

DOES HAZELNUT SHELLS MATTER?

POTENTIAL VALORIZATION ROUTES OF HAZELNUT BYPRODUCTS IN ITALY AND OREGON (USA)

Scientific literature on food byproducts utilization have been growing in the past decade. Research projects have been aimed at analyzing different ways of byproducts valorizations, due to their chemical composition and potential beneficial effects on human health. These projects are all bio economy and circular economy oriented.

In light of that, there is still much to disclose in this field, in order to add value to hazelnut byproducts, by re-utilizing it in an innovative way.

So it is a matter of giving “new life” to it , rather than paying dismissal cost or using it as compost. While hazelnuts have been growing in popularity the shells have only recently become a valuable byproduct.

My work will be a review about the current uses of hazelnut shells in Italy and Oregon (USA) in order to provide extensive information about potential valorization routes assessing their environmental and economic impacts.

Methodologically, an international comparative analysis between the two countries will be used, interviewing both Italian and Oregonian hazelnut companies owners and growers.

Italy is the second largest producer of hazelnuts in the world, while Oregon State is in third place. The latest USDA production forecast issued Aug. 21 calls for 52,000 tons of hazelnuts, surpassing last year’s total of 32,000 tons and the previous record of 49,500 tons set in 2001. So, the volume of possible byproduct valorization is extremely interesting.

Overall hazelnut acreage is also on the rise, with 72,353 acres of orchards across the state, including 40,000 acres of mature, nut-bearing trees. Oregon State University is

also playing a significant role in breeding new hazelnut varieties with higher yield. Higher production will lead to higher growers income, lowering also operational costs.

There are various studies showing different ways of reusing hazelnut shells ,such as compost, bio-combustible, ground cover, production of composite materials. As a matter of fact, hazelnut shells are extremely hard which slows their decomposition and makes them an ideal product to use in gardens. The shells also make a great surface for garden pathways that can last for several seasons. They also burn at a high temperature and have an high calorific value, so they are a good bio-combustible.

Furthermore, it can be used as a animal feed ingredient in due to its high fiber content.

Regarding new paths in reutilizing hazelnuts shells, they can be used to make cat litter, biochar or water filters. Biochar is famous for fixing large quantities of carbon in soils. So, it can be used in order to increase soil fertility.

Moreover, since the thesis theme is highly interdisciplinary several topics interconnected each other will be discussed. A well rounded analysis of the sector supply chain and production process will be made, together with a study of international markets and new cultivation techniques, interacting with business owners and experts.

In addition, further researches will be done about policy analysis of hazelnut industry sustainable implementation. As a matter of fact, many Oregonian growers joined the Hazelnut Sustainability Program and there are some hazelnut companies heading for stainable development adoption. Some companies are putting solar panels in order to produce energy, whereas others are using hazelnut shells as bio-combustible to run the facility. In Italy hazelnut shells are being addressed in the same way, as well as for heating purposes.