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"ESTIMATION OF BIOMASS FROM THE TERRESTRIAL WEEDS."

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ABSTRACT:

Terrestrial weed biomass form a free crop of great potential value and highly productive crop that require no tillage, fertilizer, seed collection or cultivation. The weed biomass is an open treasure for plant's which can be used as a nutrient sources. Primary productivity of an ecological system to one rate of energy conservation from the radiant form to the chemical bonds of organic substances. This result in increase in weight in this method biomass was estimated by harvesting the plants from known areas at periodic intervals and dried in an oven to constant weight. Biomass also improve soil quality by adding organic matter and for some species fixing nitrogen. The dominant terrestrial weeds as Achyranthes aspera, Crotolaria notonii, Cassia Tora and Tephrosia hamiltonii, were selected for the study.

Three sites were selected at three different places in the grassland as shady, moist and dry. A quadrate of 30 x 30cm. i.e., 900sq.cm was laid down. The plant material was collected in a polythene bag with a tag of quadrat number. The same procedure was repeated for dry and shady places. The polythene bags were brought to the laboratory. The plant material was washed and cut into small pieces.

On the basis of result obtained, it can be concluded that the increase in aerial weed biomass kg/ha and total dry matter weed biomass kg/ha is more in all the three condition in plants Tephrosia hamiltonii then Cassia tora as moist, dry and shade condition. There is least increase in Achyranthes aspera in all the three conditions as shade, moist and dry condition, followed by Crotolaria notonii.

KEYWORDS: *potential value and highly productive crop , dominant terrestrial weeds.*

INTRODUCTION

Nature warns human beings that they must maintain to live in harmony with 'nature'. Relationship between environment, body and life is the theme of ecology and this was very well known to the Indian sages of the past though evidence of systematic development of ecology as a science was lacking.

Praphan Prasertsak (2005), Studied that high biomass production can be produced potentially particularly in the tropical environment like Thailand and some other countries in Asia. Using inter-specific conventional cross to develop new high biomass varieties and also the varieties that well adapted to adverse conditions (drought, salinity and etc.) is necessary.

Presently information reliable on the extent and spatial distribution of grasslands just approximation based, upon the geographical/ environmental relationship of grasslands. Thus there is an immediate need to further information with respect to grasslands biome. Primary information for planning, management of the grassland require information with respect to the potential areas and their statistics (Hall and Overend, 1987).

Structure and development of vegetation and the manner in which these are affected by the factors of the environment should be studied with same care and thoroughness as individual plants. Vegetation readily response to changes in the habitat. If the habitat become wetter or drier,

better or more poorly lighted etc. Certain species and often while groups of plants disappear and are replaced by others. Similar changes occur when vegetation is repeatedly moved, grazed, burned or cut as in lumbering. In the adjustment to be modified environment the entire composition and structure of the vegetation may be altered such changes are not only of much scientific interest but are also frequently of great economic importance (Chahal, 1991).

Mycorrhizal infection may also increase the rate of nodulation and N-fixation by rhizobium in leguminous plants (Akobsen and Jensen, 1992). Increased biomass production by VAM inoculated-plants has also been reported (Mosses and Hayman, 1971; Taiwo and Adegbite, 2001). They obtained highly significant correlation between dry matter production and percent mean infection of mycorrhizal plants relative to non-mycorrhizal plants. VAM infection has also been shown to improve water relations to *Faidberbia albida* seedling (Osinubi *et al*., 1992) and weed cover (Atayese and Laisu, 2001).

"The quantum of dependence of human beings on natural resources, the narrowing resource base and the immediate need for conserving and managing them are much discussed topics today. This study is essential for developing environmentally sound and efficient technologies, it is said that, saving a tonne of biomass through efficient technologies, is cheaper, than growing a new tonne of biomass to sustain inefficient technologies (Shailaja and Sudha, 1997).

BIOMASS:

Biomass can be defined as the weight of all the living organisms in a green population, area, volume or other units being measured. Quite often, biomass is considered as the weight of dry matter of living organisms (phytomass for plants and zoomass for animals) at any given time per unit area.

