Alternatives to Burning Crop Residues in Alfalfa Grown for Seed:

Economic/Pest Management Impacts and Interactions Between Selected Burning Alternatives and Precision Crop Spacing
Plot design

• Row spacings at 22” or 30”
• Seed spacing at 1 5/8” or 3 3/8”

• Treatments- burning, tilling, mowing, or do nothing.
The plots were established in summer 2007 and grown out by the Wagoners through 2008. In February 2009 we applied the burning, mowing and tilling treatments.
Field burning spring 2009
Research plots after burning spring 2009
Looking at Emissions

2004

Quantifying post-harvest emissions from bluegrass seed production field burning

Extrapolating from Johnston & Golob, when a burn was conducted on stubble left in a “low load” grass seed field 0.9 tons of combusted residue resulted in:

- 2,881 lbs of CO$_2$
- 291 lbs of CO
- 18 lbs CH$_4$
- 58 lbs PM$_{2.5}$
- 73 lbs of PM$_{10}$

Combustion efficiency was calculated at 87%
In the establishment year we were able to optimize yield and reduce emissions with this plant spacing.
Spring 2009 Insects

- Population assessments of pest and beneficial arthropods were taken by sampling the research plots with sweep nets, yellow sticky cards, and pitfall traps.
- Amber Vinchesi went through all these in Fall 2009
Blister beetles ± Std error in pitfall traps
March 30, 2009
Alfalfa weevils ± Std error in pitfall traps
March 30, 2009
Seed Yield in Pounds per Acre ± Std error

Summer 2009

Impact of rodents in 2009 may have been greater then the not burning?