

Leaf painting assay for detection of Bar gene-based herbicide resistance

A. Commercially available herbicides:

Basta: active ingredient = glufosinate (an ammonium salt of phosphinothricin, PPT)
Commercial formulation = 200 mg/ml glufosinate

Liberty: active ingredient = glufosinate
Commercial formulation = 200 mg/ml glufosinate

B. References:

Dennehey et al., 1994, Plant Cell Tiss. Org. Cult. 36:1-7.
Spencer et al., 1992, Plant Mol. Biol. 18: 201-210.

C. Procedure

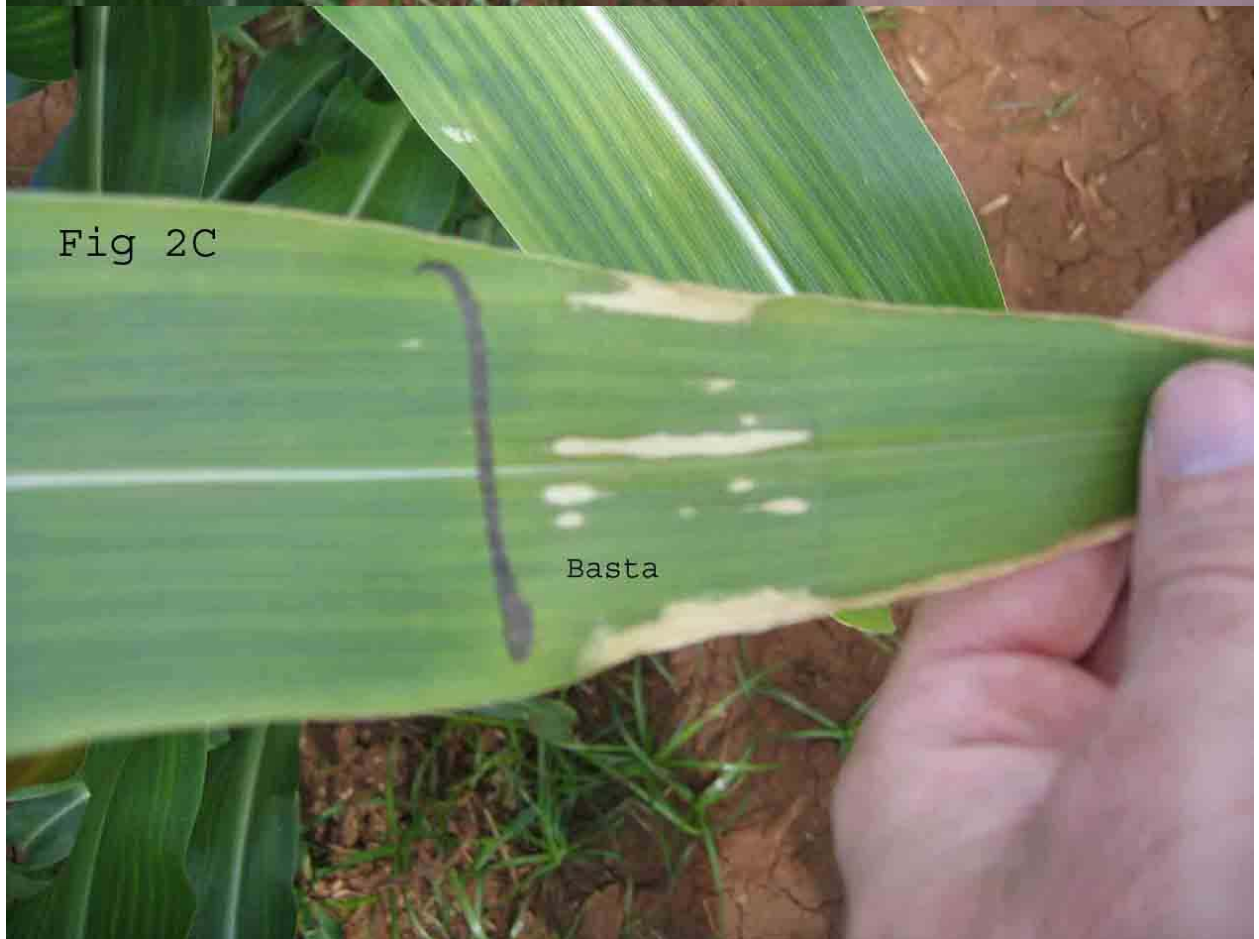
1. Draw a line across one of the upper, fully emerged leaves using a black permanent marker. Below the line and toward the leaf tip, paint a 1 inch long strip of herbicide solution (1% (v/v) Basta (or Liberty) solution containing 0.01% Tween 20 wetting agent) using a cotton or sponge-tipped applicator (see Figure 1A and Figure 1B).





3. Score plants for susceptibility (Figure 2A, Figure 2B, and Figure 2C) or resistance (Figure 2D, Figure 2E, and Figure 2F) to the herbicide 3 to 7 days after application. Symptom progress may depend on environmental conditions. Young susceptible plants can be killed by this application, but susceptible plants treated at the 8 to 9 leaf stage or older generally continue to grow even though the treated leaf is damaged.





