

Observation on growth performance of four vetiver varieties grown under natural shade

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Abstract

Four varieties of local vetiver grass were selected from vetiver collection plots to be observed on growth performances under natural shade at the Huai Hong Khrai Royal Development Study Centre, Chiang Mai, Thailand. It was noted that all varieties grew well under shade, though with slight difference in some aspects among varieties, and currently entering their fourth year of growth with no signs of dying back. Increases of clump thickness and number of tillers per clump indicated their potential of being shade tolerant varieties applicable for soil conservation in shaded areas.

Introduction

It has been well regarded at the Huai Hong Khrai Royal Development Study Centre, Chiang Mai, Thailand, that one of the problems limiting utilization of vetiver grass to prevent soil erosion in forest development areas of the centre is that of shade tolerant ability of the grass (Suwanthada, 2004). Thus, research on survey and collection of local vetivers growing wild in different environment of some parts of the country was then started in 1990 aiming at developing vetiver varieties tolerating certain conditions from those collected ecotypes. In shade tolerant aspects, four varieties were selected from the collection plots for preliminary trials. The plants of these varieties were grown under natural shades and observations on their growth performances were thereby observed.

Materials and methods

Propagating slips (Truong, No date) of four vetiver varieties coded as HKPW 07, HKS 04, HKU 05 and HKUH 03 were planted in rows under canopies of indigenous trees, e.g. *Morinda tomentosa*, *Phyllanthus emblica*, *Shorea obtusa*, *S.siamensis*, *Tectonea grandis*, *Terminalia alta*, *T.chebula* and *Xylia xylocarpa*. The trial plots were allocated in the post-deteriorated dry dipterocarp/mixed deciduous forest areas of the centre. Observations on growth performance of the plants were made. Interval measurements of 50 plants per variety in terms of plant height as the length of the longest leaf of the clump, number of tillers per plant and clump thickness expressed as the width and length of the clump were conducted and the mean values of such categories were tabulated.

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Results and discussion

It could be concluded from three year observations that the vetiver plants of all varieties tested grew well under the natural shades with somewhat difference in growth as shown in figures 1-3. As seen from figure 1, plant height of HKPW 07 and HKS 04 did not differ much from year 1 (Y1) to year 3 (Y3) while in those of HKU 05 and HKUH 03 such values indicated slower growth in year 1 with rapid increase in year 2 (Y2).

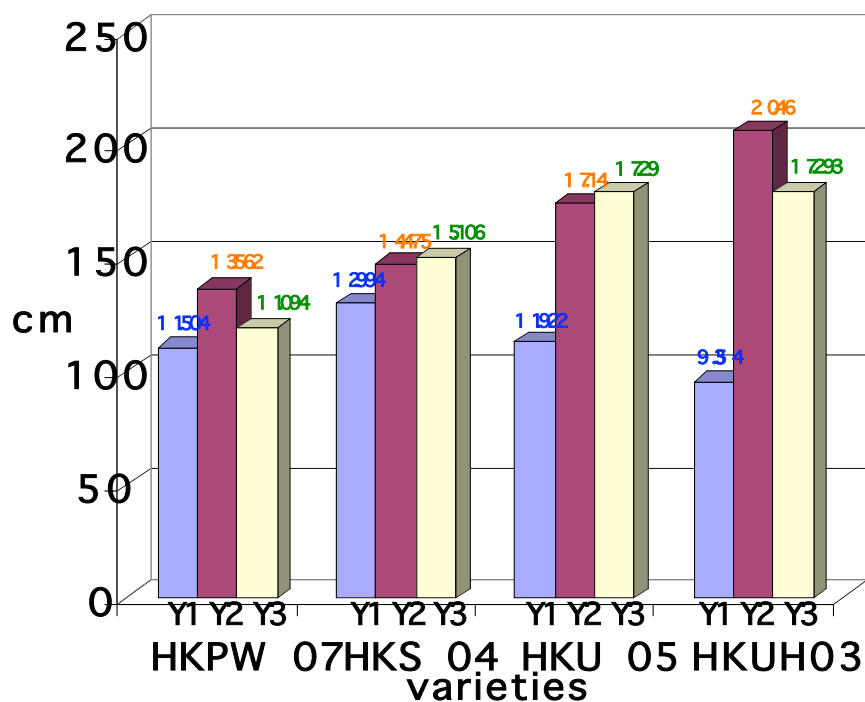


Figure 1 Means of plant height of four varieties of vetiver grass grown under natural shade.

Significance of growth performance, although statistical comparisons among the varieties were not made, could be considered from the number of tillers per clump and clump thickness of the plants (figure 2 and 3). Figure 2 showed the plants efficiency in tillering. As for HKPW 07 the plants produced tillers well right from year 1, but the number of tillers did not increase much in the following years while in KHS 04 increasing of tillers was more spontaneous. In the case of HKU 05, it was obvious that the plants started slow in tillering in year 1, but sharp increase was obtained in year 2, while HKUH 03 behaved, more or less similarly, only that the sharp increase occurred in year 3.

