PCS NEWS

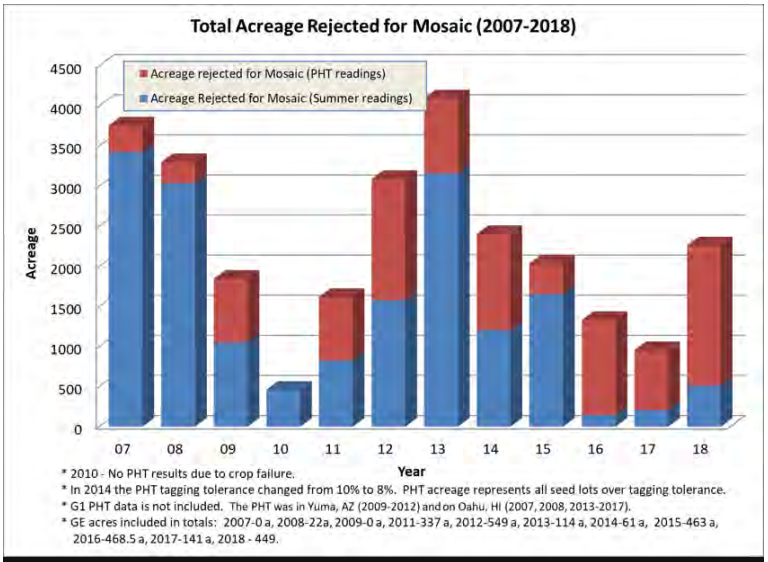
Colorado Potato Certification Newsletter February 2019

Post Harvest Test

This year's winter grow out was met with some challenges, specifically an extremely wet season that made planting difficult. With a longer stay due to rain delays, the crew was able to get it done. There was good emergence overall. The inspection and lab crew were very busy when they returned to Hawaii and also battled rain. This year all the visual inspections were backed up with ELISA, testing 464 lots. Last year we reported the lowest number of acres rejected for mosaic, but unfortunately this year didn't follow that trend. While there are so many variables to consider when trying to determine the reason for the increased rejections, the valley did see one of the warmest winters and driest summers that could have affected the 2018 crop. The rejections have caused a flurry of activity in the lab which is working hard on sprout testing B-samples. The final results are out with an updated seed directory available on our website, http://potatoes.colostate.edu/potato-certification-service/.

"I'm always amazed at the crop progress that happens in such a short time frame."

- Michelle Leckler on her experience at Post Harvest Test



Total acreage rejected since 2007.

Potatoes at PHT next to banana trees in Oahu, Hawaii.

In This Issue

Clockwise from Top Left: Alamu shows off on-farm potato storage, Fields using "modern" equipment, ARARI Tissue Culture Lab, Farmer's wife in potato field, Another field with oxen power.

Carolyn Keller-Travels to Ethiopia

By Carolyn Keller, tissue culture specialist

Last November, I went to Ethiopia with Charlie Higgins (Ph.D. CSU 1981) to assist the tissue culture lab in Bahir Dar. Charlie, through his Ethiopian Sustainable Food Project, works closely with the local farmers and Ministry of Agriculture researchers in the northern region to increase the sustainable food supply.

Potatoes are currently grown by 80,000 farmers in the Amhara region, most of whom are trying to provide food for their family on 1 to 2-acre farms. They are using traditional, local varieties that are not as productive or disease tolerant as newer varieties that are available in other parts of the world. Seed for next year consists of saving tubers from last year's crop – disease and all, year after year. Storage of potatoes has largely been done by simply leaving them in the ground until they're needed, resulting in a loss of up to 50% of the crop due to ants and tuber moths.

Charlie became involved about 10 years ago and has created the Ethiopian Sustainable Food Project. The goals of this project are; to produce and maintain clean seed potatoes of improved varieties, make seed available to farmers, teach farmers how to build on-farm storages for their seed potatoes as well as on-farm ware (commercial) potato storages. The project also, with the help of Ethiopian nutritionists, educates farm families about solar dehydrating potatoes as a way of preserving a larger portion of their crop for later use.

The project has creatively renovated an abandoned lab building into a tissue culture lab, which has become quite successful in providing tissue culture plantlets that are planted in screenhouses for mini tuber production. My specific goals were; to educate lab personnel on the protocol for cleaning virus from tissue culture material, introduce the method of starting potato tissue culture from a sprout vs. a leaf cutting and improve the general efficiency of the lab. We also took as many supplies as we could handle as one of their real problems is how to pay for and get materials into the country.

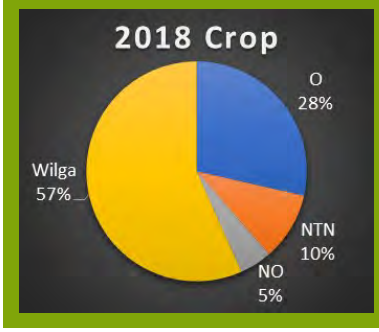
This was such an eye-opening experience for me! Farming is still taking place the way it was hundreds of years ago. I saw no tractors. Everything is done by hand or with oxen and one bottom wooden plows. The people we talked to all seemed very receptive to our help and new ideas. They truly deeply appreciate Charlie and all that he's done for their industry. I'd encourage you to check out the website, ethiopianfoodproject.org for more information.

