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SOME EAR PROPERTIES OF EARLIER PRODUCED SWEET CORN

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Abstract

In this trial it was compared the effect of propagation time and floating cover on the growing season on some valuable morphological properties of early harvested sweet corn. The following technological variations were compared with help of the variety Spirit (normal sweet, very early ripening): 1. direct seeded plants with floating cover (early sowing time); 2. direct seeded plants without cover (early sowing time); 3. transplanted plants with floating cover (early transplanting time); 4. direct seeded plants without cover (usually sowing time, regarded as control). The covering by earlier sowing time had favourable influence on, ear weight, ear length, depth of seeds. Major influence of covering resulted in harvesting time: earliness was observed among covered and uncovered treatments between 5-19 days.

Key words*: earliness, plants covering, sweet corn, transplanted plants.*

INTRODUCTION

As early as in the beginning of the 20th century some researchers (Cserháti, 1901) highlighted the importance of the sowing date. Ripening can occur earlier when sowing earlier and using high quality seeds as compared to normal or late sowing. I'só (1969) and Pásztor (1966), after their multi-year sowing date trial, concluded the following: in the case of an earlier sowing seed germination will be more protracted, but from the point of view of fruit maturing it was more favourable than late sowing.

Also I'só and Szalay (1966, 1969) were studied occur of maize generative phenophases. They concluded, that by earlier sowing germination will be more protracted, but silking and harvesting occur sooner than by lately sowing time.

After multi-year trial Berzsenyi et al. (1998) have studied the effect of different sowing times on maize development. They concluded the following: a 3 weeks lately sowing time delay one week occur of silking time.

Several techniques are known in the art for the purpose of early fresh market shipments: seedling growing or direct seeding with temporary plant cover (Kurucz, 1998; Hodossi, 2004). Direct seeded sweet corn under vlies cover showed earlier ripening and gave better yields in the experiments of Kassel (1990). The plots under vlies cover reached harvest maturity 12 days earlier as compared to the plots with no cover. In case of direct seeding, as propagation method, another earliness increasing solution is the temporary covering with plastic or vlies, used in different combinations. This method reaches about 7-10 days earliness (Hodossi and Kovács, 1996). About the covered early sowing as a technological variation Aylswirth (1986) mentioned, that from an early sowed crop, made in first week of April, arranged in twin rows (42cm) and covered by plastic, we could harvested marketable cobs by the fourth of July.

MATERIALS AND METHODS

The experiment was set up in 2013 on an area equipped for irrigation at Curteni village, Mures country. Average temperature of vegetation period in April and May was in concordance with multiyear average values, in June and July presented higher values with 0.5°C, respectively 1.5°C compared to average values. Quantity of precipitation in vegetation period correspond

to multiyear quantity, excepted in July, this Month presented a lack of 33 mm. The test variety was Spirit, a normal sweet corn with a very early growing period (85 days). Average plant height is 159 cm, ear height is 37 cm. Average ear length was 19.6 cm in the variety comparison trials carried out by the Central Agricultural Office and average ear weight was 245 g (Kovács, 2002).

The following treatments were applied during the experiment:

P1 = uncovered direct seeded (April 19th)

P2 = covered direct seeded (April 19th)

P3 = covered transplanted (April 19th)

P4 = the control, uncovered direct seeded (May 2nd)

By both sowing times (April 19th and May 2nd) a part of the stand was covered with Novagryl floating row cover having a weight of 19 g/m^2 at the two propagation times in order to enhance earliness.

The floating row cover was removed on May 18th. The stand was created to contain 60,607 plants per hectare, according to the recommendations of the owner of the variety, at a spacing of 110+40x22 cm in twin rows.

Each plot had an area of 6x7m (8 parallel rows and 30 seeds sown in each row). The edge was the outer two rows of the 8 rows of the plot, respectively. All treatments were set up in four replications.

Fertilization was done by top dressing with N. No farmyard manure was applied.

Ears, together with the husks, were collected from the four central (two twin) rows. 25 ears of average appearance were selected from each row and the following measurements were carried out:

- unhusked ear weight (gram);
- total ear length (cm);
- depth of seeds (mm).

