



## Mushroom production in agroforestry systems

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The production of mushrooms in agroforestry systems (SAF) can be important and bring considerable economic benefits within the framework of sustainable use to the farmer. Saprophytic and ectomycorrhizal fungi are some of the most important fungi from an economic point of view. Natural saprophytic fungi (*Macrolepiota procera*, *Agaricus* spp., Etc.) may be important, for example, in the fallows of alley cropping or in certain silvopastoral systems (newly reforested meadows). However, these mushrooms do not have a great commercial importance. In the riparian buffer strips and hedges, mushrooms are produced in the spring (*Morchella* spp.) that could reach high prices. It is also possible to grow saprophytic mushrooms in the SAF, as a complementary production to several forest stands. For example, *Pleurotus ostreatus* in poplar stands or cultivated in different substrates (straw, chips ...) or *Lentinus edodes* in oak, chestnut or alder woodlands have a high productivity although the productions are seasonal, mainly limited to autumn and spring, unlike the cultivation in climatized areas. The cultivation of medicinal mushrooms, such as *Ganoderma lucidum*, may also be of interest. In ectomycorrhizal fungi, hyphae are associated with the roots of trees, especially forest trees. Interesting species for their commercial importance are, among others, the chanterelles (*Lactarius* of the *deliciosus* group) that are associated with pines, the penny bun (*Boletus* of the *edulis* group) that are associated with pines, chestnuts, oaks and rockroses, the chanterelles (*Cantharellus cibarius*) that are associated with

leafy preferably and the oronja (*Amanita caesarea*), that is associated with cork oaks etc. Consequently, the most appropriate type of SAF to achieve a good production of this type of mushrooms are the silvopastoral systems with species such as pines, chestnuts, oaks, holm oaks, cork oaks, spurges, rock roses ... and also the alley cropping, if the tree species are able to form mycorrhiza with these fungal species. In general, shrubs and eucalyptus trees are not good mushroom producers. The production of mushrooms associated to hedges and riparian forests depend on the tree species. In silvopastoral systems we must take into account that livestock also eat good mushrooms quality species, so if we want to take advantage of them we must have areas limited to grazing, at least in the autumn period, which is usually the most productive season.



Figure 1. Collection of boletus in pinewood.

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