Short Format Reports—Powell R&E Center

1. Production characteristics of malting varieties of barley for MillerCoors

Investigators: Andrea Pierson, Camby Reynolds, and Gary Moss

Issues: MillerCoors seeks information to identify varieties of malting barley suitable for production in the Bighorn Basin.

Goals: The goal is to evaluate production characteristics of different varieties of malting barley tested at the Powell Research and Extension Center that are provided by MillerCoors.

Objectives: Specific objectives are to determine lodging scores, straw breakdown, head nod, and plant maturity prior to harvest. (Lodging is when stems bend over to near ground-level. Head nod occurs when plant matter dries, causing the plant to bend below the head.)

Impacts: Data collected will assist in the selection of barley varieties grown for MillerCoors by producers in the Bighorn Basin.

Contact: Gary Moss, gm@uwyo.edu or 307-766-5374.

Key Words: malting barley, variety trial

PARP: VIII:1

2. Effects of conservation tillage, cover crops, and limited irrigation on soil fertility

Investigators: Jay Norton, Axel Garcia y Garcia, Urszula Norton, Sandra Frost, and Caleb Carter

Issues: Conversion from flood-irrigation systems to overhead sprinklers, and conventional tillage practices to conservation tillage present opportunities for improved crop nutrient management. Altering irrigation and tillage without changing fertilizer practices, however, can reduce crop yield and quality. Many areas in Wyoming do not receive adequate irrigation water so understanding interactions among conservation tillage, water supply and use, and nutrient management is needed.

Goals: Goals are to 1) develop improved nitrogen (N) and phosphorus (P) fertilizer recommendations for sprinkler irrigation and conservation tillage under adequate and inadequate water supply, and 2) evaluate the benefits of cover crops in sugarbeet–barley cropping systems.

Objectives: Specific objectives include description of soil organic matter, water use, and N and P uptake; development of revised N and P fertilizer recommendations; and evaluation of cover crop effects under sprinkler irrigation and strip-till practices.

Impacts: Results should help growers improve soil fertility and soil quality under sprinkler irrigation. Effects of two combinations of cover crops under both sprinkler and furrow irrigation will be quantified.

Contact: Jay Norton, jnorton4@uwyo.edu or 307-766-5082.

Key Words: sugarbeet, strip-till, fertilizer

PARP: I:1,7,9, II:5,7,9
3. Production characteristics of conventional sugarbeets for Betaseed

**Investigators:** Andrea Pierson, Camby Reynolds, and Gary Moss

**Issues:** Betaseed Inc., based in Shakopee, Minnesota, seeks information to identify production characteristics of different varieties of sugarbeets.

**Goals:** The goal is to characterize production characteristics of sugarbeet varieties tested at the Powell Research and Extension Center that are provided by Betaseed.

**Objectives:** Specific objectives are to determine stand counts and yields of varieties of sugarbeets provided by Betaseed.

**Impacts:** Data collected could help producers raise higher quality sugarbeets that yield more tons per acre.

**Contact:** Gary Moss, gm@uwyo.edu or 307-766-5374.

**Key Words:** sugarbeet, variety trial

**PARP:** I:2

4. Production characteristics of malting varieties of barley for Briess

**Investigators:** Camby Reynolds, Andrea Pierson, and Gary Moss

**Issues:** Briess Malt & Ingredients Co., based in Chilton, Wisconsin, seeks information needed to identify new varieties of malting barley that are well suited to specific production areas.

**Goals:** The goal is to identify varieties of malting barley suited for production in the Bighorn Basin and surrounding areas. Trials are being conducted at the Powell Research and Extension Center.

**Objectives:** Specific objectives are to evaluate production characteristics (lodging scores, head nod, and plant maturity) and protein levels in varieties of malting barley supplied by Briess Malt & Ingredients Co. (Lodging is when stems bend over to near ground-level. Head nod occurs when plant matter dries, causing the plant to bend below the head.)

