

OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Version 2

Project index number and acronym	CE1125, CIRCE
Lead partner	ARPAV
Output number and title	O.T3.1 PILOT ACTIONS TO TEST THE BUSSINESS MODEL AND QUALITY STANDARDS VERIFICATION
Investment number and title (if applicable)	
Responsible partner (PP name and number)	CISTOCA CETINSKE KRAJINE LTD., 8
Project website	https://www.interreg-central.eu/Content.Node/CIRCE2020.html
Delivery date	12.2019

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature and demonstration character

According to the ARKOD (National GIS) , the County in Croatia with the biggest olive groves area is the County of Split - Dalmatia (4.758,14 ha, 26.65 % of all olive groves in Croatia). There are in total 16.872 olive grove parcels in the County, but mostly small parcels, so the average olive grove parcel size is 0,28 ha. Also, olive grove parcels are mostly on islands Brač and Hvar, and mostly in the settlements Supetar (570,32 ha, 11,99 %), Marina (455,43 ha, 9,57 %), Jelsa (454,42 ha, 9,55 %), Postira (431,54 ha, 9,07 %) and Sutivan (361,80 ha, 7.60 %). Only six settlements have average olive grove parcels size twice bigger then the County average: Sutivan (0,69 ha), Pučišća (0,61 ha), Supetar (0,60 ha), Postira (0,60 ha), Milna (0,57 ha) and Nerežišća (0,55 ha). So, the largest number of oil production is located in the Split-Dalmatia County, with the largest number of olive trees. Considering that, it is very important to optimize waste management strategy for the olive oil industry in order to use olive wastes in a sustainable manner.

The results of LCA and LCC analysis indicate that the CE scenario is a much more sustainable solution than BaU scenario but only if the composting process is carried out in such a way as to prevent anaerobic decomposition or, by frequent rolling over of the composted material, to enable aerobic decomposition that prevents the formation and emission of methane gas.

In continuation of the project, after conclusions drawn from the LCA and LCC analysis, pilot action is carried out. Pilot action included a public call for small to medium olive tree growers and olive mills to participate in the pilot action of composting olive mill pomace with respect to the LCA and LCC conclusions. Split-Dalmatia County is the most productive County in Croatia when olive groves and olive mills are concerned, however, typical olive groves are very small, on average only 0,28 ha. Also, there are many small to medium olive mills (43). Therefore, pilot action included promotion of the sustainable olive mill pomace composting and demonstration of composting methods that small to medium olive growers may introduce to their farming processes. Environmental consultations and meetings that involved stakeholders in a constructive discussion of the olive mill pomace composting was organized in the Croatian Chamber of Commerce and during the 4 days of the Circular Economy week that was organized in Split and Sinj.

Olive mill pomace is being composted at the PP's location in Sinj, and displayed publically. Also, composting guidelines are drafted to help small to medium olive tree growers achieve the goals of organic farming with maximum valorization of the biomass residue of olive oil production. Guidelines for proper composting may help small to medium olive tree growers, especially olive growers on the islands of Split-Dalmatia County, manage their small to medium olive groves in a sustainable manner with minimal environmental impact.

NUTS region(s) concerned by the pilot action (relevant NUTS level)

NUT region is Split - Dalmatia County (HR035). The chosen pilot area is the Split - Dalmatia County but with the accent on the largest settlement on the hinterland - Sinj, which is also the subregional center of the hinterland. Split - Dalmatia County (SDC) is located in the central part of the eastern Adriatic coast. The surface of the land area, with the surface of the island is about 4,540 km² (about 8% of the land area of the Republic of Croatia), and the surface of the sea part is 9,576 km² (about 31% of the sea surface of the Republic of Croatia).

Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

Pilot action included a public call for small to medium olive tree growers and olive mills to participate in the pilot action. As it is mentioned, Split-Dalmatia County is the most productive County in Croatia when olive groves and olive mills are concerned, however, typical olive groves are very small, on average only 0,28 ha. Also, there are many small to medium olive mills (43). Therefore, pilot action included promotion of the sustainable olive mill pomace composting demonstration that small to medium olive growers may introduce to their farming processes.

