**Experimental analysis of chainsaw emissions in chestnut wood operations**

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**Abstract.** In the Italian primary sector, especially in the forestry, portable equipment, and in particular chainsaws, are widely used.

The chainsaw is the main machine for felling, limbing and sawing logs and timber.

We can state that the widespread use of chainsaws in Italy is due to the orography of the territory, the small-medium size of the farm and the composition of the woody capital (prevalence of broadleaf trees governed by coppice).

The wood material is therefore generally of low quality and does not allow investment in "high" mechanisation.

However, with the spread of chainsaws, there has been an increase in the incidence of diseases caused by exposure to physical agents (noise, dust and vibrations), chemicals agents (volatile compounds of various kinds), and an increase in serious accidents.

The updating of occupational health and safety regulations in Italy has followed several stages, most notably the approval of the U.T. 81/2008.

The present work pursues the following objectives

1. To assess whether the concentration of pollutants contained in chainsaw exhaust gases complies with the limits set by current legislation during operations on a chestnut coppice;

2. To evaluate the noise emitted by the chainsaw during the exploitation of a chestnut coppice.

A professional dosimeter (phonometer) was used to assess noise, and it was found that the legal limits were exceeded during all chainsaw operations, with peaks of over 110 dB.

For the assessment of volatile pollutants, a multi gas detector capable of detecting different types of gas was used.

The analysis showed that only during the limbing operation were the legal limits respected.