AF4EU INNOVATION 27

HONEY LOCUST IN AGROFORESTRY



1. Gleditsia triacanthos "Sunburst" 2. Honey Locust seed pods 3. Three-thorned Honey Locust 4. Gleditsia Triacanthos foliage

THE WHAT AND WHY

The American Honey Locust (Gleditsia triacanthos) is a tree native to North America, introduced to Europe in the 18th century. It is distinguished by its large thorns, although thornless varieties are available. This fast-growing tree can reach up to 20 meters in 15 years, tolerates temperatures as low as -15°C, and adapts to a wide range of soils, including limestone. In agroforestry, it has multiple uses, whether grown alone or in fruit hedges or windbreaks. Its dense, hard wood, slightly reddish in the core, is used for furniture, posts, or railway ties. It's also a nitrogen-fixing tree that improves soil fertility. Its foliage can be used as fodder, especially the young shoots, and its fresh pods are highly valued by livestock, such as sheep and goats, for their sugar and protein content.

HOW THE CHALLENGE IS ADDRESSED

Thanks to its multiple functions, the American Honey Locust can be integrated in various ways into an agroforestry system. If intended for wood production, it can be planted in monoculture stands. The trees are arranged densely to maximize wood or energy production. In agroforestry alignments, it is planted in alternating rows with crops and can be pruned as a pollard to maximize growth and reduce shading of the crops. It can also be cultivated in silvopastoral systems, combining grazing and trees. As a reforestation or restoration tree, it stabilizes degraded soils, enriches organic matter, and promotes biodiversity. Thorny varieties can also be used for creating defensive hedges.

Keywords: Forage tree, American Honey Locust, Wood, Silvopastoral, Restoration, Urban Ecology

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ADVANTAGES

The American Honey Locust is a multifunctional tree that offers many benefits for both agroforestry systems and urban settings.

Its deep, pivoting root system stabilizes soils and improves rainfall infiltration, thus reducing the risk of erosion and flooding. As a member of the legume family, it enriches the soil by nitrogen-fixing tree, enhancing soil fertility and returning it through biomass decomposition, which could benefit fertilizer management and reduce chemical fertilizers. In silvopastoral systems, this tree provides beneficial shade for livestock, reducing heat stress and improving animal productivity. At maturity, its wide-spreading crown with open foliage provides light shade, making it possible to grow cereals, vines, or vegetables beneath its canopy.

In parallel, the American Honey Locust serves as a biodiversity refuge. It is a food resource, particularly for birds and pollinating insects attracted to its sweet pods and nectar-rich flowers. Its protein-rich foliage also serves as excellent forage for both domestic and wild animals.

Resilient to drought and well-adapted to harsh conditions, it is particularly resilient to climate change. It also resists air pollution, improving air quality in urban areas by capturing fine particles. The tree contributes to reducing the urban heat island effect, moderating temperature extremes, and is thus a valuable asset for sustainable city planning. The addition of the Honey Locust as an ornamental plant or alignment tree in parks, streets, or urban green spaces enhances the landscape.

For urban use or environments where safety and maintenance are priorities, thornless varieties are recommended. When seeking the protective or aesthetic benefits of a natural hedge, the thorny variety may be more suitable. Apart from the gall midge that causes leaf deformation and slight sensitivity to Nectria canker, it does not suffer from any serious diseases.

HIGHLIGHTS:

- **The American Honey Locust is well-suited for challenging conditions such as pollution, soil compaction, drought, and extreme temperatures.**
- **Its uses are varied and diverse, both in rural and urban settings.**
- **With light foliage, it enriches and structures the soil, supports biodiversity, and provides nutritional resources for wildlife.**



American Honey Locust alignment

1. Gleditsia triacanthos “Sunburst” - https://www.jardins-du-monde.be/fr/arbres/764-fevier-d-amerique-dore.html

2. Honey Locust seed pods - https://www.pepinieres-naudet.com/boutique/arbres-forestiers/86-fevier-d-amerique-gleditsia-triacanthos-3546868965817.html

3. Three-thorned Honey Locust - https://plantasflores.com/gleditsia-triacanthos/

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