Olive mill pomace is being composted at the PP's location in Sinj, and displayed publically. Also, composting guidelines are drafted to help small to medium olive tree growers achieve the goals of organic farming with maximum valorization of the biomass residue of olive oil production. Guidelines for proper composting may help small to medium olive tree growers, especially olive growers on the islands of Split-Dalmatia County, manage their small to medium olive groves in a sustainable manner with minimal environmental impact, and reduce the costs associated with the use of mineral fertilizers on olive groves.

Sustainability of the pilot action results and transferability to other territories and stakeholders.

There are in total 16.872 olive grove parcels in the County, but mostly small parcels, so the average olive grove parcel size is 0,28 ha. Also, there are many small to medium olive mills (43). Therefore, pilot action included promotion of the sustainable olive mill pomace composting demonstration that small to medium olive growers may introduce to their farming processes.

Pilot project aims at raising awareness of small and medium-sized olive growers and olive mills on the problem of waste management from olive oil production. It is evident that significant environmental effects may be achieved by composting olive mill pomace. Given the large number of small olive growers, the problem is difficult to solve with a centralized approach. This project considered a decentralized solution and provided guidelines that, if widespread in use, would provide significant environmental effects and achieve sustainable management of olive mill pomace with minimal environmental impact.

The proposed decentralized solution may also be applied in other areas, where, similarly to Split-Dalmatia County, a large number of smaller olive producers and processors are present. In Croatia, this is primarily true of Istria County.

Lessons learned and added value of transnational cooperation of the pilot action implementation (including investment, if applicable)

Participation of experts and representatives of "PI RERA SD" and "Čistoća CK" on intensive transnational training for national trainers in BASSANO DEL GRAPPA (Italy), organized by the public multi-utility company "ETRA", in order to support and encourage the 5 new multi-utility companies from Central Europe in introducing the concept of circular economy by using tools developed through the Project.

Contribution to/ compliance with:

- relevant regulatory requirements
- sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced
- horizontal principles such as equal opportunities and non-discrimination

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The aim of LCA and LCC analysis was to identify environmental hotspots of BaU and CE scenarios where the identification of environmental hotspots of CE scenario was of particular interest. The envisaged CE scenario is adapted to the conditions in the area of Split-Dalmatia County and promotes management of olive tree biological waste in a circular way.

The olive mill pomace composting largely affects GHG emissions due to anaerobic degradation of the biological material. Anaerobic decomposition is the result of decomposition without the presence of oxygen, which may occur within a pile of composted biomass. It is concluded that the goal of composting is to reduce greenhouse gas emissions by performing composting in an optimal manner.

Benefits of olive mill pomace composting may be drastically reduced if composting is not carried out optimally, and the conclusion of this analysis is that frequent aeration of composted material is necessary in order for composting process to proceed optimally with minimal environmental impact.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links

If applicable, additional documentation, pictures or images to be provided as annex

Relevant deliverables concerned:

- D.T3.2.1 Closing the loop & activation of secondary raw material markets in the pilot areas
- D.T3.2.2 Pilot actions infographics (one per each waste/flow)
- D.T3.2.3 Report on implementation of the pilot actions

After conclusions drawn from the LCA and LCC analysis, pilot action is carried out. Pilot action included a public call for small to medium olive tree growers and olive mills to participate in the pilot action of composting olive mill. Split-Dalmatia County is the most productive County in Croatia when olive groves and olive mills are concerned, however, typical olive groves are very small, on average only 0,28 ha. Also, there are many small to medium olive mills (43). Therefore, pilot action included promotion of the sustainable olive mill pomace composting demonstration that small to medium olive growers may introduce to their farming processes.

Olive mill pomace is being composted at the PP's location in Sinj, and displayed publically. Also, composting guidelines are drafted to help small to medium olive tree growers achieve the goals of organic farming with maximum valorization of the biomass residue of olive oil production.

**OLIVE PROCESSING
WASTE**



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