

**Proposals for 2012-2013**  
**Sastry Jayanty**  
**Potato Postharvest Physiology**  
**San Luis Valley Research Center, Department of Horticulture & LA**

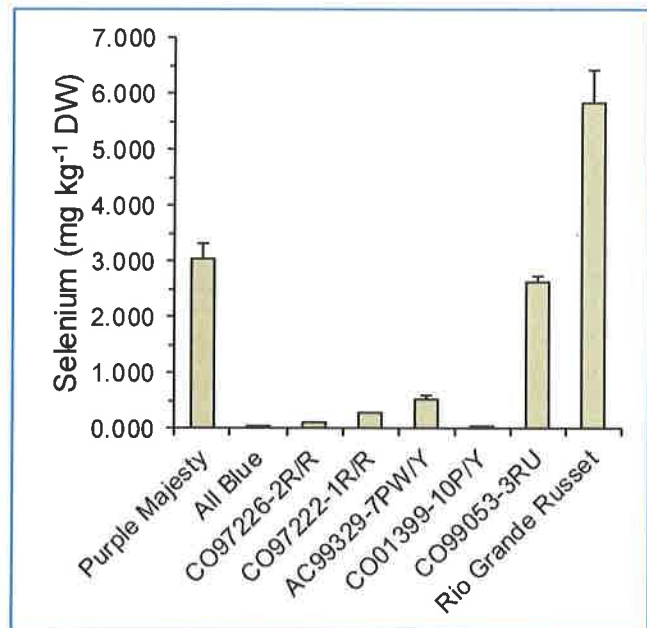
**Funding Source: CCPGA Royalties**

**Title: Studying selenium and sulfur uptake and developing methods to enhance sulfur accumulation in San Luis Valley soils by Colorado Potato cultivars**

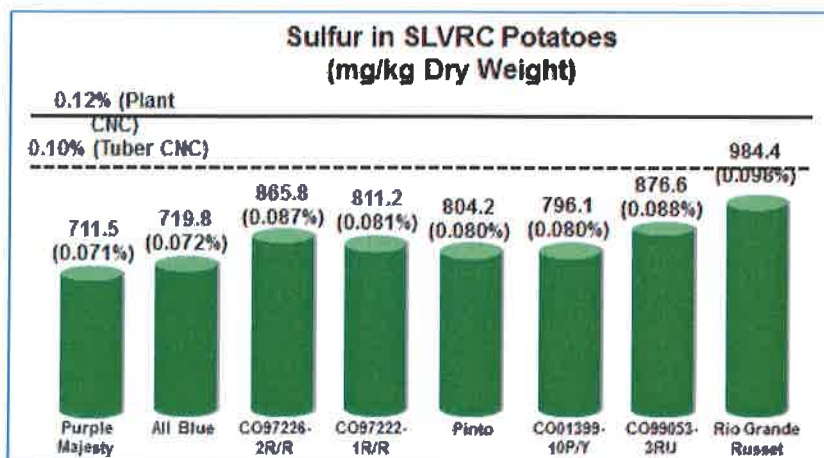
**Most relevant funding source: CCPGA royalties**

**Nature, scope, objectives of proposed research**

Selenium (Se) is an essential trace element in the human body. Potato plants are being supplemented with selenium (Se) in several countries to enrich tubers with Se for obvious health benefits. Potato tubers supplemented with Se premium price. Se is not an essential nutrient and interferes with metabolism of essential nutrient sulfur (S) in the plants. In Colorado soils are rich in selenium. This is affecting uptake of sulfur by potato plants because plants can't distinguish between sulfur and selenium. Petiole analysis at SLV Research Center revealed, sulfur levels are not at optimum levels. If sulfur levels falls below critical level it can affect size and shape and yields.



