PLANT IMPROVEMENT & SEED PRODUCTION

PROJECT

ANNUAL REPORT FOR 1997

Activity Report for the Steering Committee Meeting n° 9

(March 1998)

ICSB / CIRAD-Forêt

Plant Improvement and Seed Production Project, CIRAD-Foret / ICSB

Field performance of seedlings of different ages at plantation: *Calamus caesius*

R. Bacilieri, P. Pajon, B. Majingin, 1998

Introduction

This experiment was established in 1996, with the main objective to find the optimal age (and size) of seedlings for plantation. Furthermore, because of the availability at that time of a large number of overgrown seedlings in the nursery, we have been asked to study if these latters can survive and perform correctly in the field.

Material and method

The experiment was etablished in the PISP experimental area for rattan (A10, compartment 311), on November 1996. The experiment was established by the conventional line planting design, under a quite open mixed forest (dipterocarps + pioneers). The seedlings were chosen in the main nursery according to their transplantation (from the germination beds) date. The seedlings, raised in 6'x9' polybags in the main nursery, were then planted in circular holes of the size of the polybag.

The experiment was a randomized complete blocks with three repetition.

List of treatments (age of the seedlings at the plantation period):

1) 6 month-old seedlings	(60 plants)
2) 12 month-old seedlings	(60 plants)
3) 16 month-old seedlings	(60 plants)
4) 20 month-old seedlings	(60 plants)
5) 24 month-old seedlings	(60 plants)

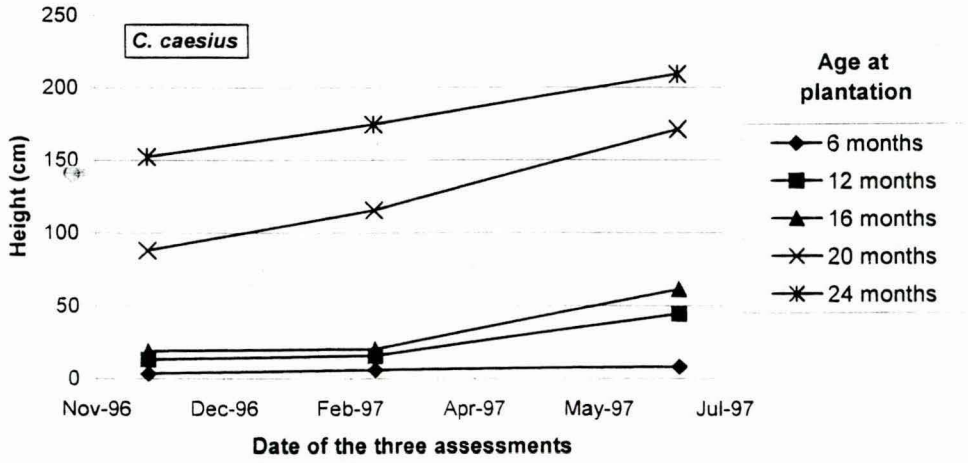
The trials was assessed three times, once just after plantation (December 1996), later in February 1997 and the third time on July 1997. The two measured characters were the survival and the shoot length.

Results

In term of survival, the best results were obtained by the 12 and 16 month-old seedlings, with a 100% survival. The youngest plants (6 month-old) recorded the higher mortality (9%), while the mortality of the two older classes (20 and 24 month-old plants) was at about 4%.

The comparison of the growth curves of the various treatments showed that the best performing classes were the two oldest ones, 20 and 24 month-old plants (Figure 1). The best current increment (slope of the curve) was obtained by the 20 month-old plant.

Figure 1. Growth of plants with different ages in the field (plantation date : November 1996)



Discussion and conclusion

From our experiment it appears that what we previously considered as "overgrown" seedlings, can in fact perform well in the field. Our former hypothesis was that these older seedlings, having at the moment of planting a very soft and slender stem, would suffer mortality and insect damages. The mortality having be reasonably low, this hypothesis can now be discarded.

The reason of their good growth as compared to younger seedlings (that can be appreciated by comparing the curve's slopes) is probably that these seedlings went already out of the slower growth period (the rosette stage), and were able to promptly recover in the field.

We will have now to study if this result is confirmed on a longer observation period, and how long is the lower portion of the stem that will have to be discarded at the harvesting time because of its too small diameter.