

# Urgency of Seed Orchard Establishment in the Philippines

by

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## INTRODUCTION

The quality of logs, timber, plywood and veneer, including some important wood products is largely dependent upon the kind of trees from which the raw materials are derived. Basically a sound, healthy, straight-boled, and fast-growing tree is called for to satisfy the need for dependable and high-quality wood products. Genetical problem of this nature confronting the wood-users could be answered quantitatively and qualitatively through the establishment of clonal seed orchards at the various forest regions. Attainment of the pre-determined objectives would lead to the creation of a certified seed production center and a nucleus of forest tree improvement research in this country.

## DISCUSSION

One of the ever-burning desires of Filipino foresters is the creation of a greener and more productive forest to yield the greatest permanent service to mankind. However, to put back the green mantle of forest vegetation on approximately five million hectares is problematical. A variety of technical problems faces every forest builder. Meanwhile it is regretful to accept that most people believe in the concept that the country's forest heritage is still inexhaustible. As a consequence, unscrupulous forest users cut parcel by parcel the virgin forests and sometimes the man-made plantations that are ultimately rendered non-profitable agricultural lands. Critical watershed areas devoid

of forest vegetation are now sporadically situated all over the country's high mountains.

Artificial reforestation is tremendously an expensive investment that calls for a fruitful economic return. Its success is largely dependent upon proper regard for tree physiology, forest ecology, genetics and tree breeding. Laboriously it commences with seed collection followed by planting stock production and finally forest planting. Multi-million pesos worth of high-quality seeds are necessarily needed year after year for several decades to bring forth promising seedlings to reforest vast tracts of non-vegetated forest lands. At this juncture, it is noteworthy to point out that seeds of genetic superiority to raise seedlings of unquestionable quality are seriously wanting. The failure of tree planting as evidenced by the poor quality of timber stocks existing in some of the forest plantations may be partly attributed to the lack of high-quality seeds possessing genetic identity and purity. Momentarily it is felt that the wood-using industries are gradually endangered due to the dearth of high-quality timber from both the virgin and man-made forests.

Seed collection from a nearby plantation or forest stand with fruit-laden, poor-looking, dwarf trees is unquestionably cheap and practical but it is genetically inauspicious and risky. This has been a customary practice that must be corrected as early as possible. Many juvenile trees in some of the forest plantations have degraded tremendously in quality as a result of using seeds of unknown origin. This is manifested by the

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performance of some trees that are often dwarf, crooked, or mongrel-looking individuals. Such problem is incidentally genetical that remedial measures are often unsatisfactory. Replacement of the stock is very laborious and subsequently calls for an additional expense. Silvically replacement with seedlings is not advisable because they will suffer from suppression due to unending competition against the older planting stock for light and other growth factors.

To assess the current problem the succeeding discussions would show that it is still not very late to put up a genetic solution. Inestimable number of genetically superior trees are yet existing in the virgin forest or luxuriantly growing in the man-made plantations. Seeds of superior qualities are still collectible to supply the present reforestation needs. But just imagine how inconvenient it is to locate and collect seeds from the inherently superior trees at their natural locations! Most of them are found in the heart of the forest and are relatively inaccessible! It is also an arduous task to gather seeds especially on gigantic towering trees. Besides, even those phenotypically superior trees can not be completely ascertained whether or not they are genetically superior.

Determination and accumulation of superior trees is facilitated through the application of the different methods of vegetative propagation followed by a series of progeny testing. Many studies have already indicated the feasibility of propagating most of the broad-leaved commercial species either by cutting, marcotting, or grafting. As a technical aid these techniques could be availed of to reproduce the plus trees without disturbing or altering their genetic characteristics. The urgency of this activity is felt as the inherently superior trees are now fast disappearing. It is true that it would take another half-a-century again to produce a good crop of elite trees from seedling to maturity. This justifies the accumulation and

preservation of the existing desirable trees in a well-designed clonal seed orchard before they are indiscriminately cut down by loggers. The establishment of regional seed orchards makes it easier to propagate these research materials at the earliest possible time.

The value of genetically superior seed could not be over-emphasized but it can be said that a pound of investment with it means a ton of harvest tomorrow. When the acme of seed production would have been reached in a well-established seed orchard, the financial burden of forest planting would be economically reduced to an insignificant minimum. The dream of hybrid production would also be realized. In the course of time, fast-growing and high-quality timber crop would be produced to answer the scarcity problem of the wood-using industries.

Activities in the field of forest genetics and tree breeding in this country are still wanting. It is lamentable to note that not even a single tree hybrid could be brought to light yet for Filipino foresters to be proud of. Tree selection and hybridization methods of crop improvement are theoretically of multiple importance but most tree-growers are still ignorant of them. To assess the present situation it is necessary to ask the question as to how far has the practice of forest genetics and tree breeding gone in the Philippines? True is the fact that many studies have already been conducted on the sexual and asexual propagation of several species, but has there been an additional stride made beyond this phase of research? Subsequently, has there been a concerted effort to preserve the elite trees that possess exemplary characteristics, such as the straight-boled molave and narra or the disease-resistant benguet pine?

To exemplify further the role of seed orchard in genetic research, it is wiser to mention the unsolved benguet pine disease that is becoming disastrously rampant in Abra. Planting promising seedlings from re-

sistant mother trees would gradually eliminate the disease. Efforts should therefore be exerted on the preservation of the surviving trees in the infected areas. A collection of benguet pine graftage should be maintained in a well-managed seed orchard as future source of genetically superior seeds and breeding stocks to produce hybrids that are resistant to the disease. Subsequently genetic investigations could be conducted to critically evaluate their economic importance.

A problem of today is in no way a perennial problem if proper action is promptly undertaken. The foresters who are supposed to undertake this activity should not cheat the generation of foresters ahead by missing such an important research opportunity. Literature concerning genetic knowledge with particular reference to tropical trees is very scanty. It has to be enriched especially in this country where the finest hardwoods are found. The realization of this dream would

be initiated and stimulated through the establishment of seed orchards for various species, such as the pines, dipterocarps, or other reforestation crops at strategically situated places.

#### CONCLUSION

A seed orchard is considered as the best technical aid not only for reforestation or commercial purposes but also for the advancement of science particularly forest genetics. Its establishment would insure greater scale of certified seed production to meet the seed demand of tropical countries. Modern reforestation techniques are geared towards the use of seeds possessing genetic superiority to beget seedlings that would not merely serve as forest cover but primarily as potential source of commercially high-yielding timber trees. Based on genetic principles, forest planting is ultimately aimed at meeting the increasing demand of raw materials for the industrialization of the wood-using industries.

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#### SUMMARY

The study was conducted to determine the possibility of utilizing the bark as an aid in the identification of standing trees. It was found out that similarities in the species occurred in the characters of their outer bark. However, there are distinctions between them as exhibited by the variance in characters of the inner bark.

The construction of a workable key to the species indicates that the identification of standing trees by the mere use of the bark is possible.

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