# 2000 SOYBEAN VARIETY TRIAL AT MADRAS

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## Introduction

Food-quality soybeans may represent a possible alternative crop for farmers in central Oregon. Traits of interest are large seed-size, clear hilum, lack of genetic engineering, and early maturity. Also of importance for making tempch is ease of dehulling. Results from last year's variety trial were promising, with better lines yielding about 40 bushels per acre (Sexton et al. 2000). These yields were consistent with computer simulation studies for soybean production in central Oregon using the CROPGRO model (Sexton and Farris 1999). In a continuation of this effort, another variety trial was conducted in 2000 to further explore the possibility of soybean production in central Oregon.

## Methods

Ammonium sulfate was applied at a rate of 225 lb per acre and tilled in ahead of planting. Soybeans were planted on May 23, 2000 at a rate of nine seeds per ft. of row using an Almaco small-plot cone planter (Almaco, Nevada, IA). Plots were four rows wide and 20 ft. long and were laid out in a randomized complete block design with four replications. Six experimental lines from the Malheur Experiment Station's program, and five production varieties from the upper Midwest were included in the trial. The experimental lines were M92-225, M92-330, M92-237, M92-085, M92-350, and M92-314. The production lines were `Agassiz', 'Glacier', `Lena', `Korada', and `R0752CH'. Liquid inoculant (Nitragin Cell-Tech 2000, LiphaTech Inc., Milwaukee, WI) was applied in the row at planting. Weeds were controlled with alachlor applied pre-emergence at a rate of 2.75 qt/acre, and with hand-weeding later in the season. There was a killing frost on September 23. Plots were rated for maturity on September 28 according to Fehr and Caviness (1979). The plots were end-trimmed, removing 2.5 ft. from each end of the plot ahead of harvest.

Due to wet weather the plots were not combined until October 18, 2000. The middle two rows of each plot were combined for determination of seed yield.

## Results and Discussion

The stands lodged and yields were much poorer this year than last (average yield of 35.9 bu/acre in 1999 versus 21.1 bu/acre in 2000) (Table 1). Seed samples were sent to several companies and are still being evaluated at the time of this writing. One company has indicated they would be willing to contract `Korada' soybean for making tempeh on a small pilot basis. Estimated cost of production for conventional soybeans is about $430 an acre (Table 2). For a 40 bushel yield the breakeven price would be close to $11 per bushel.

## Literature Cited

P. J. Sexton, C. Shock, and R.R. Bafus. 2000. 1999 Soybean variety trail at Madras, Oregon, Oregon State University, Central Oregon Agricultural Research Center. Special Report 1013. Pp 108 —110.

P. J. Sexton and N. Farris. 1999. Modeling dry bean and soybean yields in Central Oregon. Oregon State University, Central Oregon Agricultural Research Center. Special Report 1003. Pp 103 — 107.

Table 1. Seed yield, lodging and maturity for 11 soybean lines grown at Madras Oregon in 2000. Lodging is based on a 1 to 5 scale (1 being upright and 5 being completely lodged). Maturity ratings are those of Fehr and Caviness (1979) where 7.0 is physiological maturity and 8.0 is harvest maturity. Maturity and lodging ratings were made on September 28. There was a killing frost on September 23.

| Variety | Yield | Lodge | Maturity |
|---|---|---|---|
| | (bulacre) | | |
| R0725CH | 30.8 | 4.1 | 6.8 |
| Lena | 27.6 | 4.1 | 6.7 |
| M92-350 | 23.9 | 2.6 | 7.1 |
| Korada | 21.8 | 1.4 | 7.0 |
| M92-225 | 21.1 | 2.1 | 6.9 |
| M92-237 | 20.1 | 2.1 | 6.6 |
| M92-330 | 19.0 | 2.5 | 6.7 |
| Agassiz | 18.7 | 2.3 | 6.6 |
| M92-085 | 18.5 | 2.9 | 6.6 |
| M92-314 | 18.3 | 1.4 | 6.9 |
| Glacier | 12.7 | 3.8 | 6.5 |
| Mean | 21.1 | 2.7 | 6.7 |
| LSD (0.05) | 9.1 | 0.9 | 0.2 |
| CV (%) | 29.9 | 23.6 | 2.5 |

**Table 2.** Estimated cost of production for conventional grain soybean in central Oregon.

| **Variable Costs:** | | cost per acre<br>*$* | *Your cost* |
|---|---|---|---|
| Tillage | conventional | 6.10 | |
| Seed | 60 lb/acre | 18.00 | |
| Fertilizer | 35-30-30-20 | 35.50 | |
| Herbicide | Lasso | 30.00 | |
| Combine | | 6.00 | |
| Hauling/Handling | | 1.85 | |
| Labor | other than irrigation | 20.00 | |
| Irrigation -- water | 24 inches | 40.00 | |
| Irrigation -- repair/electricity | | 10.00 | |
| Irrigation -- labor | $6/acre per run | 60.00 | |
| Interest | (10% for 8 months) | 14.23 | |
| | | | |
| **Fixed Costs:** | | | |
| Land | rent | 100.00 | |
| Machinery | | 29.48 | |
| Irrigation interest and depreciation | | 40.00 | |
| Insurance | | 2.59 | |
| Property tax | | 15.00 | |
| | | | |
| subtotal -- variable | | 241.68 | |
| subtotal -- fixed | | 187.07 | |
| **Total Costs** | | 428.75 | |
| | | | |
| Total cost/bushel | with a 40 bu/acre yield | 10.72 | |