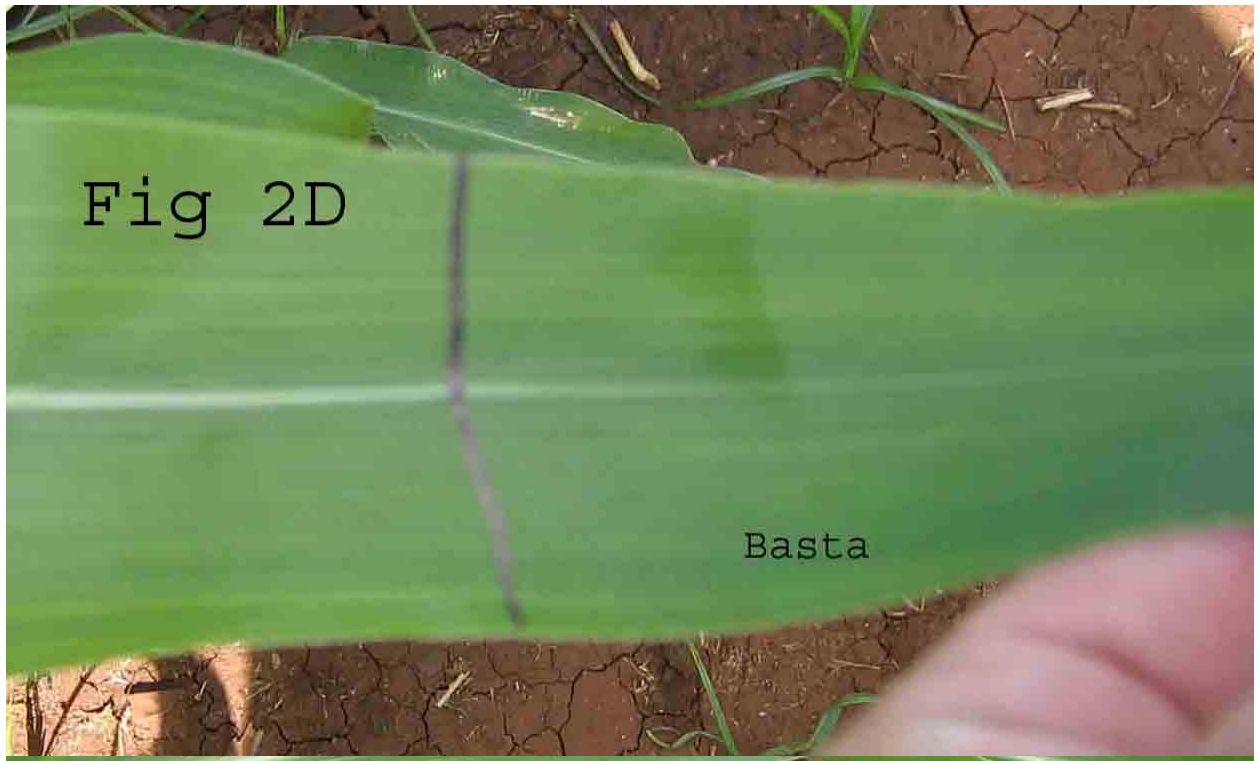


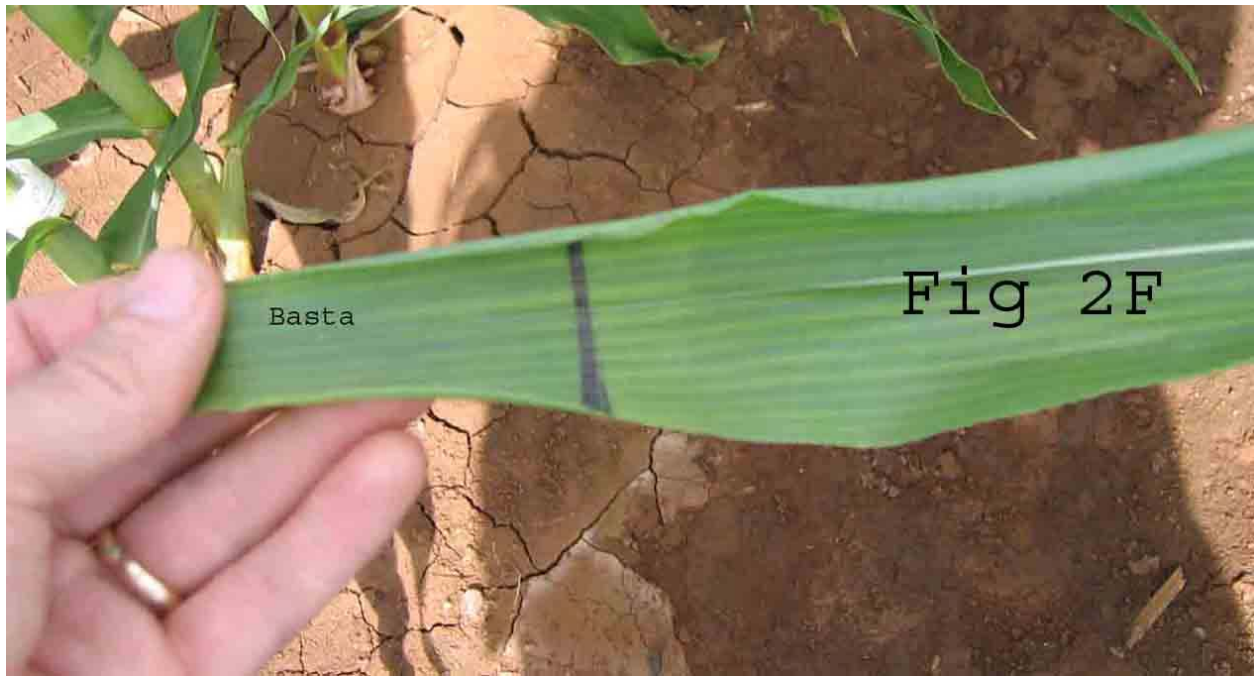
Fig 2D

Basta



Fig 2E

Basta



Basta

Fig 2F