Recycled Plastics Used In The Production Of Agricultural Nets For Crop Protection

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**Abstract.** The sustainability of agricultural systems is critical for the rural environment, as well as to future generations. The creation of closed-cycle farming systems would lead agricultural production to have less impact on the rural environment, while also reducing the plastic footprint of agriculture. The use of innovative nets for crop protection is increasing more and more adding benefits not only to production, but also to agricultural operators and, most importantly, to the surrounding ecosystems. In fact, thanks to the use of nets for crop protection it is possible to control all production parameters inside a greenhouse or a tunnel. In addition, these nets are significantly energy saving by helping protect the crop by reducing and optimizing the use of fossil fuels and plant protection products, thus limiting their impact on the environment. The purpose of this experimental work is to analyse eco-sustainable innovations, taking into account nets produced with partially recycled plastic material. These nets have been analysed and subjected to mechanical tests of longitudinal traction and transverse traction, to spectrophotometric tests in order to verify the transmittance and reflectance of the fabric in the UV/PAR/NIR spectrum (200nm to 2500nm), as well as tested for air permeability, ventilation reduction and shading effect. The results allowed the potential use of partially recycled nets in agriculture to be evaluated and discussed.