The statistical analysis of the results was carried out by using the programme RopStat 1.1. When the standard deviations were identical the mean values were compared by pairs using the Tukey-Kramer test, while in the case of the non-identical standard deviations the means were compared using the Games-Howell test, Vargha (2007).

RESULTS AND DISCUSSIONS

According to obtained results, harvesting time (measured in days) was the shortest in the treatment P3 (VII. 2) and P2 (VII.12), merely 74, respectively 84 days, i.e. the corns became ready for harvest 19, respectively 9 days earlier than those of P4 (VII.21, control). In case of P1 treatment, harvesting began 5 days (VII.16) earlier compared to P4 (control).

Results of the one of the major characteristics in connection with yield rating, unhusked ear weight, are summarised in Figure 1.

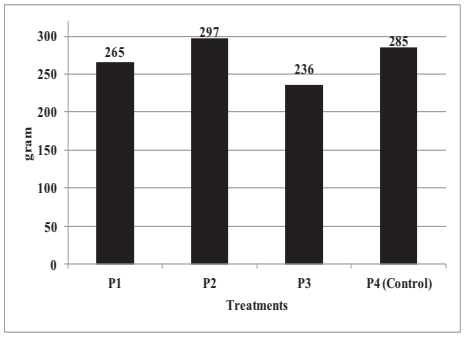

Figure 1. Unhusked ear weight

Studying the measured data for unhusked ear yield, we saw that the average weight of the ears of the treatment P2 (earlier sowed, covered plants) was significantly (at $p<0.01$ level) higher as compared to the other treatments (excepted P4, control treatment).

The average unhusked ear weight of the P3 treatment (earlier transplanted, covered plants) was significantly lower (at $p<0.01$ level) compared to other treatments.

The data concerning, an important characteristics for market appeal, total ear length (cm) are contained in Figure 2.

The average total ear length of the P2 treatment (earlier seeded, covered plants) was significantly higher (at $p<0.01$ level) compared to the other treatments. Analysing the data of other treatments, we found statistically significantly (at $p<0.01$ level) different results compared to the sizes of the other treatments (P1, P3 and P4, control).

From customer viewpoint depth of seeds (mm) is an important parameter and the measured average results are presented on Figure 3.

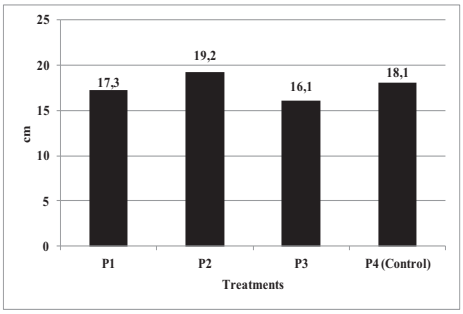

Figure 2. Total ear length

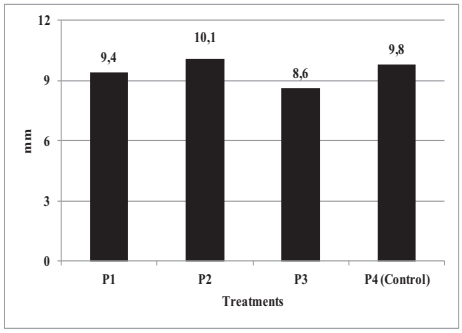

Figure 3. Depth of seeds

Analyzing the size (depth) of seeds we observed a statistically demonstrable (at $p<0.01$ level) difference among P2 (earlier sowed, covered) treatment and P3 (earlier transplanted, covered) treatment. Among seeds depth of other compared treatments has been measured differences, but no statistically (at $p<0.01$ level), demonstrable.

CONCLUSIONS

Effect of covering has favourable effect on harvesting time, P3 (earlier transplanted, covered) and P2 (earlier seeded, covered), treatments ears became ready for harvest 19, respectively 9 days earlier than those of P4 (later sowed, uncovered, control).

The unhusked ear weight presented the highest results in case of treatment P2 (earlier seeded, covered).

Measuring ear length, we observed the same tendency as in case of ear weight. P2 treatment's ear produced the highest values.

From customer viewpoint important parameter, depth of seeds, the same results were measured as in case of previous mentioned important properties unhusked ear weight and length of seeds.

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