Incorporating forage crops into traditional irrigated corn systems

**Investigators:** Randa Jabbour, Sara Carabajal, and Andrew Kniss

**Issue:** Corn stalks are grazed in much of the West. Interseeded annual forage crops could potentially provide needed supplemental protein and energy when grazing corn stalks and could have other ecological implications.

**Goal:** Evaluate the advantages and risks of growing annual forages in standing corn.

**Objectives:** Test whether annual forage crop species and soil disturbance alter forage quantity and quality. Determine whether forage crop diversity drives associated abundance and diversity of pests as well as beneficial insects.

**Expected Impact:** Annual forage crops have the potential to increase productivity, efficiency, and sustainability of corn-based systems in Wyoming, but are deemed risky in this water-limited region and perhaps not worth the extra effort or cost. It’s our goal to provide information that helps producers decide whether to implement this practice on their land.

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**Keywords:** forage, beneficial insects, interseeding

**PARP:** I:6

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Shade tolerance of pepper varieties grown in a high-tunnel environment

**Investigators:** Brian Lee and Jeff Edwards

**Issue:** Wyoming high-tunnel producers may be able to increase yield and plant health by utilizing shade cloth for pepper production. High-tunnel environments can reach temperatures in excess of 100°F, and studies have shown that peppers prefer slightly shadier environments than other vegetables.

**Goal:** Record yield and environment temperature data for 12 different pepper varieties produced in shaded and non-shaded high-tunnel beds.

**Objectives:** Determine yield increase (if any) of pepper varieties grown in a shaded environment for optimal high-tunnel growth.

**Expected Impact:** Results should help growers produce greater yields in the limited area of a high tunnel by increasing plant health.

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**Keywords:** high tunnel, pepper, shade tolerance

**PARP:** I:2, VII:4
Evaluating bioherbicide efficacy on invasive winter annual grasses

Investigator: Daniel Tekiela

Issue: Bioherbicides have been suggested as an alternative tool to managing the current invasion of winter annual grasses; however, no data exists on their efficacy in Wyoming.

Goal: Determine if bioherbicides are a viable invasive winter annual grass management tool in Wyoming.

Objectives: Study the efficacy of various bioherbicide formulations on a troublesome winter annual, cheatgrass, aka downy brome (*Bromus tectorum*).

Expected Impact: Land managers seek alternative long-term methods of controlling invasive winter annuals in rangelands and are already utilizing bioherbicides, but with no data on their efficacy. These results should help land managers decide if this tool is a viable management option.

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Keywords: weeds, bioherbicides, invasive species

PARP: III:5,9,11