4. Select mature fruits and soak in water for 24 hours to soften the covering. Manually macerate them to remove the fleshy part and impurities. Submerge seeds in a pail of water and collect only the seeds that remained at the bottom of the container for propagation. Floating seeds are usually empty and should be thrown away.
5. Sow seeds in seed boxes (width and length depend on available nursery area and placed 2 feet above the ground) filled with sterilized mixture of 1:1:1 garden soil, sand, and compost as germination media. To sterilize germination media, place mixture in a metal drum cut in half lengthwise for 5 hours, intermittently mix and sprinkle with water to avoid burning the medium. Sterilization of medium prevents attack of damping off diseases on the germinants. Seed boxes should be watered twice a day to keep the media wet in order to favor growth of germinants.
6. While waiting for the germinants, sterilized potting medium must be prepared for transplanting. The recommended medium is a combination of 1:2:7 chicken manure, rice hull, and garden soil. Sterilize mixture for 5 hours. Protect germinants from adverse conditions such as direct sunlight and heavy rains by using plastic sheets as roofing material.
7. Once the first leaf has emerged from the germinants (approximately 45 days after sowing), prick and transfer the germinants individually from the seed boxes into 4” x 6” black polyethylene bags.
8. Every afternoon, water the seedlings until soil in bag is damp. Insecticides, and fungicides can be applied when necessary. Supplemental fertilizers (potting media) may be applied, as appropriately determined from soil analysis.
9. When the seedlings are 10 cm tall, spacing must be adjusted to 10 cm between bags. To harden the seedlings, gradually expose them to sunlight (removal of nylon nets where one layer is removed after 2 months, then the next layer after 2 weeks, the next layer another week and then lastly is the complete removal of nets) and reduce watering. After this process, the seedlings are ready for outplanting. The recommended spacing in the field is 3 m x 3 m.

How much initial investment* is needed?

Profits from malapapaya seedling production may differ from one place to another but the enterprise is generally profitable based on the results of the completed Science and Technology-based Farm (STBF) project. In fact, some farmers already adopted the technology.

A 150-m^2 nursery will be a sufficient area to produce 15,000 seedlings for 4–6 months. This period would involve seed germination up to marketing or field planting. Seedlings will be sold at ₱7–8/seedling.

The initial capital investment and income* for nursery production are:

Development Cost (Total initial investment)		₱ 153,000
Production Cost Estimates:		
Production cost per seedling		28,350
Raw materials	0.51	
Labor cost	0.20	
Depreciation cost	1.19	
Total Expenditure/Seedling	1.89	
Gross Income (15,000 seedlings x ₱7/seedling)		105,000
Net Income/Year (Gross income – operating expenses)		76,650
Return of Investment (ROI)		0.50098

* Based on preliminary report submitted by Southern Luzon State University-Farmers’ Information and Technology Services (SLSU - FITS) Manager.

Before investing on the enterprise, we advise that you visit an actual farm near you.

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Invest in Malapapaya Production

Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD)
Department of Science and Technology

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Why invest in improved quality malapapaya planting stocks production?

Malapapaya (*Polyscias nodosa*), an indigenous species growing in Laguna and Quezon has become popular nowadays because of the high demand for its manufactured products abroad especially in Japan. These products such as food trays, popsicle sticks, chopsticks, and ice cream spoons are considered environment friendly and can replace plastics, styrofoams and other non-biodegradable materials that pollute the environment.

A malapapaya processing company in Pagsanjan has a demand for about 25,000 malapapaya trees with at least 24-centimeter diameter at breast height per annum to supply its domestic market for ice cream spoons and sticks. This demand could not be met due to limited supply of good quality malapapaya timber.

Meeting this demand would require about 25 hectares planted with malapapaya at 3 m x 3 m every year. For an 8-year rotation, there should be about 225 hectares planted with good quality malapapaya trees of different ages. Unfortunately, most malapapaya timbers are naturally grown in Laguna, Quezon, and Bicol. These trees are not properly maintained nor propagated from seeds sourced from elite trees. The optimal growth, survival, and characteristics are the identified gaps from common practices that need intervention.

To optimize the growth and survival of seedlings, there is a need to ensure that only seeds from trees with desirable form, growth, and natural disease resistance are propagated. The Ecosystems Research and Development Bureau (ERDB), a research-arm of the Department of Environment and Natural Resources (DENR), has developed a protocol in producing improved quality malapapaya seedlings in 2000.

Only few malapapaya processors, tree farmers, and seedling producers realize the benefits of using or producing quality malapapaya seedlings through scientific methods. The quantity factor seems to overwhelm the more important factors of quality, effectiveness and efficiency in producing malapapaya timber.

What benefits do I get from improved quality malapapaya planting stocks production?

There are existing wood processing plants in Quezon and Laguna that use this species to manufacture the aforementioned products. The raw materials on the other hand are sourced from sporadically located natural malapapaya stands in the vicinity of these provinces.

The adaptability of malapapaya to the site conditions of Quezon and Laguna, the presence of wood processing plants in these areas that will absorb the logs from the tree farms, and the improvement of biodiversity and site vegetative cover are strong reasons why malapapaya must be given proper focus. Furthermore, the farmers who will engage in the planting and maintenance of malapapaya are expected to increase their income from ₱10,000/hectare per year from a pure coconut plantation to more than ₱100,000/hectare per year from a malapapaya-coconut farms.

Likewise, the adoption of the coconut-malapapaya agroforestry system will encourage upland farmers to plant malapapaya and other tree species which minimize timber poaching or illegal cutting in the remaining natural forests.

To cope with the demand for malapapaya wood, there is a need to optimize the growth and survival of propagated seedlings by using seeds from trees with desirable form, growth, and natural disease resistance called desirable mother trees. From these source trees, seedlings must be propagated through appropriate technology or protocol as part of the adopted S&T Intervention.

Using improved quality planting materials will result in increase in production, low mortality rate, and good quality seedlings that will produce tall trees with straight bole, pest tolerant, and serve as good seed sources.

How do I start my malapapaya planting stocks production?

Planting stocks production is done through the following:

1. Select elite trees that will be sources of seeds. An elite tree has good state of heath, straight bole form, full size, and is an abundant seeder.
2. Determine month of flowering and fruiting of the trees (December–January in Laguna and Quezon) to know the natural calendar of the trees necessary for seed collection.
3. Collect mature (purple to dark purple in color) fruits by climbing the trees or by using poles. Place fine mesh nylon nets with the radius of 5 meters around the tree to catch falling fruits. Do not pick fruits from the ground because these could be sources of diseases.