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SHORT COMMUNICATION

EFFECT OF DIFFERENT MULCHING MATERIALS ON GROWTH AND DEVELOPMENT OF HYBRID SWEET CORN(*Zea mays* L.) VARIETY, *HONEY SWEET.*

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INTRODUCTION

Maize is the second important cereal crop in Sri Lanka next to rice. Most of the farmers in Sri Lanka cultivate inbred and hybrid varieties for fresh cob and animal feed. Sweet corn is the green maize of world commerce but various other types are available. It is produced for human consumption either as fresh or processed products. However, developing countries including Sri Lanka have paid little attention to cultivation of sweet corn (Akintunde, 1987). Low yield in maize is attributed to various factors such as moisture stress, poor crop management practices, low soil fertility, pest and disease incidence *etc.* Moisture stress has been a major cause of yield reduction in corn as it grows in dry zone under rain-fed conditions (Satchithananthan and Bandara 2000). Almost all growth stages are often vulnerable to moisture stress and have shown yield reduction very often under dry conditions (Heisey and Edmeades, 1998). It affects leaf development (Wolfe *et al.,* 1988), photosynthesis and grain filling of maize (Muschow, 1988). Mulching is one of the cultural practices to overcome the above problem. The commonly used non-live mulching materials are rice straw, crop residues, cut grass, paddy husk and polythene mulch. Each mulching material has its merits and demerits. The advantages of polythene mulch have been known as early as 1950's (Spice, 1959) and it helps to increase nutrient absorption (Moore, 1989) and yield (Jayasinghe and Goonasekera, 1993). This experiment was designed to find out the suitable mulching material for hybrid sweet corn production and to study the effect of different mulching materials on growth and development of hybrid sweet corn.

MATERIALS AND METHODS

The study was conducted in *maha* 2005/06 in the School of Agriculture, Kundasale in the Intermediate Zone (IM3a) on immature brown loam soil (Panabokke, 1996). Mean annual rainfall is greater than 1400 mm and mean atmospheric temperature ranges from 25° to 32°C. The treatments were white polythene (T1), black polythene (T2), control (T3) and paddy straw (T4). The treatments were laid out as Randomized Complete Block Design (RCBD) with four replications. The hybrid sweet corn variety used in this experiment was honey sweet and crop was managed in accordance with

the recommendations of the Department of Agriculture for inbred maize (DOA, 1990). Growth and yield parameters were studied and data collected were subjected to ANOVA by using SAS. The Duncan Multiple Range Test (DMRT) was also carried out for mean comparison.

RESULTS AND DISSCUSION

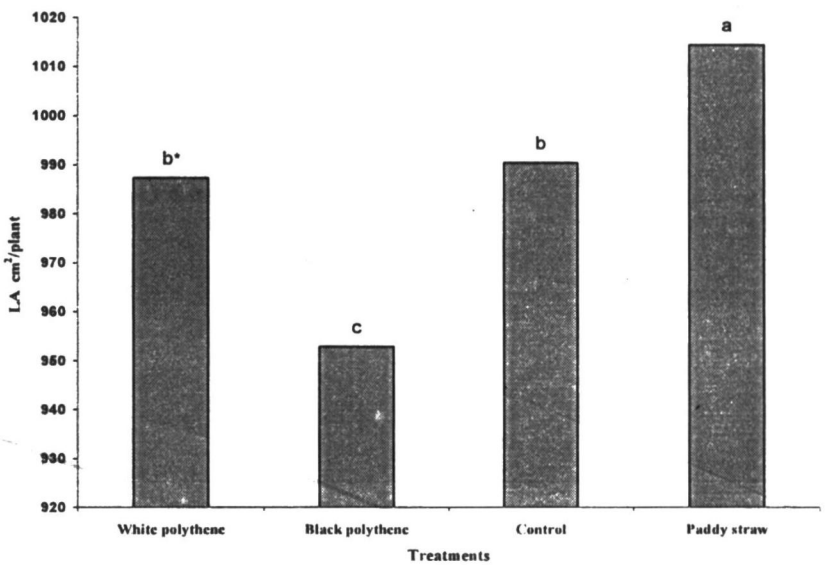

Figure 1. The mean leaf area per plant with different mulching materials. (*DMRT results; Coloumns with same letters are not significantly different at P=0.05).

