



# Sun Grant Western Regional Center

Oregon State University

## Development of Camelina as a Low-Input Oilseed Crop for Oregon, Idaho and Washington

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### OVERVIEW

Camelina, a member of the mustard family, is an annual oilseed crop that has been used and cultivated since the Bronze Age. Present-day preliminary research has shown that this crop possesses unique agronomic traits that make it well-suited to the Pacific Northwest (PNW) as a possible feedstock for bioproduct production. A multi-state team is conducting trials at four sites in the PNW examining crop response to seeding rate, nitrogen rates, planting dates and climate. The ultimate goal of this research project is to develop agronomic practices to incorporate camelina into PNW crop production systems and assist the fledgling oilseed industry's understanding and utilization of this crop.

### Progress to Date

Plantings for the 2009-10 crop year have begun at four locations across the Pacific Northwest (PNW) including Pendleton, OR, Corvallis, OR, Lind, WA and Prosser, WA. The four defined objectives of this project are 1) to determine the optimum planting date and to assess planting methods for camelina across the PNW; 2) to identify best adapted cultivars and germplasm; 3) to explore nitrogen fertility needs of camelina grown in different environments and 4) to share research findings through publications, field tours, grower meetings and other venues to allow camelina to become a viable part of cropping systems of the PNW. Some of the early findings will influence crop management by early adopters of this crop.

#### Progress for objective 1 - Planting Dates and Methods

Two planting methods – direct drilling and broadcast with packing – and six planting dates are planned at all four sites. Planting dates are planned for fall through late spring but will be weather dependent at each location. Four replications will be used. The variety Calena will be seeded at 4-5 lb/acre with nitrogen @ 25 lbs/acre. Stand count, grain yield, test weight, seed weight and seed oil content will be determined for all plots. In Pendleton, the first sowing of Calena was November 2, 2009. Cool temperatures flowing the fall planting led to a slow germination and emergence. Cold conditions without snow cover and frozen ground with frost depth greater than 6 inches occurred for 7-10 days in early December. Seedlings survived these conditions and are present in both the broadcast and drilled replications of the planting. In Corvallis, the fall and early spring seeding have been made. In Lind, ample fall rain showers occurred beginning on October 14, 2009 that allowed the team to establish camelina on October 21, 2009, about a month earlier than in the previous two years. Camelina seedling began to emerge from the soil nine days later. Camelina stands are adequate from both of these trials as of December 30. The second planting was conducted on November 18. In Pullman, the seeding trial was established on October 28 under good soil conditions but fairly cool temperatures. This is considered a late-fall plating. The first winter-dormancy planting was sown on December 11 onto frozen soil. At the December planting, the first seeding date was observed to be emerged and healthy, but still small. Those plants were exposed to a week of cold temperatures, reaching 0°F and below 20°F for the week.

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\$298,645 in federal funds (\$358,645 total project)

## Progress to Date (cont.)

### Progress for objective 2 – Cultivar Assessment

The scope of work for this objective will be to: evaluate 15-20 cultivars and numbered lines at each location using four replications and nitrogen @ 25 lb/acre. In Pendleton, a fall trial of 18 cultivars was sown on October 19. The trial had good germination and emergence. In Pullman, 20 camelina cultivars were established on October 28 as a late fall planting. Plants established after seeding and survived cold temperatures.

### Progress for Objective 3 – Nitrogen needs

The scope of work includes: single cultivar planted with nitrogen rates varying by location, Four replications will be used and grain yield, test weight, seed weight and oil percentage determined for each plot. Spring plantings will be made at all four sites.

### Progress for Objective 4 – information dissemination

Information has been disseminated through extension and industry meetings, and peer reviewed publications.

## Collaborators

Co-PIs:

Stephen Guy, Washington State University, Pullman

Tom Chastain, Oregon State University, Corvallis, OR

Don Wysocki, Oregon State University, Columbia Basin Agricultural Research Center, Pendleton, OR

Bill Schillinger, Washington State University, Lind, WA

## Technology Transfer (2009)

- Guy, S.O., K. Butler, M. Lauver. 2009. Camelina Seed and Agronomic Production for Biodiesel. In 2009 Agronomy Abstracts, Madison, WI.
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- Painter, K. and S.O. Guy. Economic Comparison of Camelina and Spring Canola Production Costs. Pacific Northwest Oilseed Conference. February 12, 2009, Moscow, ID
- Schillinger, W.F. Oilseeds in dryland crop rotations. Pacific Northwest Annual Oilseeds Conference. February 12, 2009, Moscow, ID.
- Wysocki, D. Camelina: Production Management . OSU Umatilla County Columbia Basin Wheat Seminar. January 27, 2009. Pendleton, OR.

## Funding Sources

- U.S. Department of Transportation, Research and Innovative Technology Administration
- Cost share: Oregon State University