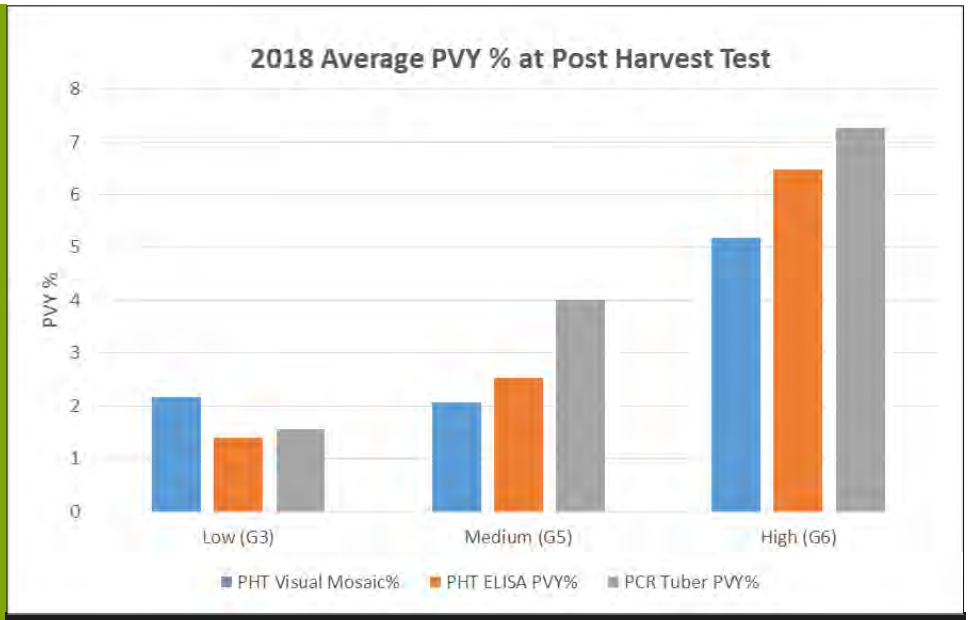
PVY Strain ID Survey

This year we were able to perform our own survey of the most common PVY strains that affect our growers. Leaves were picked in Hawaii at the post harvest test and shipped back where we performed PCR to get a sample of what types of PVY we have in the valley.

We continually find PVY^{O} (the ordinary strain), $PVY^{N:O}$ (a recombinant strain having characteristics of both the ordinary strain and N, a necrotic strain), PVY^{NTN} (a strain that causes necrotic flecking and ringspot symptoms in the tubers of some potato varieties) and $PVY^{N:Wi}$ (Wilga, a strain that causes mild mosaic and tuber disease in some varieties).

Our survey included 20 different growers, 47 different potato varieties, and 81 different lots. The PVY strain most was $PVY^{N:Wi}$.





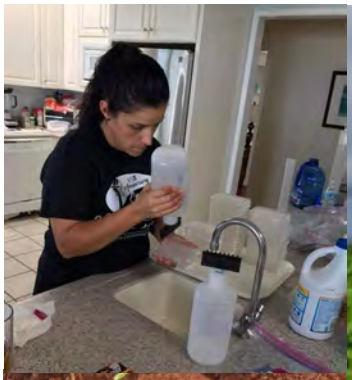
The average of 4 reps of 100 tubers each showing the differences in testing.

SCRI PVY Project Continued

Colorado Potato Certification Service once again participated in the multi-state SCRI Potato Virus Project. This project aims to determine a relationship between direct tuber testing results from PCR, a molecular technique, and field grow out for post-harvest testing purposes. Rio Grande Russets were chosen again with similar mosaic levels as the previous year. Three different lots representing low, medium, and high PVY levels from summer inspection were used and each had four reps of 100 tubers each. The potatoes were cored before sending to Hawaii for direct tuber testing using PCR and then compared to the visual results and ELISA testing done at winter test.

The results this year show that this may indeed be a valuable test. We will know more when we receive the data from the other participating states: Idaho, Montana, and Wisconsin. We are very thankful to our growers that were able to provide extra tubers. This type of research is not possible without the support from our growers and we hope that it will help improve the potato industry through better testing techniques.

Rick Haslar inspects potatoes at PHT in Oahu, Hawaii.



Clockwise from Top Left: Teresa Almeida works in the "Lab" in Hawaii, Teresa Almeida picking leaves for PHT, PHT Planting Crew, Potato blooms in Hawaii, Muddy Shoes (It was wet this year!).

Contact Us

Give us a call for more information about our seed potato certification services.

Potato Certification Service
San Luis Valley Research Center
0249 East Road 9 North
Center, CO 81125

(719) 754-3496

Andrew Houser, Manager
andrew.houser@colostate.edu

Visit us on the web at potatoes.colostate.edu/potato-certification-service/

Potato Certification Service
San Luis Valley Research Center
0249 East Road 9 North
Center, CO 81125

PLACE
STAMP
HERE