



Technical information on the use of agroforestry to prevent forest fires

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Forest fires are one of the most important hazards of forestlands in Galicia and North of Portugal. The main reason of these areas is the high potential that forest understory has to grow during the spring period that allows vegetation to be accumulated year after year, that could be subsequently fired when high temperature, low air humidity and high wind speed increases the risk of fires. Approximately every ten years large fires take place and affect thousands of hectares that happen in a very short period of time (some days) and that may cause tens of died people like in Portugal last summer 2017. The reduction of the vegetation that acts as a fuel is one of the main forms to reduce the forest fire risk. Clearing of forests can be carried out through the use of machinery, but it is costly as these areas are associated to high steeps and trees are too dense and not homogeneously distributed. Agroforestry is one of the main solutions to reduce the fire risk in these areas, as the understory that otherwise is a waste is used as a valuable resource for animal production. Galicia has over 1.7 millions of hectares of forest lands that can use understory as a resource. Economic evaluation has demonstrated that clearing with animals is ten times cheaper than using mechanical operations. Moreover, the profitability of a forest can be increased by 25% if agroforestry is used and compared with exclusive forest systems. The introduction of animals in forest lands, named silvopasture, has to be carefully carried out. An initial study of the vegetation of the forest understory should be carried out as they have different palatability depending on the animal

breed. For example, horses are keen to be fed on gorse but not on blackberry, but goats can consume both of them greedily. So the introduction of horses in areas dominated by blackberry will increase the cover of this species. In some areas, the understory vegetation is so tall that prevents animals to have access to the whole plot, but the establishment of crossed corridors leaving squares of 10 x 10 meters diminishes the cost of the initial clearing and allow animals to have access to the whole plot. Moreover, the effectiveness of grazing is higher than mechanical clearing, because after a shrub is harvested the potent root system it has favours the development of new leaves and the recovery in a short period of time, but if grazing is maintained the repeated consumption of the young leaves reduces the possibility of development of the shrubs that is finally replaced by a herbaceous understory with less fire risk than the shrubby one.



Figure1. Horses feeding on forest land.

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