

Biodiversity and organic agriculture – Species rich cover crops in vineyards of Hungary (Tokaj wine region)

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Sustainable management of agricultural areas is important both economically and ecologically, which starts with preserving the soil of our farm. In vineyards cover crops are often used to control erosion, enhance microbial activity, preserve and increase soil nutrient content. By sowing the right cover crop vegetation it is also possible to control weeds. The latter can be very important since the use of synthetic herbicides is prohibited in organic farming. By sowing species rich cover crop seed mixtures containing native species we can mitigate or even overcome these problems, furthermore we can increase biodiversity and enhance ecosystem services. In vineyards the most often used cover crop seed mixtures mainly contain non-native species and they are often low diversity seed mixtures. Our aim was to test seed mixtures capable of establishing permanent species rich cover crop vegetation. In our study we evaluated the establishment of sown species and weed control capability of the mixtures in four vineyards of the Tokaj wine region, Hungary. Three seed mixtures were sown in March 2012: Ecovin (12 species), Legume (8 species) and Grass-forb (16 species). In June of 2012, 2013 and 2014 we recorded the cover of sown and non-sown plant species in permanent plots. In the first year after seed sowing the performance and weed control capability of Ecovin and Legume seed mixture was the best. For the second year we detected increasing cover of sown species in inter-rows sown with Legume or Grass-forb seed mixture, while the cover of weed species decreased. In some inter-rows sown with Ecovin mixture we detected increasing weed cover. For the third year the cover of sown species decreased at several sites regardless of the seed mixture, but we still detected lower weed cover in inter-rows sown with Legume and Grass-forb mixture. Our results show that it is important to have the right proportion of both rapidly establishing annual and slower establishing, but permanent perennial species in the mixtures. Sowing species rich cover crop seed mixtures offer great opportunity to control weeds and increase the biodiversity of vineyards.