Plants that were difficult to be identified in the field were later identified with the help of texts and bulletins, handbooks such as *Flora of West Africa* (Hutchinson and Dalziel, 1954) and *Your Guide to identifying some Arable Land Weeds of South Eastern Agricultural Zone of Nigeria*, (Ray P.A. Unanma, 1982).

The relatively lower N recovery rate from the tithonia biomass could partially be attributed to the lack of synchrony between N demand by the maize crop and the N released by the decomposing biomass (Mugendi *et al.,* 2006). Other researchers working on different N sources (organic inputs and synthetic inputs) also reported a percentage N recovery ranging from 25% to 111% (Westerman *et al.,* 1972; Kruijs *et al.,* 1988; Gachengo *et al.,* 1999; Rees and Castle, 2002).

Praphan Prasertsak (2005), Studied that high biomass production can be produced potentially particularly in the tropical environment like Thailand and some other countries in Asia. Using inter-specific conventional cross to develop new high biomass varieties and also the varieties that well adapted to adverse conditions (drought, salinity and etc.) is necessary.

Biomass production and utilization need to be sustainable in term of soil, water and environment. Due to high biomass was harvested, large amounts of nutrients would be removed from the field and would result in soil fertility degradation. So the analysis of nutrient balance in the field is necessary. To sustain the high biomass production, the development of technologies for soil quality improvement such as soil amendment, mulching and sub soiling is important.

Natural resources specially the living resources also called as bio-resources or biomass resources, are important renewable resources. That is they have the capacity to regenerate and therefore can function as a resource base for an indefinite period of time if used with care and caution (OECD, 1984).

Plant biomass provides the primary energy source and acts as the foundation for all life forms. It is an important and measure source of food, fodder for the live stock, timber for housing and furniture and many other products needed for human existence.

BIOMASS USE WILL PRODUCE ECONOMIC BENEFITS:

Weed biomass form a free crop of great potential value and highly productive crop that require no tillage, fertilizer, seed collection or cultivation. The weed biomass is an open treasure for plant's

which can be used as a nutrient sources**.** Primary productivity of an ecological system to one rate of energy conservation from the radiant form to the chemical bonds of organic substances. This results in increase in weight in this method biomass was estimated by harvesting the plants from known areas at periodic intervals and dried in an oven to constant weight. Biomass also improve soil quality by adding organic matter and for some species fixing nitrogen. The dominant terrestrial weeds as *achyranthes aspera*, *Crotolaria notonii*, *Cassia Tora* and *Tephrosia hamiltonii*, were selected for the study.

Surface litter accumulates between biomass crops this litter protects the soil surface from rain thus reducing erosion when planted parallel to riverbanks as interceptor strips, energy crop can decrease sediment runoff and deposition in rivers and streams and reduce overland water flows that cause riverbank erosion (Hall and Scase, 1998).

Materials And Methods (The quadrat):-

Primary productivity refers to the rate of energy conservation from the radiant form to the chemical bonds of organic substances. This results in increase in weight. In this method biomass is estimated by harvesting the plant from known areas at periodic intervals and dried in an oven to constant weight.

Three sites were selected at three different places in the grassland as shady, moist and dry. A quadrate of 30 x 30cm. i.e., 900sq.cm was laid down. The plant material was collected in a polythene bag with a tag of quadrate number. The same procedure was repeated for dry and shady places. The polythene bags were brought to the laboratory. The plant material was washed and cut into small pieces.

"Estimation Of Biomass From Following Dominant Terrestrial Weeds"

Parthenium hysterophorus *Crotolaria notonii* *Cassia tora* *Tephrosia hamiltonii*

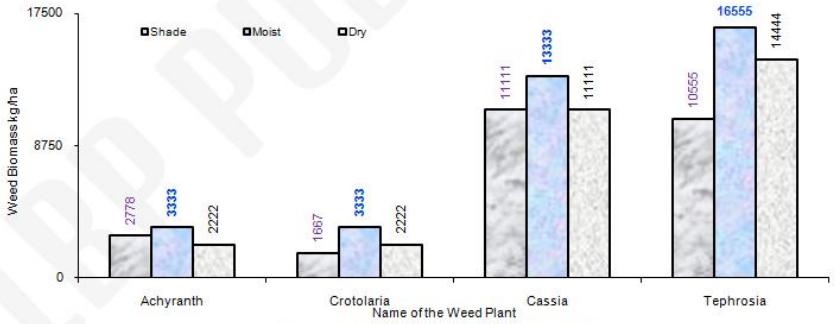

Fig. 1. - AERIAL WEED BIOMASS KG/HA.[12.August]

