Multipurpose Plantations as a Tool for Periurban Agroforestry

Multifunctional plantations offer a valuable contribution to mixed ways of periurban agriculture and forestry. They exist of a combination of trees with agriculture and produce a variety of products, offering a kind of nature citizens ask for.

Quite a radical change in thinking within (urban) forestry in a lot of European countries is that (city) inhabitants have to be involved in the design and management of their green environment. It is important then to know what citizens are asking from forests and other green elements, so as to improve design of the green space. Multipurpose plantations may contribute here, while further tackling another problem: that of negative environmental influences of intensive (mono-cropping) agriculture.

NEEDS OF CITIZENS
Trees, plantations and forests are mostly established with the following management objectives: amenity, landscape, recreation, habitat for wildlife and economic aspects (timber).

Trees can be arranged in mathematic plantations or in natural patterns like wilderness. Generally people like nature but prefer a certain kind of nature: semi-open landscapes, easily to pass through, with open sight lines and water are often highly appreciated. A clear structure and a great variation are attractive characteristics. Different population groups have different ideas about nature. Differences in appreciation of different types of nature are mostly based upon differences in “roughness”. For instance, ecology based management often leads to rough nature, which is not appreciated by everyone in the city. Higher educated people, members of nature protection organisations and young people prefer rough nature. Older people, immigrants and farmers prefer more tidy natural elements.

MULTIPURPOSE PLANTATION DESIGN
The core of “multipurpose plantations” are multipurpose trees and multipurpose crops, preferably interacting in a positive way. Multipurpose trees are those trees that deliver a variety of tangible products like fruits, leaf, bark, twigs, timber, roots and matters for medicine or other use. Besides these direct products trees have a large scale of non-food products like protection against climatic influences (wind, snow, rain, sun), enhancing biodiversity, C-fixation and erosion control.

Crops are in general less multipurpose than trees, but some species can also deliver different direct or indirect products. Mixed grass/flower vegetation deliver not only fodder, but also a higher biodiversity and a contribution to a nice looking landscape.

Preferably trees and crop should influence each other positively. For example the shade of the trees should be used for the crop (shade asking plant species) or for the animals (cool cows produce more milk). Or the crop has a positive effect on the trees, for example by the weed control.

The concept is not entirely new. In the Netherlands a large area of fruit tree orchard with a grass layer functioning already in that way. But the multipurpose plantation design bears some new aspects under discussion are for example water and diversity in production. Perhaps the concept of “multipurpose plantations” should be tried out in different landscape laboratories.

LOCATION
The periurban zone is a good place to establish multipurpose plantations, since the system delivers a wide variety of environmental-friendly products. Production processes and products are available and visible to the urban citizens. The most suitable location for multipurpose plantations is the transition zone of the open landscape to the dense forest area. But also in the periphery zone of small forests they should fit very well.

REFERENCES


Project Winterswijk
In the surroundings of a this city eight farmers and estate owners established 10 ha of such multipurpose plantations. The trees (mainly walnut) were planted in pastures with spacing of 10-20 meters. On two farms (already involved in agro tourism) fruit shrubs have been planted in otherwise unprofitable corners (red currant, black currant and white currant, blackberry, raspberry, gooseberry, hazelnut and quince) to enhance attractiveness to tourists. Also mushroom cultivation (for example Shi-i-take) on logs has been tried.

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December 2004