

BUILDING A RESEARCH FLAMER. Stevan Z. Knezevic, Logan Dana\*, Jon E. Scott and Santiago Ulloa. Associate Professor, Research Technician, Research Technologist, and Graduate Research Assistant, Haskell Ag. Lab., University of Nebraska, Concord, NE, 68728-2828.

Weed flaming can be an additional tool for weed control options in organic cropping systems. There are several commercial flammers available for use in agronomic crops with the cost ranging from \$6,000 to \$15,000 depending on the number of rows the flamer covers. However, most of the commercial flammers are physically too large to be effectively utilized in small research plots. Therefore, as part of a larger study, the objective of this project was to build a relatively inexpensive and smaller research-type flamer for flaming weed and crop species at various growth stages. As a result, the three types of flammers were built, including two types for broadcast flaming (1.2 m and 3 m wide) and one for intra-row flaming that can cover three to five crop rows planted 76cm apart. Custom designed main frame was built to be interchangeably used with each flamer type, while a three-point-hitch allowed mounting on a tractor or ATV. Square steel tubing of different sizes (2.5-5.6cm) was utilized for building the main frame, which allowed to easily adjust burner height, burner angle, distance between burners to fit the crop row width, and the flame direction (inter or intra-row). There are also two pressure gauges (low and high) to control propane pressures ranging from 70 to 620 kPa (10-90 PSI). Propane application rate ( $\text{kg ha}^{-1}$ ) was regulated by a combination of propane pressure and application speed. For example, using a driving speed of about 6 km/hour (4MPH), the propane rates can vary from 12 to 93  $\text{kg ha}^{-1}$  (3-20 GPA). Burners were purchased at the cost of about \$100 per burner, while the overall cost of material (eg. steel tubing, propane tank, valves, electronic safety solenoids, two pressure regulators, hose) ranged from \$2,000-\$3,000 depending on the flamer ([sknezevic2@unl.edu](mailto:sknezevic2@unl.edu)).