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THE CULTIVATION OF ORRISSES IN TUSCANY

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The cultivation of orris (*Iris* spp) for the use of their rhizomes began in Tuscany in the mid-1800s reaching substantial production quantities due to demand by French and northern European firms for the orris powder used in perfumeries and distilleries. The

Tuscan product was highly sought after and competitive because of the qualitative and quantitative characteristics of its components. The most widespread species is *I. pallida* that produces gamma irone, the ketone compound responsible for the aromatic characteristics of essential oils. The Tuscan producers are now mainly concentrated in the two hilltop areas of Pratomagno Aretino and Chianti Fiorentino.

The orris is a hardy plant, usually cultivated at the edge of terraced areas, where other crops would fail. The three-year-old rhizomes are harvested in summer, to be cleaned, dried, and stored in warehouses for another three years until the essential oils start to be released. The extraction of the perfumed principle can take place by steam distillation from which the butter or orris concrete is made and subsequently, by eliminating the fatty acids, the absolute essence or using solvents to get the iris condensate. The gradual decline of cultivated areas is due to the high labor requirements of the crop, the difficulty of working the land, crop damage caused by predators, the difficulties of negotiating the price of the dried rhizomes, established by the perfume industry's international market and the competition from synthetic products. The orris is an important part of Tuscany's cultural identity and traditions as well as a very important resource for local economies, thus requires protection for landscape, historical and cultural reasons. In order to promote orris cultivation, Pisa's CNR-ISE, in collaboration with the Universities of Pisa and Florence, and the Sant'Anna School of Pisa, co-funded by the Tuscan Region, are conducting studies on the chain's structure and dynamics and on possible improvements in all phases, from cultivation to the finished product. The soil and climate characterization of the production areas and the evaluation of the qualitative characteristics of the rhizomes have highlighted the high iridal content in the rhizomes and the absence of substantial differences between the two traditional areas of cultivation. To boost this cultivation, it is desirable to mechanize cultivation operations, to identify the means to protect local production, to improve the product by selecting clones with a higher essential oil content and, finally, to create a local chain that enables the preparation of semi-finished and, in some cases, finished products. Thanks to acquiring the know-how and investments for on-site identification and processing, this will permit maintaining the added value in the territory promoting the product's identity with users with a direct spin-off in the local agricultural economy.