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Oregon produces 99% of US commercial hazelnuts, with farmgate sales at \$60-75 million. Oregon Hazelnuts attract a premium price for the large size of the nuts compared to all other production areas globally. PNW acreage (OR, WA, BC) increased from 1905 until 1970 when Eastern Filbert Blight (EFB) was documented in Washington State. Since then, acreage has declined, with production outside of Oregon's Willamette Valley almost non-existent. EFB is a fungal disease endemic to the eastern US. Chemical control of EFB costs about \$160 per acre per year. Growers incur an additional \$150 per acre per year to scout and remove infected branches from fully established orchards. Infected trees gradually die. In the meantime, their yield can be dramatically reduced. Oregon has lost some 1600 acres of about 30,000 acres of hazelnuts to EFB in the past decade. Currently, more than 70% of Oregon orchards are infected, or are in close proximity to diseased orchards. The goal of this project is to develop disease-resistant hazelnut varieties, develop varieties adapted to nut production outside of the Pacific Northwest, and develop varieties adapted to conditions in the US Midwest, providing growers there with an additional biofuel enterprise for increased farm sustainability. The 'Gasaway' gene confers resistance to EFB; it is now fully mapped and characterized, although work continues to refine our understanding of its function in hazelnut. Selections from the hazelnut breeding program, fully resistant to EFB, are crossed with susceptible cultivars; resultant crosses not resistant to EFB are dropped from the breeding program. The resistant seedlings are evaluated according to the quality of their nuts and adaptability to climatic conditions across the US. EFB resistant 'Jefferson,' a cultivar valued for its large nuts, is being readily adopted by growers. About 5,000 acres have been planted since its release in 2010. These are the first new orchards to be planted since 1970. Continued research will address the need to uncover a broader base of sources of resistance and concerns about breakdown of resistance, lending durable, long-term sustainability to this industry. This work has saved a specialty crop industry in the United States. Further, hazelnuts provide an alternative enterprise to the Willamette Valley's grass seed growers, who continue to suffer from stagnant markets since the fall of the housing market in 2008. In a fully establishment orchard, EFB resistant trees return \$1,940 per acre over cash costs to the grower, as compared to -\$3,014 for the EFB susceptible planting, a difference in cumulative cash flow of \$4,954 per acre. China is the principal export market for US hazelnuts.

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Read more about the impact of this work from a grower's perspective:

http://www.gazettetimes.com/news/local/farmers-wild-about-hazelnuts/article_88c02071-476d-5020-ab43-6408d48964f4.html#ixzz1dhzi6g1Z