

2007

Sweet Corn Topping Evaluation

Vincent Lawson

Iowa State University, vlawson@iastate.edu

Henry G. Taber

Iowa State University, taber@iastate.edu

Follow this and additional works at: http://lib.dr.iastate.edu/farms_reports



Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), and the [Horticulture Commons](#)

Recommended Citation

Lawson, Vincent and Taber, Henry G., "Sweet Corn Topping Evaluation" (2007). *Iowa State Research Farm Progress Reports*. 903.
http://lib.dr.iastate.edu/farms_reports/903

This report is brought to you for free and open access by Iowa State University Digital Repository. It has been accepted for inclusion in Iowa State Research Farm Progress Reports by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Sweet Corn Topping Evaluation

Abstract

Sweet corn “topping” is the removal of plant parts above the ear after pollination has occurred. This practice has been reported to hasten maturity, improve picking ease, reduce bird damage, improve pesticide application to ears, and reduce lodging problems. Disadvantages of topping have included a reduction in earsize, poor kernel fill, sunburn of exposed ears, and additional production costs. The objective was to determine what effect topping would have on ear maturity, yield, and ear quality under Iowa growing conditions.

Keywords

Horticulture

Disciplines

Agricultural Science | Agriculture | Horticulture

Sweet Corn Topping Evaluation

Vince Lawson, farm superintendent
Hank Taber, professor
Department of Horticulture

Introduction

Sweet corn “topping” is the removal of plant parts above the ear after pollination has occurred. This practice has been reported to hasten maturity, improve picking ease, reduce bird damage, improve pesticide application to ears, and reduce lodging problems. Disadvantages of topping have included a reduction in ear size, poor kernel fill, sunburn of exposed ears, and additional production costs. The objective was to determine what effect topping would have on ear maturity, yield, and ear quality under Iowa growing conditions.

Materials and Methods

Plot Design. The trial was a factorial arrangement that included two cultivars (Temptation and Providence) and two topping treatments (topped and control (no topping)) with six replications of each. A plot consisted of six rows spaced 30 in. apart and 30 ft long. Data was collected from the center two rows of the plot. Seeds were planted at rate of 25,750/acre. The study was repeated twice with two planting dates (April 26 and June 27).

Topping Treatment. Topping was accomplished by removing the upper portion of the plant with hand shears just above the ear tips leaving one to two leaves above the ear. This was done after pollen fall and primary ear silks were observed turning brown.

Irrigation. Water was applied as needed with a center pivot irrigation system.

Fertility. Fertilizer was applied preplant incorporated at rate of 60 lb of nitrogen (N) and 100 lb potassium (K₂O). Another 60 lb N was applied during the growing season.

Pest Control. Dual II Magnum, Atrazine 4L, and Callisto herbicides were applied crop preemergence. Capture or Mustang insecticide was applied every fourth day starting at silk emergence until harvest.

Results and Discussion

Although there are some persuasive testimonials on the advantages of topping sweet corn circulating in the industry, our experience with the practice was not positive. The topped sweet corn stood straight, sprayed easily, and was easy to harvest, however, yield and ear quality were compromised. Apparently the topping inflicted enough stress on the plant that ear development was hampered. Therefore, Iowa sweet corn growers need to exercise extreme caution and careful consideration before adopting this practice.

Two cultivars were used in the study: Temptation, an early-maturing hybrid, and Providence, a full-season hybrid. They were planted on April 26, a moderately early date for this area, and again on June 27 to see how they would react to the topping and if ear maturity would be affected. As harvest approached, ear development was monitored closely by periodically picking and husking ears from non-data rows. We were hoping to see an earliness response from topping, particularly in the April 26 planting, but none was seen in either cultivar or planting date.

Topping right after pollination reduced the number of marketable ears and ear size (Tables 1 and 2). Ears were graded marketable only if they had at least 6 in. of filled kernels and less than 2 in. of unfilled ear tip. When husked ears were compared, it was obvious that ears from control plots were larger and kernels were more uniformly filled. Ear tip fill was good in the control plots, ears from topped plants showed only fair to poor tip fill (data not presented) and

in many cases was so poor that ears were judged unmarketable. This effect was most dramatic in the June 27 summer planting. Reasons for this might be related to temperatures and days to harvest. For example, Temptation took a relatively long 85 days to reach harvestable maturity when planted in the spring (April 26)

but took only 63 days when planted on June 27. Although a longer season hybrid, Providence was similar. It is possible that coupling the topping with the heat of summer and growing in an irrigated but droughty sandy soil was just too much stress for the plant.

Table 1. Effect of topping on marketable yield and ear characteristics of Temptation and Providence planted April 26.

Cultivar	Topped	DTH	Dozen ears/acre	Yield cwt/acre	Husked ear (wt – lb)	Ear length (in.)	Ear diameter (in.)
Temptation ¹	No	85	1730	126.5	.49	7.4	1.84
	Yes	85	1165	80.4	.43	7.2	1.77
Providence ²	No	91	1314	131.9	.59	8.4	1.81
	Yes	91	1210	114.5	.54	8.3	1.77

¹Temptation silked on June 28, topped on July 3, and was harvested on July 19.

²Providence silked on July 5, topped on July 12, and was harvested on July 25.

Table 2. Effect of topping on marketable yield and ear characteristics of Temptation and Providence planted June 27.

Cultivar	Topped	DTH	Dozen ears/acre	Yield cwt/acre	Husked ear (wt – lb)	Ear length (in.)	Ear diameter (in.)
Temptation ¹	No	63	1402	97.8	.46	6.9	1.79
	Yes	63	764	54.1	.42	7.1	1.77
Providence ²	No	73	1199	114.1	.55	8.7	1.75
	Yes	73	474	44.1	.50	8.7	1.73

¹Temptation silked on August 7, topped on August 16, and was harvested on August 29.

²Providence silked on August 15, topped on August 24, and was harvested on September 8.