

FIELD CORN TOLERANCE TO BROADCAST FLAMING. Santiago M. Ulloa\*, Avishek Datta, Stevan Z. Knezevic, Chris Bruening, George Gogos, Goran Malidza, and Robert Leskovsek. Graduate Student, Post Doctoral Research Associate, and Associate Professor, Haskell Agricultural Laboratory, University of Nebraska, Concord, NE 68728, USA; Graduate Student, and Professor, Mechanical Engineering, University of Nebraska, Lincoln, NE 68588, USA; Research Associate, Institute of Field and Vegetable Crops, M. Gorkog 30, Novi Sad, 21000, Serbia; Graduate Student, Agricultural institute of Slovenia, Hacquetova 17, 1000, Ljubljana, Slovenia.

Propane flaming could be an additional tool for weed control in organic field corn production. However, field corn tolerance to broadcast flaming must be determined first to optimize the use of propane. Two field experiments were conducted at the Haskell Agricultural Laboratory, Concord, NE in 2008 to determine field corn response to five propane rates applied at three growth stages of V5 (5 leaves), V7, and V9. The propane rates included were 0, 12, 24, 42, and 75 kg/ha (0, 2.5, 5, 8.5, and 15 gal/acre). Flaming treatments were applied utilizing an ATV mounted flamer moving at a constant speed of 6.5 km/h (4 m/h). The response of field corn to propane flaming was evaluated in terms of visual injury ratings (1, 7, 14, and 28 DAT), effects on yield components (plants/m<sup>2</sup>, cob/plant, kernels/cob, and 100-seed weight), and grain yield. The response of different growth stages of field corn to propane rates was described by log-logistic models. In general, V5 was the most tolerant stage for broadcast flaming. Although, all growth stages exhibited similar injury levels at 14 and 28 DAT, the V5 stage had the least yield loss. In contrast, V7 and V9 stages were more susceptible to flaming resulting in higher loss of yields and yield components. The maximum yield reductions for the highest propane rate of 75 kg/ha were 2% for V5, 8% for V9, and 9% for V7 stage. Based on these results, flaming has a great potential to be used effectively in organic corn production. [santiago@huskers.unl.edu](mailto:santiago@huskers.unl.edu)