A STUDY ON THE GROWTH AND SPECIALLY THE TUBER FORMATION OF CYPERUS ROTUNDUS UNDER DIFFERENT EXPERIMENTAL CONDITIONS

J. Klein and T.D.S.W. Samaranayake

Cyperus rotundus is considered as the wworld worst weed because it cannot be controlled successfully by most of the available weed control methods. Therefore it causes yield losses in to many of the crops such as upland rice, corn, sugar cane, garlic, beans, soy beans, cucumber etc. The main problem in nutsedge control is the presence of underground tubers and their varying degree of dormancy. Tubers are the main dispersal unit in nutsedge and also it is resistant to many of the herbicides. Nutsedge is however sensitive to shade and therefore it is not a problem weed for crops which are fast growing and for plants which could provide a good shade.

The objectives of the research were to study the growth characteristics of the plant starting from a single tuber, the effects of various environmental conditions such as temperature, water logged conditions with varying oxygen levels on tuber germination and sprouting behaviour of tubers, the effect of initial tuber weight on germination period, the effect of the initial sprouts on subsequent sprouting of dormant buds and the competitiveness of purple nutsedge with Sorghum for nutrients and light.

The results show that temperature has a marked effect on tuber germination and bud sprouting. The germination was poor at 17^{o}C. No tuber germination was observed when the tubers were kept in water logged soil. The tuber germination and number of sprouts were greatly increased when the water was saturated with oxygen. The germination period was significantly decreased with increasing tuber weight. Although not significant presence of initial sprouts reduces the sprouting of dormant buds. These effects were more noticeable at high temperatures (23 and 29-0C). The results of the competition experiment between nutsedge and Sorghum shows that light and nutrients are the main limiting factors for growth of both species if soil moisture is not limiting. Sorghum does not suffer from yield losses at densities of 4 plants per pot and at the fertilizer, levels equivalent to 200kg N/ha. This density of nutsedge causes significant yield losses in sorghum however if no nutrients are added. Cyperus biomass production is reduced at added fertilizer and in the presence of sorghum at densities of 10 sorghum plant per pot. Both the species tend to produce more belowground biomass under when no nutrients are added and more shoot biomass under low light (25%) conditions. While in both species the total biomass is significantly reduced under those conditions.