PERFORMANCE OF *TYPHA AUSTRALIS* CUT AT THREE DIFFERENT HEIGHTS

By

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ABSTRACT

The response of Typha australis to stem cut at three different heights was studied for four weeks. This was carried out in the field between August and September 2003. Matured Typha australis naturally occurring along the stream within the Institute Integrated Fish Pond complex, New-Bussa were randomly selected .The shoots were cut at 10cm, 20cm, and 30cm, above the soil level. The responses of the plant were assessed. Plant cut at 10cm showed re-growth for one week and later died, while those cut at 20cm and 30cm showed re-growth through out the period of experiment Result showed previous height between 10cm and 20cm is significant (P< 0.05) between 10cm and 30cm height re-growth rates. But plant cut at 20cm and 30cm showed no significant (P> 005), in height. The results show the susceptibility of Typha australis to stem cut at 10cm or below. Typha australis cut at 10cm above soil level are not likely to survive.

INTRODUCTION

Report on the national surveys of infestation of water hyacinth and other noxious weeds in water bodies have revealed that Typha grass is found almost throughout the ecological zones of Nigeria. Although research has shown that the plant is native to Nigeria (NIFFR 2000) but its alarming rate of spread calls for concerns. This is particularly important in most river basins in the northern part of Nigeria where major agricultural projects such as Chad Basin Authority, South Chad Irrigation and other several multi-purpose dams are situated

Typha australis is an emergent grass, which is mainly rooted or anchored in the substratum to produce emergent vegetative shoots. It predominates vegetative community in many swamps and marshes and often forms a fringe of vegetation along lakeshores or other water bodies especially slow running water. (Mefit- Babtic, 1983).Typha spp like other swamp plants are generally very fibrous for example the cell wall fraction of makes up over 70% of the dry weight of the plants (Polinisi and Boyd 1972). Where the plant population is massive it impedes water transportation, farming and fishing activities as well as delivery of irrigation water along the canals with substantial consequences on the income generating activities of the local communities. How ever study has shown that Typha serves as food for multitudes of animals both aquatic and terrestrial for an example, Muskrats eat *Typha australis* rhizomes and young shoot (Macdonald, 1989). In Sudan it was used to feed animal during extreme dry season NCRSNA (1975). The grass can colonise the canal prevent, supply of water through the canal after sometime. It can also reduce solar radiation at the water surface, lower wind speeds (Lind 1974). Typha encourages evapo-tranpiration in tropical swamps area. (Howard *et al.* 1974).Problems accounted with the grass far out weight the benefit thus the need to control the colonisation

The use of manual and mechanical methods was reviewed by Robson (1974) and Nichols (1974), while the use of complex machinery to deal with excessive growth of same as Typha grass in nutrient enriched lake system was discussed by Livermore *et al.* (1969). There are two main forms of this method of aquatic plant control,. Cutting and dredging, the latter by machinery only. The cutting tools available for manual use are mostly modified forms of

agricultural tools to cut terrestrial vegetation. They have the considerable benefit of precise selection of which vegetation to remove and at which level to cut it.

There are number of factors to take into account when cutting method is employed in order to successfully kill the plants. Nichols. (1974) has demonstrated that the effectiveness of cutting depends markedly on the season and frequency of Singh *etal.* (1976) found it was most effective to cut Typha plants and submerged for 4 weeks there was almost no regeneration (Sale and Wetzel 1983). This is because Typha rhizomes are effectively drowned below the water surface also Huska (1978) observed that two cuts of Typha below the water are necessary for long-term control.

Although study in Asia countries have justified the effectiveness of the control method little information is available on Typha occurring in Nigeria, and at what level of cutting will control the plant is not know. Several measures have been evolved to control the weeds such as chemical, biological and mechanical.

The objective of this research was to study the re-growth rate of *Typha* grass cut at three different heights under field condition with view to developing strategies and proffer solution towards control of Typha grass.

MATERIALS AND METHODS

Study Area

This study was conducted at a site located in the Northern Guinea savannah zone of Nigeria. The climate is tropical with a distinct rainy season (April-October) and dry season (November-March) with mean annual rainfall 1100mm. (Obot 1991) the experimental site was within the Institute Integrated Fishpond Complex New Bussa.

Field investigation

Matured *Typha* spp naturally occurring along the stream within the Institute Integrated Fishpond Complex New Bussa were randomly selected and cut at lengths of 10cm 20cm and 30cm above ground surface with sharp sickle in August 2003. Observation in September 2003. Each treatment was replicated three times marked A1,2 3 B1, 2.3 and C1,2 3 in the field. The nine randomly selected plants were observed weekly for re-growth rate and tiller counts between August and September 2003. Observation were record weekly for four week

DISCUSSION

Figure 1 shows the average replicates of re-growth rates of *Typha australis* in the field conditions. 10cm re-growth rate at first increases but eventually decreases and died, while at 20 cm and 30cm re-growth continued throughout the four weeks (Figure 1). Typha usually produce tillers from the nodes of old stems, provided the mud is wet enough for survived. The rhizomes can be dominant during dry season periods when rain starts mainly by the production of tillers from nodes of the previous season plants.

