

# Questionnaire for Mechanized Collection Prunings

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

Municipality:	Montecarotto			
Latitude :	43.520499			
Longitude :	13.026746			
	Ancona			
	Cirrumon Marsh, Map data ©2017 Goo	gle		
Field Size (ha)	3.29			
Crop Species	olives peaches cherries grapefruit	vineyards apricot oranges hazelnuts	apples nectarine tangerines chestnuts	pears plum lemons almonds
Variety of crop			_	
Age of crop			_	
Density of crop (trees/ha			_	
Width between cultivated (m)	1 rows 3.1		_	
Distance hetween trees (	m)			

Crop forms for vineyard Espalier Marquee Vase Crop forms for Olive Ancient olives Vase (1 stem) Vase (2-3 Bush stems from soil) (intensive 250-600 trees/ha) Superintensive (>1500 trees/ha) Crop forms for fruit trees Natural Vase Bush/Globe Spindle/Pyramid (very small trees)

Epsylon transversal

Palm/Fan

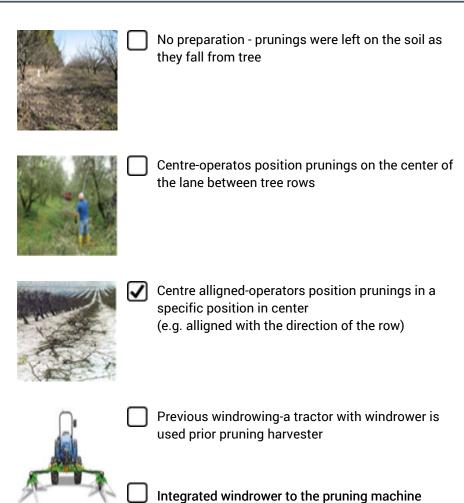
Slope (%)	20		
Soil Cover	Bare.No grass cover. Tillage several times per year  100% Grass cover. Mowed several times per year	Seasonal occurence. Herbicides+mowing <50% soil cover	>50% grass cover. Mowed several times per year
		Crop Yield	
Average Crop yield (t/ha)			
Crop yield before measurem (t/ha) Ammount of product obtained the year that the pruning measurement is perfomed in to per hectare	for		
Irrigation	rain fed	partial irrig	ation fully irrigated
Intensification degree Specify the amount of fertilizer pesticides	and organic high	low	intermediate

Type of pruning	Maintenance Structuring Removal of old branches	Graftir Toppir Bloom	ng
Pruning Method	Only manually  Fully mechanised	Mechanised pr manual	e-pruning +
Pruning Operations Specify the pruning operations that are carried out. Check as many as apply.	Manually shears  pre-pruner:hedge trimmer	Assisted shears  pre-pruner:discs	Chainsaw/ armchainsaw  pre-pruning topping
Season of pruning	May J	ebruary March une July october Novemb	April August December
Frequency of pruning	annual bia	nnual biennial	Once per years

**Pruning Operations Performed** 

### **Mechanized Collection**

Preparation of the field	l prior to
harvesting	



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	
	Forestry chipper towed by tractor + manual feeding	
+	Hauling the branches + shredding/chipping at field side	
+	Hauling the branches + baling at field side	
	Harvest with mulcher/chipper in front	
	Harvest with mulcher/chipper at rear	
	Harvest with rear mulcher/chipper and bin	
	Harvest with rear mulcher/chipper and big-bags	
Market Ma	Automotive shredder/chipper with rear trailer	
	Harvest with standard hay baler	
	Harvest with rear baler prepare for wood or tree branches	<b>✓</b>
	Pre-pruning integrated with collection and mulching/chipping	
	Pre-pruning integrated with collection and mulching/chipping in an automotive machine	

## 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 allign biomass in a ro	ow .
	Windrower (manufacturer-model)	
The state of the s	Mulcher-big pieces. Machines that break the b Normally they are an evolution from the typica utilised to leave the branches on the soil in pie	I muchers/cruchers
	Mulcher (manufacturer-model)	
	Shredder - Produce finer material (hammers or knive.Do not produce a clear cut)	hammers with a
	Shredder (manufacturer-model)	
KE	Chipper - Clean cut. Resembles the typical	form of forest woodchips
	Chipper (manufacturer-model)	
(NA)	Round bale	
	,	CAEB MP 400 S
	Squared bale	
	Baler (manufacturer-model)	

Processes Specifications Specify the specifications of the processes (manpower,gross working	Processes	Manpower (Nr of persons)	Gross working time (hr/ha)	Productivity (t/ha or t/hr)	Fuel consumption (I/hr)	
time, productivity, fuel consumption)	Manual Alignment					
Check as many as apply	Windrowing					
-	Integrated harvesting/treatment	<b>✓</b>	1.34	1.68 t/hr		
	Hauling					
	Treatment at field side					
_	Disposal/dumping of biomass					
End product properties Specify the properties	Moisture (% a.r.)	44 wet bas	Particle siz	e (cm)		
(moisture,bulk density,particle size,ash) of the prunings after treatment and harvesting, if knov	Bulk density (kg/	m3) <u>0.414</u>	Ash conten	t (% dry basis)		
Losses of biomass after harvesting	(%)	or (tor	nnes/ha)			
Problems encountered due to field	the Soil uneven Stones		Slope Too m	uch grass		
Problems encountered by the machines	Not suitable	for the pruning	Mano	uvering		
	Unsuitable f	eeding system (bioma veyed)	_	Too much soil particles with the biomass to be treated		
	Problems in	discharge				
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 based on an existing value cha	it My experien	ce is just an experimer	·	/ test		

		Contact Data	
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References-External links:Provide references on which the information is based on or highlight any comments

Raffaele Spinelli ,Natascia Magagnotti, Carla Nati, Harvesting vineyard pruning residues for energy use, Biosystems Engineering Volume 105, January 2010, Pages 316-322

