

The Effect of Soil Moisture Content and Animal Manure on the Growth of Mendong (*Fymbristylis globulosa* (Retz.) Kunt)

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ABSTRACT

The objective of the research was to find out the interaction between soil moisture content and animal manure on the growth of mendong (*Fymbristylis globulosa* (Retz.) Kunt). The experiment was conducted in May until September 2016 in Kampong Lembur Sawah Kamulyan Village Manonjaya Sub-District Tasikmalaya Regency. A pot experiment was done using a factorial design consisted of two factors. The factors were soil moisture content (K) consisted of four levels i.e. 100% field capacity (FC), 150% FC, 200% FC, and 250% FC; and animal manure (P) consisted of cattle, broiler, and sheep manure. The variables observed were the components of growth, i.e. the height of plant, the number of tiller, fresh weight and dry weight of plant, shoot/Root ratio, the percentage of the e"75cm-long stem, and the efficiency of water use (WUE). The results showed that there was no interaction effect between the soil moisture content and animal manure on all variables observed. However, animal manure gave significant effect on the percentage of the e"75cm-long stem.

Keywords: Animalmanure, mendong, soil moisture content

INTRODUCTION

Mendong is an aquatic plant with the Latin name *Fimbristylis globulosa* (Retz.) Kunt. Mendong is used as raw materials for making handicrafts (mats, bag, lamp shades, hats etc.). The demand for mendong as raw materials in Tasikmalaya is increasing. However, the increase demands for mendong has not been met by the local farmers because of low productivity of local mendong and the decrease of irrigated land area where the plant cultivated due to conversion of the wetland area into housing. Based on Statistical Data of Agriculture, Fishery and Forestry Tasikmalaya Municipality (2013), the production of mendong decreased from 1,269.74 tons in 2012 to 988.30 tons in 2013, or the production decreases by 281.44 tons.

The farmers facing with problems of culture techniques especially in management of water and fertilizer application. Farmers grow mendong in irrigated lowland with continuous irrigation water (Hatta, 2004) for one to two year consecutive period of time during which harvests can be done three to five times. In rainfed area or non irrigated area, it is rarely found farmer grow mendong.

The idea to increase mendong productivity through extensification is to grow mendong in non-

irrigated land with the incorporation of organic matter. Soil organic matter affects the biological, chemical and physical properties of soil. Physically, it affects the soil structure and porosity, water infiltration, and soil water holding capacity (Sarief, 1989; Bot and Benites, 2005). Animal manure, source of organic matter, is of animal waste either in fresh forms or mixed with urine or decomposed in solid or liquid forms which originated from cattle, goat/sheep, horse, poultry, and pig dung. Its quality is variable depending on diet type and age of animal (Syahrudin dan Nuraini, 1999). Nutrient exchange between organic matter, water, and soil are essential to soil fertility and need to be maintained for sustainable production purposes (Bot and Benites, 2005).

Based on the problems above, the objective of this research is to find out the effect of soil moisture content and animal manure on the growth of mendong. And the special objective is, based on the data of water use efficiency, whether or not extensification of mendong to rainfed area or non irrigated area is possible.

MATERIALS AND METHODS

Study Sites

The pot experiment was carried out in May until September 2016 in a plastic house in Kampong Lembur Sawah, Kamulyan Village, Manonjaya Sub-