**Impacts:** Data collected should assist in the selection of barley varieties to be contracted locally and should provide producers with increased production alternatives.

**Contact:** Gary Moss, gm@uwyo.edu or 307-766-5374.

**Key Words:** malting barley, variety trial

**PARP:** VIII:1
5. Evaluating production characteristics of GoldenHarvest Corn varieties for J.R. Simplot

Investigators: Camby Reynolds, Andrea Pierson, and Gary Moss

Issues: Production data is requested by J.R. Simplot Co. to identify varieties of Golden-Harvest Corn best suited for production in the Bighorn Basin and surrounding areas. Golden-Harvest hybrids are distributed by J.R. Simplot Co. in the Bighorn Basin and other areas of the West. J.R. Simplot is a large food and agribusiness company based in Boise, Idaho.

Goals: The goal is to provide data to help producers select varieties of GoldenHarvest Corn suitable for production in the Bighorn Basin and surrounding areas.

Objectives: Specific objectives are to evaluate yield, plant height, and feed value of GoldenHarvest Corn varieties grown for livestock feed.

Impacts: Data collected should help local producers select varieties of Golden Harvest Corn best suited to their operations.

Contact: Gary Moss, gm@uwyo.edu or 307-766-5374.

Key Words: corn, variety trial, livestock feed

PARP: VIII:1

6. Production of green leaf lettuce in high tunnels

Investigators: Austen Samet and Axel Garcia y Garcia

Issues: Little is known about the relationship between nitrogen (N) fertilization and irrigation in green leaf lettuce produced in protected growing conditions such as high tunnels placed in an environment matching the Bighorn Basin.

Goals: The goal is to better understand the effects of N fertilization and irrigation strategies in reference to green leaf lettuce quality and production.

Objectives: Specific objectives are to evaluate 1) plant nutrition for human consumption, 2) soil quality for plant growth, and 3) irrigation requirements of green leaf lettuce produced in a protected agricultural environment.

Impacts: Results should assist growers in developing management practices for conserving N fertilizer and water. We also hope to gain a better understanding of the relationship of N fertilizer and water application, and how it affects the nutritional value of green leaf lettuce.

Contact: Austen Samet, asamet@uwyo.edu, or Axel Garcia y Garcia, axel.garcia@uwyo.edu or 307-754-2223.

Key Words: nitrogen, high tunnel, lettuce

PARP: I:1, II:8, IV:2, X:2
7. Study focuses on vining tomato production in high tunnels

**Investigators:** Austen Samet and Axel Garcia y Garcia

**Issues:** High tunnels and other structures that help protect vegetables (including tomatoes) from the elements are gaining popularity across Wyoming, including the Bighorn Basin. Little research has been done, however, to determine best management practices (BMPs) for vegetables grown in high tunnels in the basin. Information about proper fertilization and drip-irrigation strategies for optimal production of tomatoes grown in a protected environment is also lacking.

**Goals:** Our goal is to establish BMPs for indeterminate— or “vining”— tomatoes grown in a high tunnel. (Indeterminate tomatoes bear fruit all season long.)

**Objectives:** Specific objectives are to determine the best combination of drip irrigation and fertilization for optimum tomato yield and quality.

**Impacts:** Results should help farmers and other commercial growers, in addition to home gardeners, produce better quality tomatoes and higher yields in the Bighorn Basin and surrounding areas.

**Contact:** Austen Samet, asamet@uwyo.edu, or Axel Garcia y Garcia, axel.garcia@uwyo.edu or 307-754-2223.

**Key Words:** high tunnel, indeterminate tomatoes, drip irrigation

**PARP:** I:1, II:8, IV:2,4, X:2

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8. Best management practices for spinach production in high tunnels

**Investigators:** Austen Samet and Axel Garcia y Garcia

**Issues:** Little research has been done to determine best management practices (BMPs) for vegetable production under protected growing conditions (such as high tunnels) placed in an environment matching the Bighorn Basin. Research on proper fertilization and drip-irrigation strategies for optimal production of spinach under a protected structure is also needed.

