

ESTABLISHMENT AND PRELIMINARY EVALUATION OF A GERMOPASM BANK ENTAILING 10 ECOTYPES OF VETIVER BROUGHT TO VENEZUELA (*Chrysopogon Zizanioides* and *C. Nemoralis*)

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Introduction

Vetiver is a plant which belongs to the Poaceae family and Panicoideae subfamily, and because of its characteristics, adaptability and resistance, it is used in many countries for protection and stabilization of soils, infrastructures, urban works, roads and dams; for the mitigation of natural disasters, rehabilitation and protection of the natural environment, conservation of soil and water, as well as other uses such as plant fiber use in making artisan handicrafts, roofing material for ranches, extraction of the essential oil from the roots for use in cosmetics and medicines, etc. The objective of this work was to establish and evaluate a germoplasm bank of 10 ecotypes of vetiver, coming from Thailand (Figure 1), given to the Faculty of Agronomy at the Central University of Venezuela, Maracay, Edo. Aragua from the Polar Foundation. Used as reference is the primary ecotype in Venezuela which has been there for more than a century.

Material and methods

The experiment materials include 11 ecotypes of vetiver. Table 1 shows the numbers assigned to each of them, the species it pertains to, its origin and some additional characteristics. The lands used for this study are part of public and private institutions, and are located at different altitude (and therefore climatic) levels – Tropical, Pre-mountain, Lower Mountain, as can be seen in Table 2. A total of 8 collections were established, which were observed during 3, 6 and 15 months after transplanting. The determined variables were: maximum length of the plant, compartment, diameter of the tillering, amount of new tillers produced, and biomass. This methodology can be appreciated in Figure 2.

Results

Of this preliminary evaluation we can infer that both ecotypes of vetiver species adapted well to different agroclimatic conditions in Venezuela, with the best results being observed at 6 months in the tropical zone for both species (Figures 3 to 7). The ecotypes of the *C. Zizanioides* developed better than the *C. Nemoralis* in almost of the zones in the first 6 months period (Figures 8 to 12). At 15 months all the ecotypes were noted to have improved results under all variables in question in FAGRO-UCV (Figures 13 to 17).

Conclusions:

- A Vetiver germoplasm bank is available, which guarantees the survival of genetic species.
- All the vetiver ecotypes evaluated adapt to the three altitude levels considered, with certain limitations in higher zones due to lower temperatures and high cloud cover, which are in general known to limit growth.
- The Maracay ecotype presented ideal behaviour; however this does not mean it should not be substituted by other ecotypes, in particular cases.
- In general, the ecotypes of the species *C. Zizanioides* develop higher biomass than those of *C. Nemoralis*.
- At 15 months all the ecotypes studied showed improved growth as compared to the 6 months point, probably due to high rainfall and pruning.