

Managing forests for multiple purposes

Pine nuts, gourmet food: from woodlands... ...or from orchards?

The Mediterranean pine nut is the most expensive nut collected in European forests, extracted from the cones of the Mediterranean stone pine (*Pinus pinea*).

Pine nuts are highly prized in international markets: their cones provide higher incomes to their owners than any other forest resource, including timber, grazing and hunting rights.

The pine nut...

- **Protein content:** 35% (highest of any nut!)
- **Fat profile:** 85% omega-3, -6 and -9 fatty acids
- Rich in **tocopherol** and **minerals** such as magnesium, phosphorus, potassium, iron, or copper

...in a nutshell



Can we improve production?

Until now, the stone pine has been an un-domesticated forest tree.

Grafting offers important improvements for stone pine cultivation. It allows superior genetic make-up to be selected. Recently, several elite clones with superior cone yield have been approved in Spain and Portugal: cone production is estimated to **increase by 10-30%**.

The availability of genetically improved planting stock will enable the stone pine to be considered as **profitable use of land** in Mediterranean countries.

Most cones are still wild-collected from semi-natural forests and woodlands. Traditionally, stone pine forest management has had multiple objectives: cones, timber, firewood, as well as ecosystem services such as recreational use, landscaping, biodiversity conservation, groundwater and soil protection.

Recently there has been an innovative shift towards orchard plantations of this pine species. In Portugal and Turkey, stone pine stand area has been expanded fourfold by private landowners while in Spain, mostly natural forests and protective plantations represent half the total stone pine area in the world.

Pine cone harvest is clearly on the margin between wild collection from semi-natural forest and woodlands and domestication of the stone pine for agroforestry systems or as a production crop.

StarTree suggests that new stone pine plantations will not substitute existing forests, which grow mostly under restrictive soils conditions. But they offer a new, profitable use for abandoned marginal farmlands in Mediterranean countries, complementing revenues for forest owners.

The growing demand for pine nuts on the world market greatly exceeds the Mediterranean supply, and they are increasingly substituted by seeds from other, mainly Asiatic, pine species. But due to their supreme quality in taste and dietary values, genuine Mediterranean pine nuts achieve higher prices than lower-quality surrogate seeds and the market is far from saturated.

Want to know more? [Read the whole report!](#)