**Goals:** The goal is to develop BMPs for spinach produced in a high tunnel.

**Objectives:** Specific objectives are to determine the best combination of fertilization and irrigation under a drip system for optimum spinach quality and yield.

**Impacts:** Results from this study should help commercial spinach producers and home gardeners in the Bighorn Basin and surrounding areas produce better quality spinach and higher yields.

**Contact:** Austen Samet, asamet@uwyo.edu, or Axel Garcia y Garcia, axel.garcia@uwyo.edu or 307-754-2223.

**Key Words:** high tunnel, drip irrigation, best management practices

**PARP:** I:1, II:8, IV:2,4, X:2
9. Evaluating production characteristics of confectionary sunflowers for SunOpta

**Investigators:** Camby Reynolds, Andrea Pierson, and Gary Moss

**Issues:** SunOpta Inc., with main offices in Ontario, Canada, and Minnesota, seeks information needed to identify varieties of confectionary sunflowers suitable for production in the Bighorn Basin and nearby regions.

**Goals:** The goal is to collect data needed for the selection of confectionary sunflower varieties suitable for production in the Bighorn Basin. “Confectionary” refers to sunflower seeds used primarily for food.

**Objectives:** Specific objectives are to determine plant height, days to maturity, test weight (lbs/bushel), seed yield, seed size, and harvest moisture of varieties of confectionary sunflowers provided by SunOpta and grown at the Powell Research and Extension Center.

**Impacts:** Data collected should provide information needed to identify varieties suitable for production in the Bighorn Basin. This information could help producers more efficiently raise high quality confectionary sunflower seeds.

**Contact:** Gary Moss, gm@uwyo.edu or 307-766-5374.

**Key Words:** sunflowers, variety trial

**PARP:** I:2

10. Carrot and corn salad varieties for seed production in the Bighorn Basin

**Investigators:** Andrea Pierson, Camby Reynolds, and Gary Moss

**Issues:** The Bighorn Basin is ideally suited to seed production by numerous plants, provided those species can survive potentially severe winter conditions. The basin’s isolation diminishes the likelihood of transmitting seeds of other varieties in other seed-producing regions as well as weeds and diseases. The arid environment of the basin, however, requires precise control of irrigation.

**Goals:** The goal is to determine if selected varieties of carrots and corn salad (also known as mache) can survive winter conditions at the Powell Research and Extension Center.

**Objectives:** Specific objectives are to evaluate winter survival and bloom dates of corn salad and carrot varieties.

**Impacts:** Data collected may help local producers by providing additional crops to consider for seed production in their farming operations.

**Contact:** Gary Moss, gm@uwyo.edu or 307-766-5374.

**Key Words:** carrots, corn salad

**PARP:** I:2
11. The five most dangerous hand tools on the ranch and farm

**Investigator:** Randy Weigel

**Issues:** Tools make work easier, faster, and even more precise; yet tools—especially power tools—can cause injuries. Table saws, nail guns, chain saws, and circular saws, along with ladders, have been found to be particularly prone, if not used correctly, to cause accidents and injury.

**Goals:** The goal of this outreach effort is to describe the extent of accidents caused by these tools and provide safety tips to minimize the occurrence of injury.

**Objectives:** Objectives include describing the scope of the problem, outlining safety tips for each tool, and providing references for detailed hand tool safety procedures.

**Impacts:** Make sure you are familiar with the tools, and use them only for the projects for which they were designed. Make sure that the tools are in top working order and all safety guards are on. Never use these tools when you are in a hurry, with little sleep, or after you have been drinking alcohol or using drugs (including prescription) that alter thought processes and motor skills. And always wear appropriate safety equipment.

**Contact:** Randy Weigel, weig@uwyo.edu or 307-766-4186.

**Key Words:** hand tools, accidents, safety

**PARP:** None applicable