



Cultivation of Climate-Resilient Food Trees with Future Potential for Value Creation

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Climate-resilient hazelnut hedgerows, like those in this silvopastoral agroforestry system in Slovakia, not only produce high-quality nuts but can also significantly contribute to animal welfare on the same land area.

Agroforestry is gaining increasing importance in Europe and Germany as a key strategy for climate action, biodiversity, and a sustainable food economy. Integrating woody perennials such as trees for food production enhances resilience to extreme weather events and creates additional opportunities for value creation.

Woody perennial integration and selection are key to enhance the provision of ecosystem services of agricultural systems adapted to different climatic and soil conditions, while also providing various marketable products and increasing the profitability of farms. The most promising climate-resilient species for food production in Germany are (i) *Castanea sativa* (Sweet Chestnut), which, once established, is drought-tolerant but sensitive to late frost, producing edible chestnuts and valuable timber; (ii) *Juglans regia* (Walnut), tolerating moderate drought and heat but sensitive to frost and waterlogging, yielding high-value nuts and timber; (iii) *Corylus* spp. (Hazels) with *C. colurna* being more resilient than *C. avellana*, nuts for snacks/confectionery; (iv) *Morus* spp. (Mulberry), adaptable to heat, drought, and poor soils, fruits eaten fresh or processed; (v) *Asimina triloba* (Pawpaw), frost-hardy, moderately drought-tolerant, unique, tropical-flavoured fruit; (vi) *Sorbus domestica* (Service Tree), highly drought- and heat-tolerant when mature, fruits for jams, spirits, and specialty products; (vii) edible *Pinus* nuts, drought-adapted but slow-growing, pine nuts for gourmet product and (viii) *Quercus* spp. (Oak), drought-resistant, some acorns edible ("sweet acorns") for flour or feed.

The products obtained from the above-mentioned trees can create value through (i) direct sales and processing; (ii) generation of timber and other (by-)products; (iii) provision of ecosystem services such as carbon sequestration, soil fertility, biodiversity and (iv) fostering agrotourism and education.

The integrating climate-resilient trees for food production into agroforestry offers farmers sustainable production and diversification strategies. These species promote biodiversity, strengthen resilient food markets, and open up new sales opportunities while supporting climate adaptation.



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