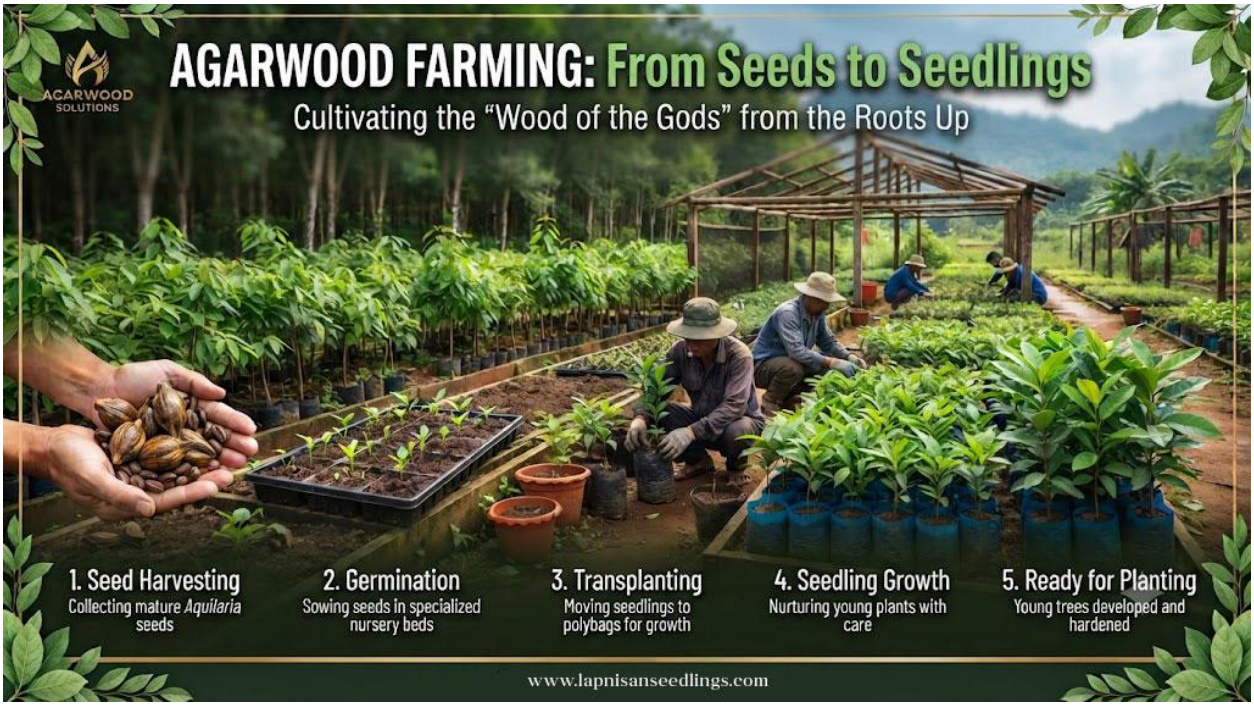
Agarwood Farming: From Seeds to Seedlings

A Comprehensive Practical Guide to Propagation, Nursery Management, and Early Development



Introduction to the "Wood of the Gods"

Agarwood, famously known as *Oud*, *Gaharu*, or Aloeswood, is one of the most valuable natural raw materials in the world. Derived primarily from tree species belonging to the genus ***Aquilaria*** (such as *Aquilaria malaccensis*, *Aquilaria crassna*, and *Aquilaria sinensis*), this fragrant resin has driven a multi-billion dollar global industry centered around fine perfumery, traditional medicine, and incense.

Because wild *Aquilaria* populations have been heavily overexploited and are now protected under CITES, **commercial plantation farming** has become essential. A successful agarwood enterprise begins long before resin induction—it starts with the seed.

Chapter 1: Selecting the Right Species and Stock

Before sowing a single seed, you must choose the appropriate species for your region and commercial goals.

1. Common Commercial Species

- ***Aquilaria malaccensis*:** Native to Southeast Asia and India; widely considered the gold standard for high-yield, high-quality resin production.
- ***Aquilaria crassna*:** Prominent in the Greater Mekong region (Thailand, Vietnam, Cambodia); grows aggressively and adapts well to varied plantation conditions.
- ***Aquilaria sinensis*:** Native to southern China; well-suited for subtropical to tropical conditions.

