The olive oil industry generates huge amounts of solid olive mill waste (SOMW), which have a dangerous impact on the environment. The effect of replacing clinker with pomace and olive kernel on cement was investigated in this work to reduce waste. Its effect on mechanical strength, heat evolution, setting time and particle size was monitored with two replacement percentages, 10% and 30% by mass. The mechanical tests carried out on cement mortars containing 10% of these additives at 365 days resulted in a compressive strength of 51 MPa and 50 MPa for mortars based on olive pomace and olive kernel respectively, while the reference (OPC) obtained 51.35 MPa. After 120 min of grinding, cements with 30% additions developed a SSB higher than OPC 6969 and 7193 cm^2/g for olive kernels and pomace respectively, and the residue on the 45 µm sieve reached 20.7% for OPC; however, negligible for the other cements, the DSC was used to measure the heat flow and the enthalpy of hydration. The results show that high values of Q_{max}, (868.76 J/g) and ΔH (8164.75 J/g), were obtained for OPC. Proportionality (Pp) modelling by Delphi 6 allowed to obtain the key parameter: Proportionality (Pp) modelling by Delphi 6 allowed to obtain the key parameter: enthalpy (with a Pp: 91.7% highest) as the OPC cement witch had the highest ΔH, it developed the best mechanical and rheological parameters. Therefore, ΔH is the key parameter. The results also showed that these agricultural wastes (pomace and olive kernel) can be successfully used for the manufacture of cement and can lead to stiffer mortars than OPC