



Some different alternatives for forest understory crops

www.eurafagroforestry.eu/afinet/

For some currently not very common field crops there could be opportunities for production in alley cropping and forest farming systems. There would be an interest in growing Finnish domestic hops (*Humulus lupulus*). Local micro-breweries are interested in producing a truly local product. Even though most ingredient of locally produced beer are local, hops are always imported from abroad (USA, Germany, Czech Republic). The Finnish Natural Resource Institute (LUKE) has started a new project where they have collected about 1000 Finnish hop provenances, mostly from active and abandoned farms and gardens. Together with local breweries, LUKE is now investigating which provenances would be suitable for beer production. The most promising hop provenances are selected in growing experiments so that it would be possible to produce beer. Hops are usually grown in a field supported by wooden stalks. If the hops would be supported by trees or grown on the forest / field boundary, it could be a new agroforestry product.

Stinging nettle (*Urtica dioica*) fiber can be used as raw material for eco-textile. It can be produced in areas with a temperate wet climate and it can be a more environmental-friendly alternative compared to cotton, viscose, bamboo or artificial fabrics (nylon, polyester). Stinging nettle can also be used in vitamin C extracts and for direct consumption (e.g. to replace spinach). Stinging nettle grows well together with alder (*Alnus incana*). Alder, when grown in a longer rotation, can be used in wood-product manufacturing (furniture, window frames, clogs, toys, pencils, bowls). The tree can live for up to 160 years, but it is best felled for timber at 60 to 70 years before heart rot sets in. Alder can also be grown as coppice wood. Alder can be grown by itself or in mixed species plantations, and the nitrogen-rich leaves falling to

the ground enrich the soil and increase the production of trees such as walnut, Douglas fir and poplar on poor quality soils.

Ginseng (*Panax ginseng*) is a medicinal plant which has been cultivated in China for thousands of years. China and the USA are the largest Ginseng producers. Research has shown that American ginseng (*Panax quinquefolium*) can be cultivated in northern European temperate and boreal climates. Ginseng can be grown in fields as well as in forests. The plant needs shade so in field cultivation the plants need to be protected by a roof. Production of Ginseng in forests is slightly lower compared to field production. However, one large advantage of cultivation in forests is that no roof needs to be constructed. In addition, Ginseng can provide additional income for forest owners. One small box of ginseng costs about 25 euros. Ginseng is grown from seeds and the roots can be harvested after 5 years.

More info:

Hops research in Finland [LUKEN humalatutkimus]:
<https://peda.net/hankkeet/geenivaraoppi/ao/puutarhalious/humala/humalatapahtumia/tosh2>

Galambosi, B. 2016. Nokkonen viljely [Stinging nettle cultivation]. In: Galambosi, B. 2016 Yrttienviljely [Herb cultivation]: <https://www.edu.fi/yrttienviljely>

Galambosi, B. 2016. Amerikanginseng [American ginseng]. In: Galambosi, B. 2016 Yrttienviljely [Herb cultivation]: <https://www.edu.fi/yrttienviljely>

**Mercedes Rois
Michael den Herder
European Forest Institute**