

Artemisia annua anamed in Kalimantan
Pilot project

REPORT I

August 11, 2004

Started in March 29th with the first sowing, this project has evolved up to date with some unexpected events and the need to adapt the proposed methodology (see Proposal) in order to pursue its aims.

As the first batch of seeds proved itself unfit for germination - on March 29th they were sown but only one plant germinated and didn't make through - we had to put on hold the new attempt until fresh seeds arrived and the moon was about right. This took us to May 31st.

Luckily, we had enough soil (germination medium) prepared and stored for this type of eventuality. The process of preparing the medium is labor and care intensive.

First, we have to look for "good" sand, one that is not too fine (which can work as cement) or acidic - we took sand from a particular stream. The sand is coarse and yellowish rather than white. Then it is very well mixed with good top soil which has been cleaned from roots, twigs and small stones. The mixture ratio is of 10:10:20 of water and it is boiled for 5 min in order to sterilize the medium.



Once it has been boiled, we "scoop" out the mixture from the very hot water (it takes some patience because it keeps "running" away) and spread it on a canvas to cool and drain the excess water. At this point it is time to mix 1 part of Styrofoam that has been carefully broken down in to little balls. (easier if you can get it already broken down but here we use packing Styrofoam).

Meanwhile, the germination boxes are being prepared, in water resistant wood (benuas) which is somewhat acidic but it is already old and it will ensure lasting trays. Some chalk (lime) should be rubbed on the wood. Netted lids are made to fit the top of the trays in order to protect the seedlings from animals and fallen leaves.



Once the trays are ready, they are filled with the mixture and wait till the medium has the right moisture. During this drying process the mixture can become hard, in which case it is needed to rework until it is the right consistency.

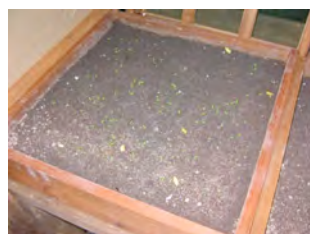


Part of the mixture was stored in semi-pervious bags and although the process much slower it proved that the texture is better kept. No need to refine it.

Choosing a “rising” moon period, the seeds were spread (roughly 1/3 of the total amount) with a sieve and immediately sprayed with water.



Another small germination table was built in order to choose a more ventilated area with filtered light under *Albizia* trees. These tables are partially protected from winds and have a roof. Three days after sowing (second time, remember, the first time the seeds didn't germinate) they started to germinate.

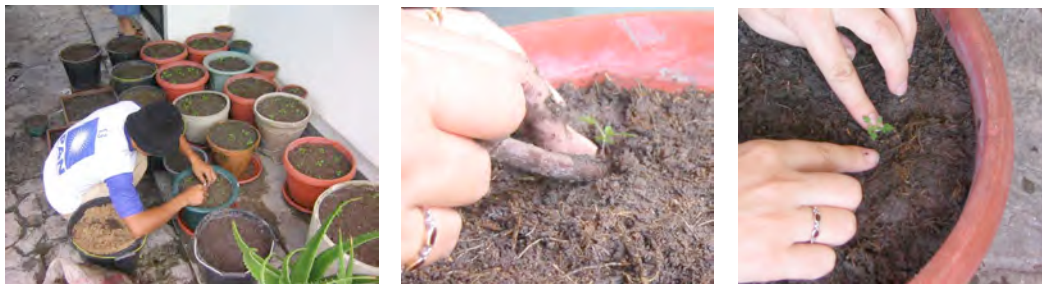


This was June 3rd. Within two or three more days around 60-70% of the plants germinated. It was difficult though to calculate because the seeds being so small there was no practical way of knowing how many actually were sown. Anyway, quite a lot came out and we have to constantly keep them moist but not wet! They are well

sprayed morning and afternoon. Sometimes the weather was quite rainy or humid and spraying was only done in the afternoon, but every day at least once a day. You cannot let them dry out.

June 26th - According to the written recommendations from Anamed, this was about time to transplant the seedlings but their size didn't fit the recommendation, just the time. Therefore we opted to do the transplant in three phases, in order to see if the seedlings would grow any further in the trays. Three transplants are made a week apart. The size of seedlings in the trays wouldn't vary but the newly transplanted seedlings after a week really took off. For the transplant, big plastic pots that could hold up to 5-6 plants during this stage were used, some good size individual pots and some small pots as indicated in the literature.

Due to the small size of seedlings, about 1.5cm instead of 3cm the transplanting had to be done extremely carefully since the base of the stalk is never to be covered by soil.



For next season, some very fine and sterilized compost should be considered to be mixed in the germination medium in order to see if the seedlings grow up to 3cm within the 4 weeks

The soil was mixed with rich compost and the pots were placed under roof edges with partial sun. The smallest individual pots were filled with compost and a thin top layer of river sand. These were placed on a watering tray, in a way that by absorbing the water from underneath the roots will also absorb the nutrients.

Again moisture was the main issue. Whenever possible, plates or trays have been placed underneath the pots to ensure constant moisture. However, a month later, we saw that plants in pots without plates, but watered regularly, had grown as well as those in plates.



Period around July 10 - All was going well....so naturally, the first problems startedsome small plants disappeared as if by magic! We couldn't see the cause. Then we found a leaf left behind after a night assault and we realized it must have been a big insect because it was a clean cut. I remembered the beautiful cilantro that disappeared

overnight and just short stalks were left. By now we started to think about how to make an enclosure for the plants which would be difficult due to the variety of pots places they had to be.

July 14th - We got lucky. By chance at 4 am we were checking the plants when a big (6cm) yellow locust landed on my arm! The decision was quick and the culprit died. We couldn't risk losing more plants.

July 27th - Now, green caterpillars decided to lay eggs on the leaves, so we manually started to pull them all out and cutting some leaves that had been damaged. The amount was not too much, but by August 7th we decided to spray the affected plants. By this date another locust (8cm green color) appeared dead by some cut leaves. We don't ask how it happened, we're just grateful we still don't have to build an enclosure, and as the plants get bigger the risks are less. But this is an aspect to consider for next raining season.



By now, August 9th, the first batch of plants has reached the planting size and the process starts according with the size. Bigger plants first. The dry season has also settled in so we have to work out how to go about it ensuring good irrigation, sufficient sun, and keep hoping that they won't get into flower too soon...

