

PERFORMANCE OF OLIVE POMACE-BASED AMENDMENTS IN REDUCING SOIL AND WATER LOSSES FROM A HIGHLY ERODIBLE SOIL

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valorização da horta familiar



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Background

- Soil conditioners minimize water erosion in farmland
- Composts soil conditioning effect is still poorly understood
- Portugal is one of the European top olive oil producers
- Byproducts of olive oil production chain may be valorized
 - Raw materials for composting:
 - ✓ Olive pomace, BA, moist, from 2-phase olive oil production
 - ✓ Oil extracted pomace, BAE, dry, from BA oil extraction

Objectives

- Assessing performance of amendments elaborated with BA
- In reducing water erosion in cultivated soils

Experimental design and setup

Soil - loamy, low organic matter, highly erodible Leptosol, from conventionally managed olive grove, Mirandela (found in 80% of olive-growing area, NE Portugal)

3 Olive pomace-based composts - CoBA - Aerobic composting, 25 m³ piles - BA proportion 25% (C), 31% (A) and 44% (B) - Application rate 11 ton ha⁻¹

2 Oil extracted pomace - BAE - BA oil extraction plant

- Dry semi-extracted - BASS - 5% fat, 45% moisture
- Dry extracted - BAES - 1% fat, 10% moisture
- Application rate 11 ton ha⁻¹

Polyacrylamide - PAM - synthetic polymer, market available soil conditioner, application rate 50 kg ha⁻¹

Rainfall simulations, 30 min, 62 mm h⁻¹ intensity

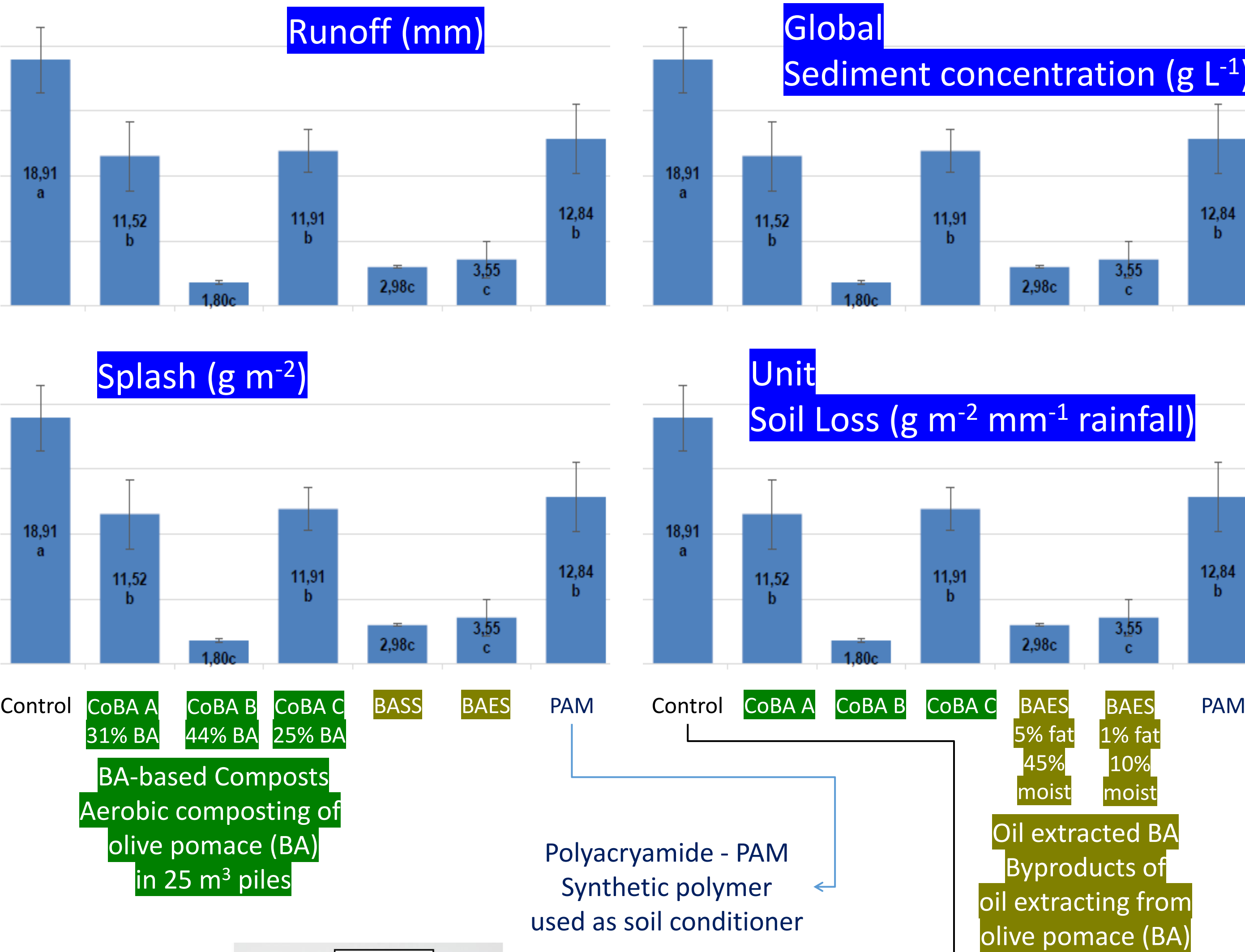
Treatments tested in 310 cm² soil boxes, 3 replicates

Slope 15%, measurements of runoff, wash and splash

Results

- Treatments average effects

	Runoff	Wash	Splash
Control	19 mm (61%)	97g m ⁻²	338g m ⁻²
% reduction as compared to control (non-Treated)			
BAE	83%	25%	58%
CoBA	55%	17%	41%



Control – Loamy soil low organic matter highly erodible Leptosol from conventionally managed olive grove, Mirandela, NE Portugal

Conclusions

- Olive pomace-based soil conditioners effective in reducing runoff and soil loss
- Research on qualitative aspects ongoing
 - Benefits to soil health prospected

