The Missing Kernel Problem: Sweet corn observation trial with UH varieties at UH Poamoho Experiment Station

Ted Goo, Ray Uchida, Susan Migita and Hector Valenzuela
Univ. Hawaii at Manoa, College of Tropical Agriculture and Human Resources, Dept. of Tropical Plant and Soil Science and Agriculture Diagnostic Service Center (RU).

In mid-2002 Mr. Jigger Nozawa, a sweet corn grower in Oahu reported a serious problem (25-100% incidence on different plantings) with missing kernels from his UH No. 10 corn plantings in Kahuku (Figures 1 and 2, page 2). To determine if a pollination problem could be detected from the same batch of seed (UH bicolor No. 10) planted at a different site, a planting was established in October 2002 at the UH Poamoho Experiment Station. Four rows about 200 ft long were planted of UH No. 10 (bicolor), followed by about 20 rows of UH No. 9 (Figures 3 & 4, page 3). The seed of UH No. 10 was from the same batch of seed used by Mr. Nozawa on his farm. The UH No. 9 variety was planted as a control. The crop was grown using drip irrigation, and following standard cultural practices for commercial sweet corn production in Oahu. The crop was harvested on Dec. 24 and 27th. On Dec. 27, about 70 mature ears of corn were randomly harvested from each variety, from rows 2, 3, and 4 (UH No. 10), and from the inner rows of cultivar UH 9. From this harvest 50 ears were randomly chosen from each variety to determine uniformity of kernel-fill on each ear of corn. A representative sample of ears with poor kernel fill is shown in Figures 5 & 6 (page 4). The results show (Table 1 below) that the UH No. 10 seed used in Poamoho had a similar incidence of poor kernel fill as observed in Mr. Nozawa's farm.

Table 1. Indicence of uneven kernel fill in randomly chosen sweet corn ears harvested at the UH Poamoho Station, Dec. 27, 2002).

Cultivar	Total No. Ears (No.)	No. with uneven kernel fill (No.)	Poor pollination (Percent)
UH-10 (bicolor)	50	31	62%
UH-9 (Yellow)	50	8	16%

Figures 1 & 2. Poor pollination problems observed at Jigger Nozawa's farm, 2002 (pictures provided by Randall Hamasaki, July 17, 2002).

Figures 3 and 4. Field trial conducted at UH Poamoho Station with UH No. 10 (4 rows forefront above, and below), and UH No. 9 (background above). Field planted in mid October and harvested on Dec. 24 & 27, 2002).

Figures 5, 6 & 7. Examples of poor pollination observed with UH sweet corn cultivar No. 10 (bicolor) from field trial conducted at UH Poamoho Station from Oct. to December 2002.