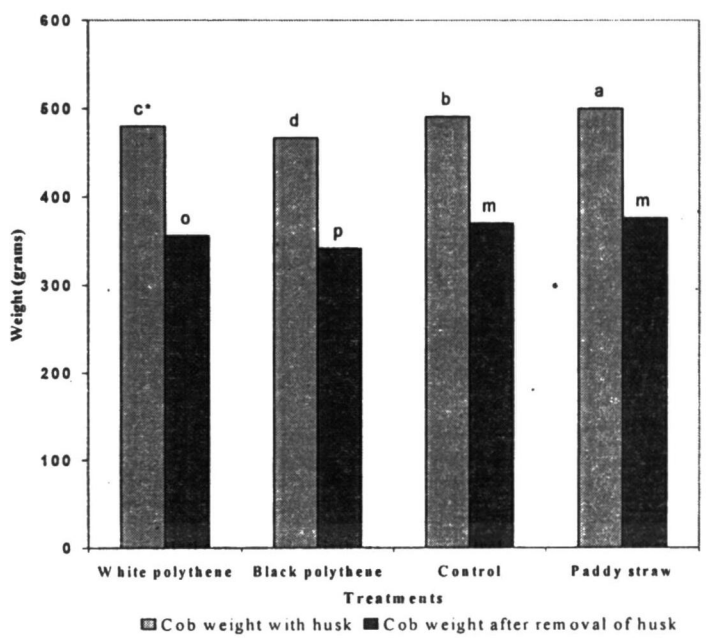

Figure 2. The mean cob weight with husk and without husk. (*DMRT results; Coloumns with same letters are not significantly different at P=0.05).

Growth and yield characteristics of maize with different mulches showed significant difference. The mean leaf areas per plant for different mulch materials are shown in Figure 1. The mean leaf area of treatments were significantly different at p=0.05. Straw mulched plants produced larger leaves and leaf area. The leaf area of white polythene mulched plants did not differ significantly from control plants.

Mulching treatments had significant effect on yield and yield components. The mean weights of cob with husk and without husk are shown in Figure 2.

After removal of husk, the mean weight of cob was higher (375.9 g) in straw mulched plants and did not differ significantly from control plants (370 g). The black polythene mulched plants produced the lower cob weight (341.67 g) than white polythene mulched plants (356 g). Other yield related parameters studied in this experiment are shown in Table1. There were significant differences among yield and yield components at p=0.05. The straw mulched plants gave the highest yield of 31.5 t/ha whereas yield of control and white polythene mulched plants were not significantly different at p=0.05. The black polythene mulched plants produced the lowest yield of 30.2 t/ha.

Table 1. The mean values of yield related studied parameters.

Yield components	*White polythene*	*Black polythene*	*Control*	*Paddy straw mulch*
Cob length	20 d	20.6 c	21.7 b	22.3 a
Cob circumference	17.6 b	17.5 b	17.6 b	18 a
Number of grains/row	18 a	18.33 a	17.6 b	18.6 a
Number of grains/column	38.2 c	41 b	41.3 b	42.1 a
Yield (t/ha)	30.2 b	29.3 c	30.8 b	31.5 a

Means in a column with same letters are not significantly different at p=0.05.

CONCLUSIONS

The experiment revealed that mulching of sweet corn had significant effect on yield. Paddy straw mulch provided suitable condition for growth of sweet corn whereas frequent addition during growth period was important. Black polythene mulch induced growth during vegetative phase but not much contributed to yield increase. Further studies on the effect of mulch on soil properties and evaluation of mulch for consecutive season are important to recommend the suitable mulching material for sweet corn.

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