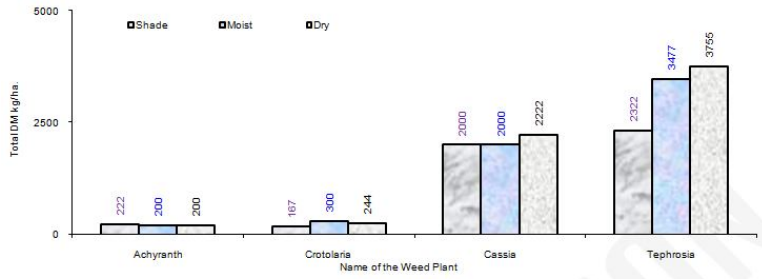

Fig. 2. - TOTAL DM OF WEED BIOMASS Kg/ha.[12. August]

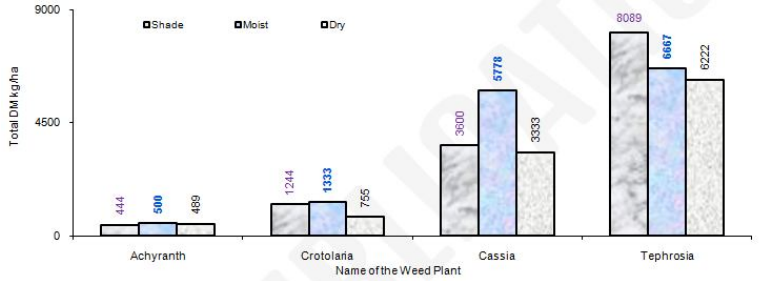

Fig. 3. - TOTAL DM OF WEED BIOMASS Kg/ha. [22.September]

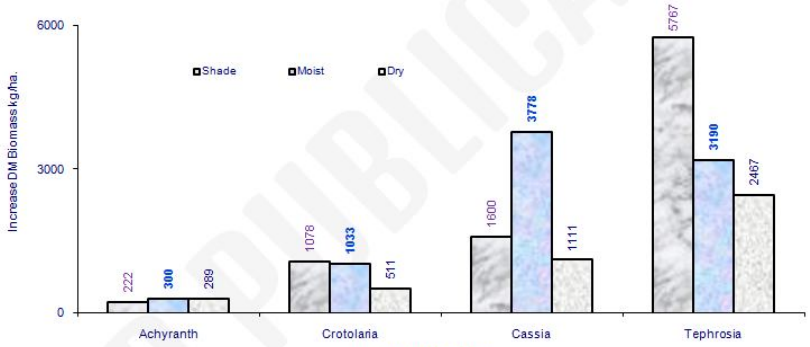

Fig. 4. - INCREASE IN DRY MATTER OF WEED BIOMASS.[41Days]

RESULTS AND DISCUSSION :

The productivity of the weed plants depends upon the type of plants, ecological condition and age of the plant. In this experiment sampling was done in the month of August and September.

Tephrosia hamiltonii grown in moist had shown the maximum increase in the yield followed by again *Tephrosia hamiltonii* grown in dry condition and then in *Cassia tora* grown in moist condition. *Tephrosia hamiltonii* had given the highest productivity followed by *Cassia tora* and then *Achyranthes aspera* and lastly *Crotolaria notonii*. However the increase in dry matter % was highest in *Cassia tora* followed by *Crotolaria notonii*, then *Tephrosia hamiltonii* and *lastly Achyranthes aspera.*

CONCLUSION :

On the basis of result obtained, it can be concluded that the increase in aerial weed biomass kg/ha and total dry matter weed biomass kg/ha is more in all the three condition in plants *Tephrosia hamiltonii* then *Cassia tora* as moist, dry and shade condition. There is least increase in *Achyranthes aspera* in all the three conditions as shade, moist and dry condition, followed by *Crotolaria notonii.*

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