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A proposal for soil cover and management factor (C) for RUSLE in vineyards with different soil management across Europe

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The Revised Universal Soil Loss Equation RUSLE (Dabney et al., 2012) is commonly used to estimate rates of soil erosion caused by rainfall and its associated overland flow on cropland and many other disturbed and undisturbed lands.

Several studies have been focused on the evaluation of erosion risk in vineyards across Europe, which has four countries, France, Italy, Spain and Portugal, among the world's top ten vine growers. Other European countries, such as Romania, Greece, Austria, Serbia and Hungary, also have significant surface devoted to vineyards (FAO, 2014). However, literature shows a wide variability among C factors from different sources (Auerswald and Schwab, 1999; Kouli et al., 2009; Novara et al., 2011; Pacheco et al., 2014; Rodrigo Comino et al., 2016) that complicates their interpretation and use outside the area where they were developed.

Gómez et al. (2016) presented a simplified erosion prediction model based on RUSLE, ORUSCAL, to demonstrate the possibility to calibrate RUSLE for a broad range of management conditions in vineyards with limited datasets. This approach have already been pursued successfully in olives (Gómez et al. 2003, Vanwalleghem et al., 2011).

This communication reports the results of an evaluation of the calibration strategies and model predictions of ORUSCAL using a long-term experiment dataset (Bidoccu et al., 2016) in a vineyard in Northern Italy, and its implementation to develop soil cover and management factors (C) in three different soil, climate and management conditions across Europe: Southern Spain, Northern Italy and Austria. The communication, furthermore, explores and discusses of the application of the ORUSCAL model to additional vineyards areas in France and Romania in the context of the Vinedivers project (www.vinedivers.eu).

Keywords: vineyard, erosion, soil management, RUSLE, model.

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