

# VALORIZATION OF WALNUTS IN FLANDERS

What possibilities do walnut trees offer? Case study of the agroforestry farm 'Buxusberg'



## THE WHAT AND WHY

### Versatile trees and promising business in Flanders

Walnut trees (*Juglans regia*) are a good choice as tree species in agroforestry systems in Flanders (Belgium) because of their ecological characteristics. Moreover, walnuts are gaining popularity fast among consumers making it a promising business. That is why recently there has been a relatively strong increase in the number of walnut plantations in Flanders. However, to maximize profit and get the most out of your system, it is important to think in advance on what products you will put on the market and how. You can increase profitability by

valorizing as many parts of the tree as possible and processing waste products where possible. When planting walnut trees in an agroforestry system the choice is usually made to produce either timber or nuts. Although it is more complex in terms of profitability, a combination of both goals is possible with certain varieties (for example Coenen) or by planting seedlings (usually faster growing). Nevertheless, there are also a lot of innovative business models concerning various other plant parts of the walnut tree waiting to be discovered.



Walnuts as the main product from walnut trees.  
Buxusberg



Shaking walnuts from the trees (left) and sorting them by size (right).  
Buxusberg



## HOW IS THE CHALLENGE ADDRESSED

### What products do walnut trees have to offer?

The walnut tree is a multifunctional tree species. Fruits, wood, roots, bark, leaves, husks, nut shells, tree sap,... all can be used. This results in a whole range of products: nuts, timber, oil, litter, dyes, liquor, tea, energy,... The first two are considered the primary products. Timber (often used as veneer wood) is highly valued and prices in Flanders range between 250 and 500 € per m<sup>3</sup>. Prices for dried nuts in our region are about 4 € per kg. Wood production has an impact on nut production. For each 50 cm of height you add to the branch-free stem length by pruning in the first years, the first

profitable nut production is delayed 1 year. Higher stems also mean higher tree crowns, increasing the labour intensity and costs for harvesting nuts. Profitability of your system can be significantly improved if you valorize 'waste products': the internal nut partition membrane can be used to make tea, nut shells as biomass for energy, the press-cake after oil production as cattle feed or in human consumption (chocolates, cookies), husks to make dyes, tannins from the bark as preservative, leaves as fodder for goats and sheep or litter in stables.



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## HIGHLIGHTS

- Being a good tree species to implement in an agroforestry system and consumers loving its healthy nuts, walnut plantations are increasing in Flanders.
- The walnuts and/or wood is the main product coming from the walnut plantations.
- Profitability of the system can significantly increase by valorizing waste products such as the husks, nutshells, press-cake, damaged nuts...



The agroforestry plantation combining walnut trees and box (top), walnut liquor (bottom left) and freshly harvested unripe nuts to produce liquor (bottom right).  
Buxusberg

## FURTHER INFORMATION

Crawford, M. 2016. How to grow your own nuts. Choosing, cultivating and harvesting nuts in your garden. Green Books, Cambridge, UK, 320p.

Oosterbaan, A. 2015. Walnoot+. Een boom voor iedereen. BoekenGilde, Netherlands, 88p.

More information (in Dutch) on the usage of walnut trees in agroforestry systems can be found on <https://www.agroforestryvlaanderen.be/NL/Kennisloket/Boomspecificatieinfo/tabid/9776/language/nl-BE/Default.aspx>

More information (in Dutch) on the case study farm Buxusberg (and other farms) can be found on <https://www.agroforestryvlaanderen.be/NL/Toepassersahwoord/tabid/9160/language/nl-BE/Default.aspx>

## ADVANTAGES AND DISADVANTAGES

### Case study: walnut plantation 'Buxusberg' in Flanders

On the flanks of a hilly part in Flanders lies the farm 'Buxusberg'. The farmer is a practitioner of agroforestry and combines walnut trees (for nut production) with the cultivation of box (*Buxus*) in between rows on 4 hectares. The farmer used the box to overcome the non-productive first years of his trees. Now that his walnut trees are becoming more productive, he plans to stop cultivating box and focus on his 10 hectares of walnut plantation. At the beginning, the farmer sold the harvested green nuts in their husks straight to retailers, but by now he is processing them himself.

His main product is fresh walnuts. From late September until early November, walnut fruits for direct consumption are harvested by shaking them from the trees and picking them up with an automatic sweeper with a capacity of 3000 kg nuts per day. After mechanically scraping off the husks (pulp is re-used as fertilizer in his plantation) and sorting them by size, nuts are shipped almost directly to the store and sold as fresh walnuts. Fresh walnuts don't require a lot of processing and storage room. Moreover they are heavier than dried ones (drying causes 60% of weight loss) and are a niche product with high prices per kg and a demand exceeding the supply. All this makes them very interesting in terms of profitability.

Early July, the farmer also harvests some unripe green nuts in their husks (a lot of flavour is in the husks) to produce walnut liquor or walnut flavoured lambic beer. Around 500 kg of nuts (including husks) is enough to produce about 10000 litres of liquor. For this he cooperates with a local distillery and brewery. The farmer produces his own brand of walnut liquor that is now sold in the region.

While before, the smaller and/or damaged nuts (refused by retailers) used to be composted, they are now dried, cracked and sold as dried, peeled nuts. This processing requires more time and equipment, however, making them less profitable in comparison with the fresh walnuts. The farmer is now experimenting to use the dried nuts for walnut oil and to make the processing efficient and profitable. 100 kg of his dried nuts yielded up to 60 litres of oil when using an adjusted olive oil press. Prices for cold pressed walnut oil in Flanders go up to € 40 - 50 per litre. A possible valorization of the remaining press-cake and the nutshells is not yet explored on this farm but will be in the future.

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