From the experimental observations, it is known that when plants are cut above water, the nodes maintained above water become active, producing new tillers. However, when the plant is cut below water it dies and the stem starts to decay within a few days. Higher increase in the stem cut at 20cm 30cm may have attributed to the rapid re-growth been that the grass bears a lot of leaves to carry out photosynthesis. The whole plant was used as control experiment increased in height and number of tillers. All was recorded and shown in Table 1. Results shows that plants cut at 10cm died, while 20cm, 30cm show steady growth through out the four weeks observation. . Cook (1980) reviewed the use of Lake draw-down as a macrophyte control technique and concluded that the technique can be effective, but is species specific, because some species are resistance to over flood. These indicated that if the rhizome is over flooded there are all tendencies for the plant to die. This strategy is less costly compare to chemical considering the risk and damage to the environment.

Result showed previous height between 10cm and 20cm is significant (P< 0.05) between 10cm and 30cm height re-growth show the susceptibility of rates. But plant cut at 20cm and 30cm showed no significant (P> 005), in height. The results *Typha australis* to stem cut at 10cm or below. *Typha australis* cut at 10cm above soil level are not likely to survive.
Bidwell (1976) observed that during the draw-down in lake Kainji the emergence flora, mainly *Echinochla species* does not die by being stranded but re-floats when the lake rises Van der Valk and Davis (1980) working in a prairie glacial marsh, reported that periodic draw-drown enable several emergent species to co-exist in a community because of their diverse response to disturbance.

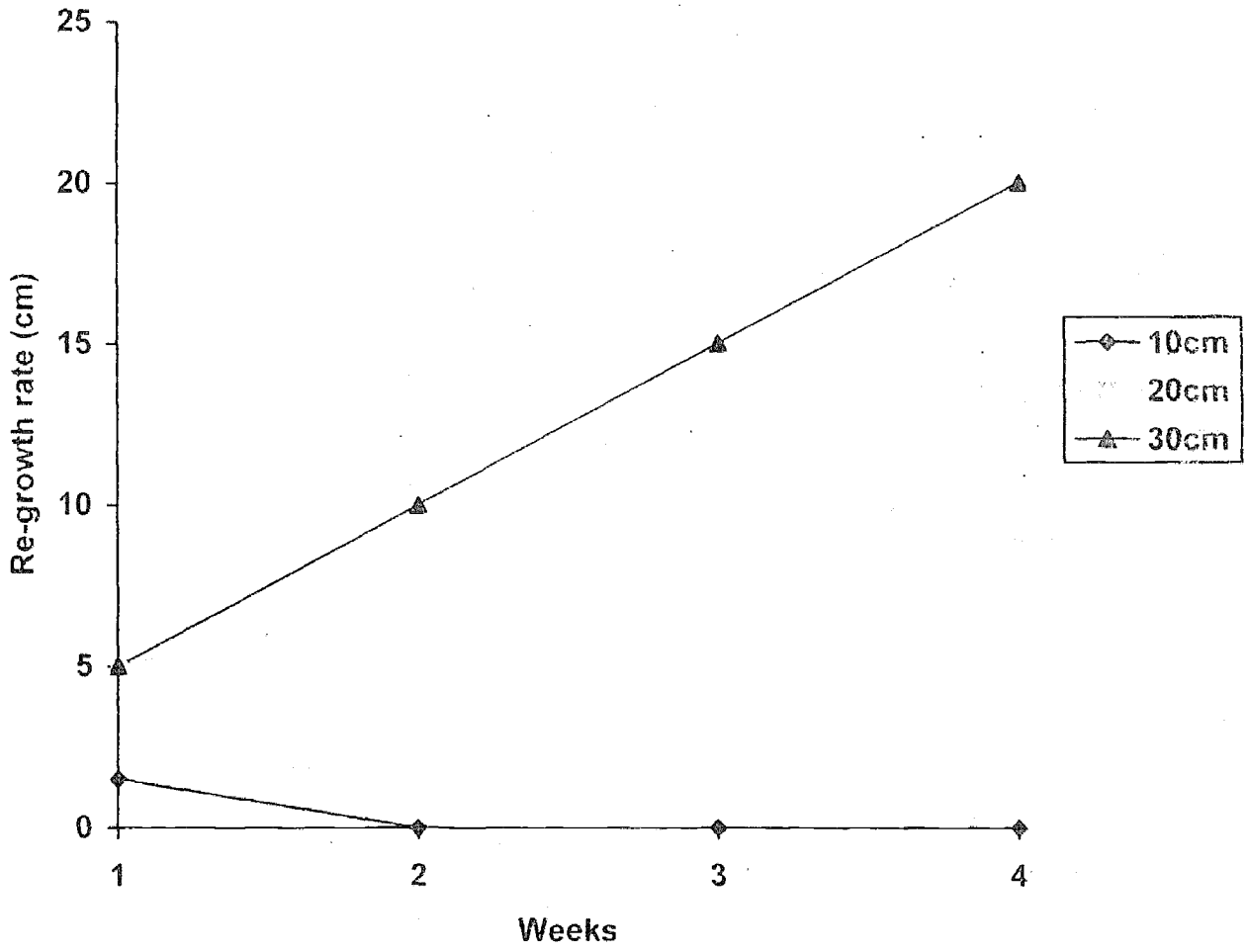

Figure 1:Re-growth rate of Ttypha austrlis

Figure 1: Average re-growth rate of *Typha austrlis*

Table 1: Number of tillers of Typha after cutting at different height

	Number of leaves tiller			
Dates	10cm above the soil	20cm above the soil	30cm above the soil	Whole plants
28/8/03	2	3	6	13
29/8/03	0	6	8	17

30/8/03	0	8	10	24
31/9/03	0	13	17	30
1/9/03	0	18	20	40
2/9/03	0	26	28	48
3/9/03	0	30	30	50

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