gives the highest percentage of success is to be worked out and standardised and disseminated to the public.

Considering the great demand for plants the production is limited and has reached almost the breaking point due to the limited resources available. The opening of Model Orchard cum nursery centres in many places may fill up this gap to a certain extent though not to the satiating point.

Licencing private nursery trade: This should be done to regulate the quality of plant material so that the extra demand for plants may be diverted to the private trade to balance the demand and supply. As it is, it is not safe to divert to any private nursery as no work has been done to standardise their product.

What the public can do: The public can also take a good part in these activities. They may point out trees of desirable characters to the departmental staff for perpetuating the clones for future multiplication and distribution.

Want of skilled field staff: Some of the vegetative propagational methods are of recent origin and this accounts for the poor development of this horticultural aspect of agriculture. To give fillip to this it is necessary to impart knowledge to the ryots in the villages who are actual cultivators by means of demonstration as well as through the medium of schools and vernacular papers and films, if possible.