2. Sourcing High-Quality Seeds

Agarwood seeds have a notoriously **short viability window**—often losing their ability to germinate within a few weeks of dropping from the tree.

- **Tree Parentage:** Procure seeds from healthy, disease-free parent trees that are at least 7 to 10 years old (ideally 20+ years for optimum genetic vigor).
- **Physical Checks:** Look for fresh seeds that are plump, dark brown to shiny black, and heavy. Discard any seeds that appear cracked, shriveled, or float entirely on water.

Chapter 2: Seed Handling and Pre-Germination

Because agarwood seeds transition out of viability quickly, timing is critical. Plant them as close to harvest time (typically June to August, depending on region) as possible.

[Seed Collection] ---> [24-Hour Water Soak] ---> [Sowing in Germination Tray] ---> [Sprouting (7-15 Days)]

Step-by-Step Pre-Treatment:

1. **Cleaning:** Remove any remaining fleshy pericarp or pod fragments, as decaying matter invites fungal rot.
2. **Soaking:** Soak the seeds in clean, room-temperature water for **12 to 24 hours**. This softens the hard seed coat and triggers internal metabolic activation.
3. **Sowing Preparation:** Prepare a germination medium using a well-draining mixture of fine topsoil, well-rotted organic compost, and coco peat (ratio roughly 2:1:1) with an acidic-to-neutral pH between 5.0 and 6.5.

Chapter 3: Setting Up the Nursery

A well-managed nursery safeguards your fragile seedlings from harsh elements, pests, and root deformities.

1. Environmental Controls

- **Shading:** *Aquilaria* seedlings naturally sprout under the dense canopy of a rainforest floor. Provide **50% to 70% shade netting** over your nursery beds during the first few months.
- **Moisture and Ventilation:** Keep the environment humid, but ensure adequate airflow to prevent damping-off disease.

2. Media Formulation for Polybags

When seedlings reach roughly 3 to 5 cm in height (or around 30 to 35 days post-germination), they are ready to be transferred to individual polybags (recommended size: 12 x 16cmor larger).

- Fill polybags with a rich, loose medium: **70% topsoil, 20% organic compost/cow dung, and 10% coco peat** (which aids in moisture retention and root oxygenation).

Chapter 4: Seedling Care, Maintenance, and Hardening

Nurturing seedlings through their first few months determines their structural integrity in the field.

Growth Phase	Care Action	Notes
Weeks 1–4 (Post-Transplant)	Consistent watering (morning and afternoon).	Keep soil moist, never waterlogged. Total volume: ~2–4 liters per square meter.
Months 2–4	Gradual reduction of watering frequency.	Introduce light liquid fertilization (e.g., weak DAP solution, 1–1.5%) every 15 days.
Months 5–12	Root pruning / Pot-turning.	Lift polybags monthly to prune roots that pierce through drainage holes into the ground.

Preventing Common Nursery Pitfalls

- **Root Coiling:** Avoid leaving seedlings in small polybags for too long. If roots curl inside a cramped bag, the tree will suffer from structural instability later in life ("root-bound syndrome").
- **Damping-Off:** If you notice stems rotting near the soil line, reduce watering density and apply an organic bio-fungicide. Ensure your soil drainage is optimized.

Chapter 5: Preparing for Field Transplantation

An *Aquilaria* seedling is ready for field transplantation when it reaches **60 to 90 cm in height** (typically 8 to 12 months old) with a sturdy, woody main stem.

The Hardening-Off Process

Two months prior to field deployment, gradually remove the shade netting to expose the saplings to full sunlight and reduce watering frequency. This "toughens" the cellular walls of the leaves and stems, significantly reducing transplant shock when they face open-field elements.

Next in the Journey: Once your seedlings pass the hardening phase, they are ready for layout planning, field hole preparation (40cm x 40cm x 40cm pits enriched with organic manure), and permanent line-planting spacing (typically 3m x 3m or 4m x 4m.