**Highlights**



- Selenium is very important dietary supplement
- Colorado cultivars and advanced selections differ in selenium content.
- Tubers of Rio Grande Russet, Purple Majesty, and CO99053-3RU can supply more than the recommended dietary

allowance (RDA) of Se to adult humans

(Accepted DOI: 10.1007/s12230-011-9232-1; American Journal of Potato Research)

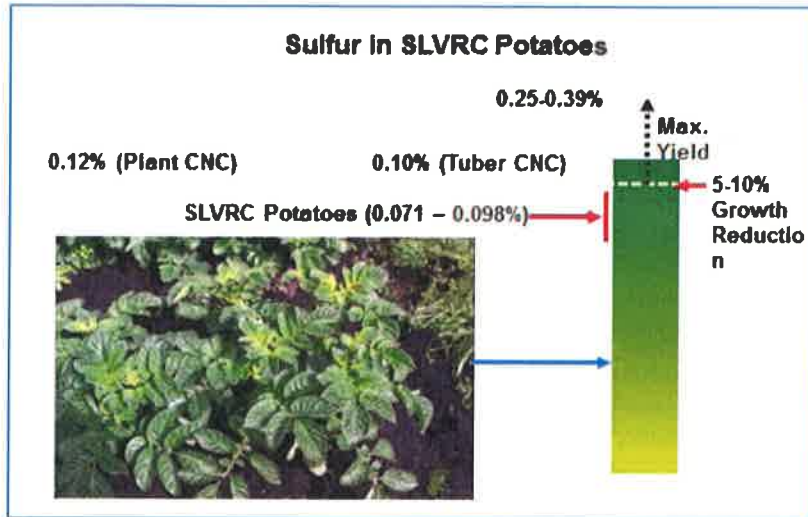
**Objectives:**

Testing soil amendments to increase sulfur uptake such as

- Zipsium to reduce pH
- Ammonium sulfate
- Testing sulfur converting bacteria
- Amending naturally occurring plant growth promoting bacteria (PGPB)

**How the project will enhance the competitiveness of Colorado potato growers:**

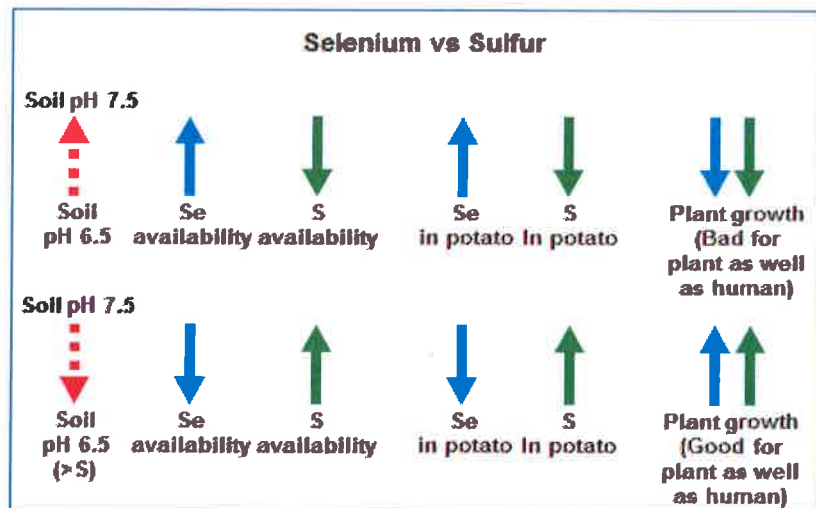
This research will enhance the value of our industry by increasing grower returns and open new markets



**Extension-outreach plan for reporting project information to growers**

Results will be presented and reported to grower community and scientific community using following avenues

- Rocky Mountain Ag conference,
- Northern Colorado Potato Grower meeting
- Potato Association of America Annual meetings
- Field days,
- Open house,
- Tours,
- Annual Reports
- Spuditems or newsletter.
- And site visits to commercial storages



**Potential for results to leverage additional outside funding**

This is one of the important research area identified by Specialty Crop Research Initiative grant advisory panel which includes nutritionists, dieticians, potato trade organizations, Chefs and processing, fresh market, growers and related industry.

**Timeline and expected outcomes**

Funds are requested for two years.

To develop recommendations to increase sulfur intake by potato cultivars depending on soil pH

**Requested funding for 2012-13: \$42,500**

**Year 1**

Research Associate (25%):	\$12,500.00
Temporary Labor:	\$2,500.00
Equipment and laboratory supplies:	\$2,500.00
Chemicals Supplies and Services:	\$2,500.00

**Year 2**

Research Associate (25%):	\$12,500.00
Temporary Labor:	\$5,000.00
Equipment and laboratory supplies:	\$2,500.00
Chemicals Supplies and Services:	\$2,500.00