

Preliminary Studies on the the Survival and Growth of Seedlings and Wildlings of Narra in Transplant Beds

By

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Narra, *Pterocarpus indicus* Willd. of the family Leguminosae, the national tree of the Philippines, is found throughout the archipelago mostly on coastal plains back of swampy lands and along streams below one hundred meters elevation. It is very well distributed but does not form pure stands. It is found in fairly open forest associated with other species. The tree has irregular fluted trunk sometimes attaining a height of forty meters and a diameter of two meters. The sapwood is light-colored and very distinct from the heartwood which ranges from pale yellow to blood red. The wood is comparatively light heavy and moderately hard. It is the very nature of the wood that it is highly prized for all sorts of high-grade furniture, veneers, cabinet, piano and radio-phonograph cases, show cases and others requiring strong, durable and beautiful wood. Narra is one of the species that belong to the first group under the Bureau of Forestry standard.

Studies had been conducted about this species but there is none so far on the survival of Narra seedlings and wildlings when transplanted in transplant beds during the dry season. If wildlings will do well as seedlings in transplant beds, then it would be more advantageous to handle them for expenses in handling the nursery would be avoided. It has been observed that reproduction is heavy under mother trees in the plantation but the wildlings are either cut down or die of suppression after a year or two. If the wildling could only be gathered

and transplanted before they die under the mother trees, it would be a saving in the cost of handling in seedbeds. It is the purpose of this study to find out whether wildling could be used to advantage in our efforts of reclaiming our denuded areas with this valuable species.

The study was conducted in the Makiling National Park from March 13, 1954 to August 9, 1954 with the objective of comparing the per cent of survival and height growth of seedlings and wildlings of Narra when transplanted in the nursery during the dry season.

MATERIALS AND METHODS

The seedbeds were prepared on an area exposed to direct sunlight except late in the afternoon. The soil is of deep clay loam. The transplants were gathered on March 13, 1954 during the dry season. The idea is to find out the percentage of survival when transplants are handled during a part of the dry season and part during the wet season. While the ideal time to transplant seedlings in exercises is during the rainy season, yet there are instances when transplanting had to be done during the dry season to provide transplants for fixed planting and in case of nursery sown, to make seedbeds available for sowing. The amount of rainfall for the months of January to May is only 8.7 inches while that of June to August is 33.7 inches as based from a 5-year period. Two sets of transplants were handled, namely, those rais-

ed in nursery beds and volunteers (wildlings) found under mother trees in the Bureau of Forestry plantations in the Makiling National Park. The average height of the transplants both wildling and seedling was seven (7) centimeters. Lifting of the planting stock was with the use of a trowel to save as many of the root system as possible. The soil around the roots was, however, shaken off gently to render the seedlings bare-rooted. Immediately after lifting, the root systems were wrapped with moist gunny sack and taken under heavy shade and the leaf area was reduced by about one-half and the injured roots were trimmed.

Six transplant beds 1 meter by 5 meters were prepared during the first week of March. On March 13, 1954 the seedlings were planted in the following order: Bed No. 1, seedlings—241; Bed No. 2, seedlings—112 and wildlings—100; Bed No. 3, wildling—254; Bed No. 4 wildlings—261; Bed No. 5, seedlings—96. The seedlings and wildlings were planted together under similar soil condition as much as possible hence the above arrangement. The transplants were planted two centimeters apart along the rows. The rows were spaced twelve centimeters to permit crown and root development.

Immediately after transplanting, the seedbeds were watered thoroughly. Because planting was done during the dry season, it was necessary to water the beds at least once in two days and sometimes every day late in the afternoon. From the later part of June, 1954 up to August 9, 1954, the end of the experiment, no watering was necessary being a portion of the rainy season of the year.

Weeding was done but twice: first, when the seedlings and wildlings were in beds for 100 day; and second, when they were 140 days in beds. It was observed that more weeds grew where the wildling were planted because the expression of dominance was rather very slow, the stand being fairly open during the period of the experiment.

RESULTS OF DISCUSSION

At the end of the 122 days period, well within the rainy season, the survival was determined. It was found that the seedlings had a percentage of survival of 91 and a mortality of 8.9. This percentage of mortality compares favorably with the percentage mentioned by Claveria (1929) of 6.2—9.2. The wildlings had a percentage of survival of 86.0 and mortality of 13.9. The percentage of survival compares favorably with what Lantion (1938 found in the case of *Dipterocarp* species of only 9.5%. The seedlings had higher percentage of survival of the seedlings over that of the wildlings by about 4.9% is to be expected because of the condition of the root system and condition of the soil where the latter developed just after germination. The seedlings have greater number of fibrous lateral roots because they were raised in cultivated and friable soil in contrast with the wildlings that developed in uncultivated soil and in partial shade and subjected to competitions.

Considering the conditions under which the seedlings and the wildlings grew before transplanting, however, the advantage of the former over the latter in matter of survival is not considerable. Seedlings were cared for since the seeds were sown until they were transplanted and the wildlings were just volunteers transplanted to transplant beds.

From the month of March up to the end of May, which is the hottest part of the dry season, height growth was practically nil for both the seedlings and wildlings. During the last week of May, there was one heavy rain followed by others in June. After a month of occasional heavy rains, the transplants put up new growth. On July 12, 1954, when the trees were 121 days old, the first height measurement was made. The mean height growth of the seedlings was 48.8—2.1 centimeters and the wildlings 14.4—1.0 centimeters. The second height growth was taken on August 9, 1954 when the transplants were 149 days old from the date of transplanting. The seedlings then had a

mean height of 80.3—3.4 centimeters and the wildling with 34—1.7 centimeters. In this case, the seedlings exceeded the wildlings by 46.3 centimeters in height.

With the advent of the rainy season about the end of May, the seedlings picked up growth very much faster than the wildlings. The height growth was more variable in case of the seedlings than the wildlings as could be seen on the standard deviations. Expression of dominance of the seedlings was accomplished rapidly.

The gain in height of the seedlings over the wildlings of 32.4 centimeters after 121 days after planting and 46.3 centimeters after 149 days after planting could be due to the fact that the root systems were better developed and had greater initial vitality in early life. Another contributing factor why the wildlings lagged in height growth could be the suppression which they suffered before they were transplanted, coupled with the sudden exposure to direct sunlight in the transplant beds. Based on the facts presented above, it is evident that seedlings and wildlings could very well be handled in transplant beds. Wildlings, however, could not be used for field planting after one season in transplant beds because of their slow growth.

SUMMARY

Bare-rooted seedlings and wildlings of Narra could be transplanted in the nursery during the dry season with relatively high percentage of survival provided watering is thorough and regular. The percentage of survival for seedlings was 91.02 and that of the wildlings 86.00.

Seven-centimeter wildlings when transplanted in transplant beds during the dry season will not be big enough for planting during the following rainy (planting) season because they will make only an average height growth of 34—1.7 centimeters. The seedlings, on the other hand, attain an average height of 80.3—3.4 centimeters.

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DRIVEN TO IT

Motorist: Aren't you the fellow who sold me this car two weeks ago.

Salesmen: Yes, Sir.

Motorist: Well, tell me about it again. I get so discouraged.

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