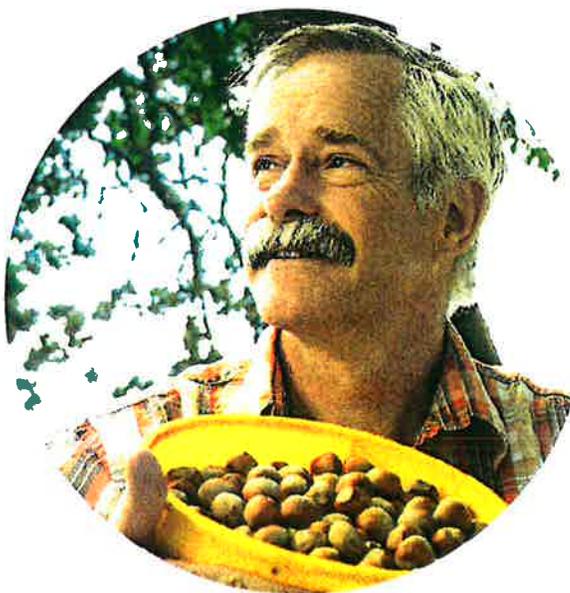


# OREGON HAZELNUT INDUSTRY PROFESSORSHIP

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**SHAWN MEHLENBACHER**



PHILANTHROPIC IMPACT:  
July 1, 2018 - June 30, 2019



**Oregon State University**  
Foundation



## **Oregon Hazelnut Industry Professorship Endowment**

**Activity from July 1 2018 – June 30 2019**

I have not spent any funds from the OSUF professorship in recent months. I have chosen to let them accrue in anticipation of tighter money in future years.

Hazelnut cultivars released in the past 8 years continue to generate royalty income. Much of the money is from Viveros Nefuen, our licensed nursery in Chile. Now Vletter and den Haan in the Netherlands, in partnership with Viveros Nefuen, have a license for the European Union and nearby countries, so royalty income should continue for several years. The hazelnut breeding project's share of the royalty income is deposited in a state account. I charge partial salaries to this account as I believe it would be unwise to keep a large balance.

We are currently a little over half-way through our five-year grant from the USDA Specialty Crops Research Initiative "Genomic tools, genetic resources and outreach to expand commercial U.S. hazelnut production". This grant funds the salary and benefits of Research Assistant (lab manager) Jacob Snelling for the full five years. For the past 2.5 years it has also paid for our lab supplies, but the budget for supplies has now been exhausted. When the grant expires, it may be several years before we succeed at obtaining a new grant. Continuing Jacob Snelling's employment is a top priority, and money accumulated in various accounts will allow me to do this.

We plan to build a new pole barn at the Smith Horticulture (Vegetable) Research Farm, probably in stages over two or three fiscal years. We have several pieces of equipment that now spend the winter outside in the rain. Our program has grown so that current indoor space is very tight. The pole barn will include a walk-in cooler to store trees in the spring; the current coolers at the Lewis-Brown farm are sometimes not available, and have never been dependable.

In the area of hazelnut genomics, we had the genomes of three ('Jefferson', OSU 1026.073, and OSU 1477.047) sequenced at the Arizona Genomics Institute using Pacific Biosciences technology. The cost was about \$28,000 for each genome, including DNA extraction and sequence assembly. Now we are collecting leaves of the **six parents** for genome sequencing, and are awaiting a cost estimate. The selections and the parents of each are listed at the end of this letter.

The genome sequencing efforts complement our efforts to develop new cultivars resistant to eastern filbert blight (EFB). We have more than 100 sources of resistance and are studying segregation for disease response, and then mapping dominant resistance genes. We have developed DNA markers in each of the three clusters (one each on linkage groups 6, 7 and 2). We have begun to pyramid resistance genes, hoping to release new cultivars with more than one resistance gene. DNA markers are essential for this.

As for equipment purchases, we need a new thermal cycler in the lab. The current cycler is quite old and the lid no longer seals correctly, so many samples do not amplify. The estimated cost is between \$15,000 and \$20,000. I plan to use an account at the OSU Foundation for this purchase.

Sincerely,



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Three hazelnuts whose genomes have been sequenced, and the parents of each:

**Jefferson** (LB15.06) with EFB resistance from 'Gasaway' on linkage group 6.

OSU 252.146 (1191.066, 1192.130, LB07.03a, MP03.20)

OSU 414.062 (LB07.22a, MP03.07)

**OSU 1026.073** (LB28.03) with EFB resistance from 'Ratoli' on linkage group 7.

OSU 665.123 (LB11.21)

Ratoli (LB09.38,39,40)

**OSU 1477.047** (LB53.22) with EFB resistance from Georgian OSU759.010 on linkage group 2.

OSU 1085.066 (LB31.06)

OSU 965.067 (LB26.14)