

Field data (Each questionnaire refers to one crop species cultivated per field)

Municipality : Fraga

Latitude : 41.573294

Longitude : 0.391760



Field Size (ha) 0.26

Crop Species

<input type="checkbox"/> olives	<input type="checkbox"/> vineyards	<input type="checkbox"/> apples	<input type="checkbox"/> pears
<input checked="" type="checkbox"/> peaches	<input type="checkbox"/> apricot	<input type="checkbox"/> nectarine	<input type="checkbox"/> plum
<input type="checkbox"/> cherries	<input type="checkbox"/> oranges	<input type="checkbox"/> tangerines	<input type="checkbox"/> lemons
<input type="checkbox"/> grapefruit	<input type="checkbox"/> hazelnuts	<input type="checkbox"/> chestnuts	<input type="checkbox"/> almonds

Variety of crop Saturn peach

Age of crop 10

Density of crop (trees/ha) 660

Width between cultivated rows (m) 5.0

Distance between trees (m) 3.0

Crop form

Crop forms for vineyard



Vase



Espalier



Marquee

Crop forms for Olive



Ancient olives



Vase (1 stem)



Vase (2-3 stems from soil)



Bush (intensive 250-600 trees/ha)



Superintensive (>1500 trees/ha)

Crop forms for fruit trees



Natural



Vase



Bush/Globe (very small trees)



Spindle/Pyramid



Palm/Fan



Epsilon transversal

Slope (%) 0

Soil Cover



Bare.No grass cover.
Tillage several times per year



Seasonal occurrence.
Herbicides+mowing
<50% soil cover



>50% grass cover.
Mowed several times per year



100% Grass cover.
Mowed several times per year

Crop Yield

Average Crop yield (t/ha) _____

Crop yield before measurement (t/ha) _____

Amount of product obtained for the year that the pruning measurement is performed in tonnes per hectare

Irrigation rain fed partial irrigation fully irrigated

Intensification degree organic low intermediate
Specify the amount of fertilizer and pesticides high

Pruning Operations Performed

Type of pruning

- | | |
|---|--|
| <input checked="" type="checkbox"/> Maintenance
<input type="checkbox"/> Structuring
<input type="checkbox"/> Removal of old branches | <input type="checkbox"/> Grafting
<input type="checkbox"/> Topping
<input type="checkbox"/> Blooming |
|---|--|

Pruning Method

- | | |
|--|--|
| <input checked="" type="checkbox"/> Only manually

<input type="checkbox"/> Fully mechanised | <input type="checkbox"/> Mechanised pre-pruning + manual |
|--|--|

Pruning Operations

Specify the pruning operations that are carried out. Check as many as apply.



- Manually shears



- Assisted shears



- Chainsaw/armchainsaw



- pre-pruner:hedge trimmer



- pre-pruner:discs



- pre-pruning topping

Season of pruning

- | | | | |
|---|-----------------------------------|-----------------------------------|--|
| <input checked="" type="checkbox"/> January | <input type="checkbox"/> February | <input type="checkbox"/> March | <input type="checkbox"/> April |
| <input type="checkbox"/> May | <input type="checkbox"/> June | <input type="checkbox"/> July | <input type="checkbox"/> August |
| <input type="checkbox"/> September | <input type="checkbox"/> October | <input type="checkbox"/> November | <input checked="" type="checkbox"/> December |

Frequency of pruning

- annual
 biannual
 biennial
 Once per years

Mechanized Collection

Preparation of the field prior to harvesting



No preparation - prunings were left on the soil as they fall from tree



Centre-operatos position prunings on the center of the lane between tree rows



Centre aligned-operators position prunings in a specific position in center (e.g. aligned with the direction of the row)
















Previous windrowing-a tractor with windrower is used prior pruning harvester

Integrated windrower to the pruning machine

Harvesting methods

Check according to the figures below the harvesting method that is used for the pruning biomass