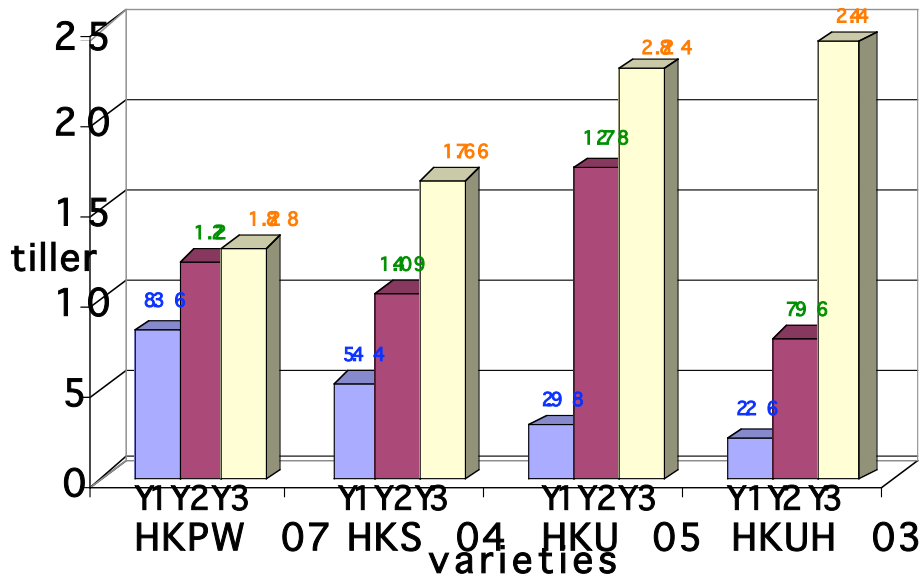


Figure 2 Means of number of tillers per clump of four varieties of vetiver grass grown under natural shade.

Considering the clump thickness of the plants the results (Figure 3) came out relevant to those of tillering ability except the variety HKPW 07 of which lower in number of tillers per plant but not less smaller clump thickness than the other varieties.

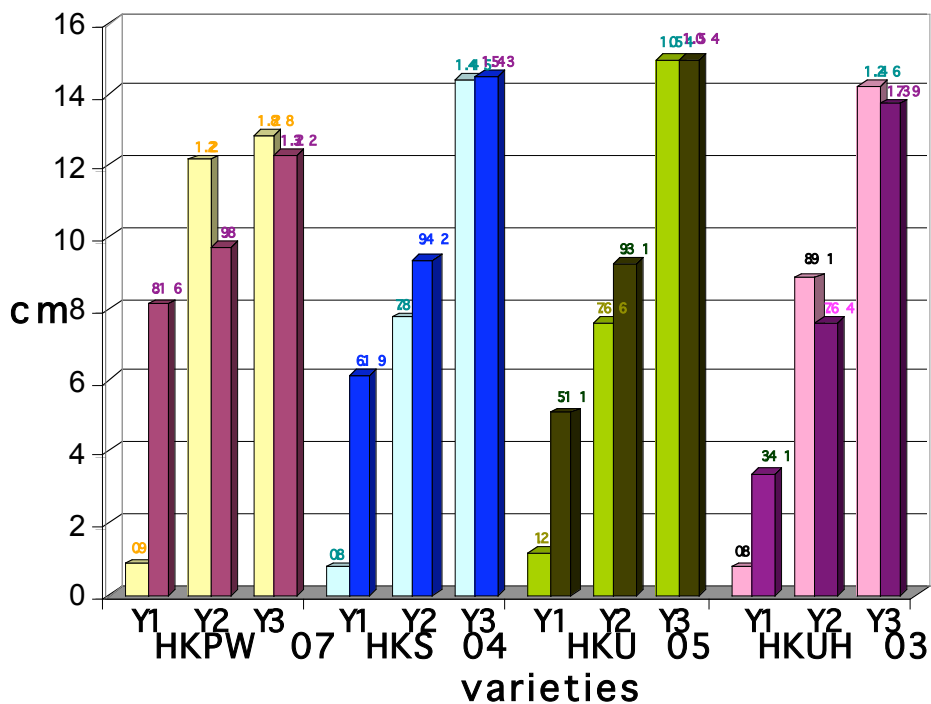


Figure 3 Means of clump thickness (width x length) of four varieties of vetiver grass grown under natural shade.

This also suggested that each variety tested bore different growth characteristics applicable for utilization under different circumstances. For example, variety HKPW 07 and HKS 04 grew fast in the early year indicating better ability of growing under shade than HKU 05 and HKUH 03. The latter two varieties, though started slow in year 1 but were able to adapt to shading in the following years.

However, observations on this trial is still in progress and the vetiver plants are still vigorous and look healthy in the trial plots (figure 4), thus more information has yet followed. Further studies have also been designed to be conducted in some plots of developing forest areas of the centre for supporting data and benefits.



A



B



C



D

Figure 4 Vetiver grass grown under natural shades
A. HKPW 07 B. HKS 04
C. HKU 05 D. HKUH 03

References

- Suwanthada, C. 2004. Vetiver grass varieties under shade. Progress report submitted to the Huai Hong Khrai Royal development Study Centre. 3 p.
- Truong, P. (No date). Vetiver propagation ; Nurseries and Large Scale Propagation. [Online]. Available: http://www.vetiver.com/KUW_WORKSHOP_papers/KUW_10PT.pdf [2006, June 27]