

USDA- ARS Grain Legume Genetics and Physiology

Hayley Trapp

Hort 399

Fall 2015

Introduction:

The Grain Legume Genetics and Physiology unit of the USDA-ARS here at WSU has several ongoing projects and goals. These include developing pea, lentil, and chickpea (legume) cultivars that are resistant towards insects, diseases and abiotic stress, producing legumes with a great enough plant biomass to aid in erosion management, and creating/ using genetic maps which locate the loci that control resistance to abiotic stress, the production of biomass, when to flower and mature and seed size. Legume breeding attempts to produce progeny that has increased yields, quality and disease resistance. The research being performed here greatly benefit legume growers as the results impact potential crop production.



Recently osmocoated (fertilized) lentils.



Flowering lentils, ready to be trellised for the last time



Lentil trellising: before and after.



My supervisors, Mary (left) and Sheri (right) standing in front of peas and lentils grown in hydroponics.



This is the chickpea threshing machine (above). Chickpeas are harvested into individual bags. The bags are brought, and the seed cleaned. The machine removes stems, leaves and separates the seed.



Above: Greenhouse section showing both net trellising and string trellising.



Left: String trellising is used for peas grown in one-gallon pots. One seed is planted per pot. Plants are trellised by using the internodes and 'braiding' it up the string.



Right: Net trellising is used for peas grown in 2-gallon pots. Typically three plants are in each pot. The peas grown up the net and use their tendrils to attach themselves.

Responsibilities:

- Set up and maintenance of hydroponics
- Fill and organize pots
- Planting and fertilizing
- Trellising: string, rubber bands and netting
- Harvest
- Treshing and cleaning seed
- Greenhouse maintenance

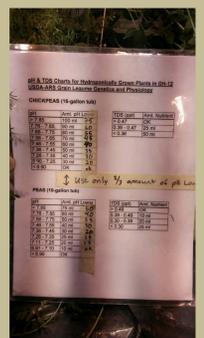


Mary taking hydroponic readings and adjusting the nutrients and pH accordingly.



Above: Nutrients added to promote vegetative or flower growth and acid to adjust pH.

To the right: Based on the hydroponic readings and the size of the tub, the following nutrients and/ or acid are applied.



Summary:

The training I had the privilege of receiving, grew upon my previous knowledge and created new skills within the greenhouse. I gained more experience in working independently, how to assess tasks based on importance, and in communication, both with my supervisors and with whom I was helping supervise. These are skills that are necessary in any work situation. My knowledge in plant care and upkeep rose, especially growing seedlings in hydroponics, an area where I had no prior experience. Being able to participate in pea crossing not only furthered my understanding in that particular field, but spurred an interest that was not previously there. The skills I gained throughout this internship will undoubtedly be of use in any greenhouse career.