

RESPONSE OF CORN TYPES TO BROADCAST FLAMING. Santiago Ulloa*, Claudio Costa, Avishek Datta, Chris Bruening, George Gogos, and Stevan Z. Knezevic. Graduate Student, Undergraduate Student, Post Doc, Haskell Agricultural Laboratory, University of Nebraska, Concord, NE 68728; Graduate student and Professor, Department of Mechanical Engineering, University of Nebraska, Lincoln, NE 68588, and Associate Professor, Haskell Agricultural Laboratory, University of Nebraska, Concord, NE, 68728-2828.

Propane flaming has the potential to be included into an integrated weed management systems of both conventional and organic productions. Previous experiments tested flaming mostly in vegetable crops. In order to incorporate flaming in major agronomic crop such as corn, it is important to collect baseline data on the tolerance of different corn types to broadcast flaming. Field studies were initiated on two location at the Haskell Agricultural Laboratory in 2008 utilizing six rates of propane and three corn types, including field corn (*Zea mays* L.), pop corn (*Zea mays* L. *var everta*), and sweet corn (*Zea mays* L. *var rugosa*). Propane rates were 0, 12, 31, 50, 68, and 87 kg/ha, corresponding to 0, 2.5, 6.5, 10.5, 14.4, and 18.4 gal/acre. Flaming treatments were applied utilizing an ATV mounted flamer moving at a constant speed of 6.5 km/h (4 m/h). Corn species response to propane flaming were estimated on the basis of visual damage and dry matter loss, and described by log-logistic models for each corn type. Overall response to propane flaming varied among the corn types, growth stages, and propane rates. Preliminary data suggested that all corn types presented high levels of tolerance to broadcast flaming. Sweet corn was the most tolerant while pop corn was the least tolerant regardless of the growth stages. Additional studies are needed to test the relationship between the injury level by flaming, and corresponding crop yields and yield components.