	Manual cross-cutting of firewood+gathering at field side	<input type="checkbox"/>
	Forestry chipper towed by tractor + manual feeding	<input type="checkbox"/>
	Hauling the branches + shredding/chipping at field side	<input type="checkbox"/>
	Hauling the branches + baling at field side	<input type="checkbox"/>
	Harvest with mulcher/chipper in front	<input type="checkbox"/>
	Harvest with mulcher/chipper at rear	<input type="checkbox"/>
	Harvest with rear mulcher/chipper and bin	<input type="checkbox"/>
	Harvest with rear mulcher/chipper and big-bags	<input checked="" type="checkbox"/>
	Automotive shredder/chipper with rear trailer	<input type="checkbox"/>
	Harvest with standard hay baler	<input type="checkbox"/>
	Harvest with rear baler prepared for wood or tree branches	<input type="checkbox"/>
	Pre-pruning integrated with collection and mulching/chipping	<input type="checkbox"/>
	Pre-pruning integrated with collection and mulching/chipping in an automotive machine	<input type="checkbox"/>

Type of pruning treatment and model of machinery

Specify the method that prunings are treated based on the outcome product and manufacturer-model of each machinery (windrower,mulcher,chipper,baler) that is used if applicable



Windrower-Machines that align biomass in a row

Windrower (manufacturer-model) _____



Mulcher-big pieces. Machines that break the branches in big pieces. Normally they are an evolution from the typical mulchers/crunchers utilised to leave the branches on the soil in pieces.

Mulcher (manufacturer-model) _____



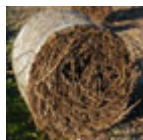
Shredder - Produce finer material (hammers or hammers with a knife.Do not produce a clear cut)

Shredder (manufacturer-model) _____



Chipper - Clean cut. Resembles the typical form of forest woodchips

Chipper (manufacturer-model) ONG SNC (model PC50 chipper)



Round bale

Baler (manufacturer-model) _____



Squared bale

Baler (manufacturer-model) _____

Processes Specifications

Specify the specifications of the processes (manpower, gross working time, productivity, fuel consumption)

Check as many as apply

Processes	Manpower (Nr of persons)	Gross working time (hr/ha)	Productivity (t/ha or t/hr)	Fuel consumption (l/hr)
Manual Alignment	<input type="checkbox"/>			
Windrowing	<input type="checkbox"/>			
Integrated harvesting/treatment	<input checked="" type="checkbox"/> 1	3.22	0.77 t/h	10.93
Hauling	<input type="checkbox"/>			
Treatment at field side	<input type="checkbox"/>			
Disposal/dumping of biomass	<input type="checkbox"/>			

End product properties

Specify the properties (moisture, bulk density, particle size, ash) of the prunings after treatment and harvesting, if known

Moisture (% a.r.)	41.2	Particle size (cm)	hog fuel
Bulk density (kg/m ³)	209	Ash content (% dry basis)	

Losses of biomass after harvesting

(%) 17 or (tonnes/ha) _____

Problems encountered due to the field

- Soil uneven Slope
 Stones Too much grass

Problems encountered by the machines

- Not suitable for the pruning Manouvering
 Unsuitable feeding system (biomass difficult to be conveyed) Too much soil particles with the biomass to be treated

- Problems in discharge
 New knives arrangement lead to clogging and difficulties in processing.
 Material produced was simi

Performance of the machinery

- The machinery was performing better than expected
 The machinery was performing normally-typical expected
 The machinery was underperforming

Value Chains

Indicate if your experience is based on an isolated test or if it based on an existing value chain:

- My experience is just an experimental trial-machinery test
 My experience is part of an existing value chain

Contact Data

Name : Daniel García Galindo

Email : _____

Phone : _____

Profession : _____

Country : Spain

EuroPruning Deliverable D6.2, CIRCE, 2016. Results with conclusions of each demon
www.europruning.eu



