Introduction
Few herbicides are available that can be used for preemergence (PRE) control of broadleaf weeds in sorghum. Troublesome weeds in sorghum include Russian thistle (Salsola iberica) and kochia (Kochia scoparia) prior to planting and Palmer amaranth (Amaranthus palmeri) in-season. Saflufenacil (Sharpen™), a new herbicide under development by BASF, is a protoporphyrinogen IX oxidase (PPO) inhibitor and belongs to the pyrimidinedione class of herbicides. Studies were conducted at Lubbock, Lamesa, and Halfway in 2008 and 2009.

Objectives
1) compare early preplant (EPP) burndown control of kochia and Russian thistle with saflufenacil (Sharpen™) or Roundup PowerMax
2) evaluate Palmer amaranth control with Sharpen and saflufenacil + dimethenamid (Integrity™)
3) evaluate sorghum tolerance on an Amarillo fine sandy loam and Pullman clay loam soils

Materials and Methods
Design: Randomized complete block with 4 replications
Plot Size: 4 rows by 30 feet
Application Equipment: CO₂ pressurized backpack sprayer
Spray Volume: 10 gallons/ASorghum Varieties: Pioneer 85G01, Dekalb 44-20
Weed Size: Russian thistle: 2 to 5 inches kochia: 2 to 3 inches

Treatments:
- Preplant Burndown
  - Preemergence: Integrity (0.65, 0.78 lb ai/A)
  - Roundup PowerMax (0.75 lb ae/A)
  - Sharpen (0.06, 0.07, 0.08 lb ai/A)
  - Atrazine (+ Sharpen at 0.07, 0.08 lb ai/A)
  - Outlook (0.59, 0.7 lb ai/A)
  - Atrazine (0.5 lb ai/A)
  - G-Max Lite (1.56 lb ai/A)

- Sorghum Tolerance Halfway
  - Sharpen (0.03, 0.06 0.12 lb ai/A)
  - Integrity (0.20, 0.57, 1.13 lb ai/A)

- Sorghum Tolerance Lamesa
  - Sharpen (0.03, 0.06 0.12 lb ai/A)
  - Integrity (0.20, 0.57, 1.13 lb ai/A)

- Sorghum Tolerance Lamesa
  - Sharpen (0.03, 0.06 0.12 lb ai/A)
  - Integrity (0.20, 0.57, 1.13 lb ai/A)

Results

**EPP Burndown**

**PRE Weed Control**

**Sorghum Tolerance**

**Summary**
Sharpen offers potential to control weeds both preplant and in-season in sorghum. However, potential for sorghum injury exists with PRE applications. Further research is needed to identify hybrid susceptibility and define optimum use rates in sorghum.
Kochia control EPP 2008 and 2009
Russian thistle control EPP 2008 and 2009
Lamesa sorghum injury 2008
Halfway sorghum injury 2008
Halfway sorghum injury 2009
Lamesa sorghum yield 2008
Lamesa sorghum yield 2009
Halfway sorghum yield 2008
Halfway sorghum yield 2008
Palmer amaranth control 2008 and 2009