



IBA

International
Blackcurrant
Association

Weed management practices



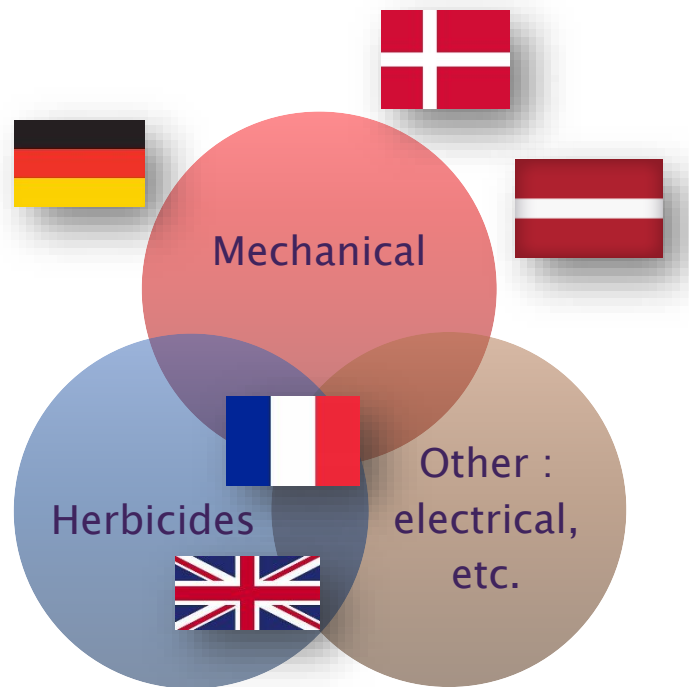
Summary

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2. Herbicide
3. Mechanical Weeding management
4. Electrical weeding management
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Weed Management practices

- Countries that responded to the survey : United Kingdom, France, Latvia, Denmark, Germany.
- General Tendencies :



- Plastic mulches tend to be abandoned in every country ;
- Different positions regarding herbicide revocations → different ways to manage the weed ;
- Labour shortage in every region ;
- **Lack of trial on a large scale** (*fears on the side effect on alternative in the long run*) ;
- **Mechanical weeding** not only used in organic farms ;
- A global increase of the cost of weed management to be considered;
- Interests in electrical weeding, and mulches.

Weed Management practices



Reminder :

- This study is **not a scientific review** and is not exhaustive ;
- It presents information I got from the interviews with the producers who answered the survey ;
- It only describes **weed management practices that are already implemented in the farms** (*and not trials in experimental stations, or informal single machine trials in the farm*) ;
- The general idea was to **present and share different types of weed management from various farms** considered to be « effective » so far ;
- For a scientific review of alternative weed control, I invite you to read the report made by AHDB (*Agriculture and Horticulture Development Board*), that you can find online (*link below*)

[*Link to
download
File*](#)



Herbicides (conventional farming)

- Different positions regarding herbicide revocations → different ways to manage the weeds ;
- Countries are not equal in the revocations and restrictions ;
- Feeling of discrepancy between the restrictions and the effects of glyphosate observed on blackcurrant :
 - The cheapest method, well adapted to currant, not invasive to the ground ;
 - Producers feedback from observations in the field : seem to have no impact on currant root system and life environment, when associated with proper fertilization (in particular with covered inter-row with adapted species)
 - **Concerns about switching to alternate invasive methods** that could disturb the actual ecosystem of the field (soil microbes, single bees, earthworm and invertebrates, etc.)

Weed Management practices

Mechanical Weeding : combination Jagoda® Klaudia + Jagoda® Lucy

- Case study in Latvia



Information about the farm :

- Blackcurrant : main crop (76 ha)
- Organic farming
- Row spacing : 4m*0,5m
- Soil type : clay / sand
- Main weeds observed : Grass, dandelions (*taraxacum*), Verbena, Camomile (*Matricaria*)



Mechanical Weeding : combination Jagoda® Klaudia + Jagoda® Lucy

- Case study in Latvia



Information about Klaudia :

- Type : Finger weeder + vertical disc hoe
- Cost : \approx 4500 €
- Works on half row (*possible adaptation for 2 rows*)
- Assembly in front of tractor
- Working width : 50 cm
- Working depth : \approx 5 cm
- Speed : 5km/h \rightarrow 10 ha/day (1 machine)



Information about Lucy :

- Type : Blade tiller
- Cost : \approx 4500 €
- Works on half row
- Assembly in front of tractor
- Working width : 35 cm
- Working depth : \approx 7cm
- Speed : 1,5 km/h



Mechanical Weeding : combination Jagoda® Klaudia + Jagoda® Lucy

- Case study in Latvia



- 4 passes of **Klaudia** a year : 2 before harvest (from April) / 2 after harvest
- **Lucy** is only used if necessary (once a year but not mandatory) : after several rainy days/weeks, when it is not possible to work with **Klaudia** (+ it works well with large grown weeds)



- **Lucy** works very slowly ;
- **Klaudia** cannot be used in heavy/rainy conditions and wet soil ;
- The bark of the branches is often damaged ;
- Difficulties to reach between the bushes.



Mechanical Weeding : Greenmaster mower/stripper

- Case study in Denmark



Information about the farm (until 2021) :

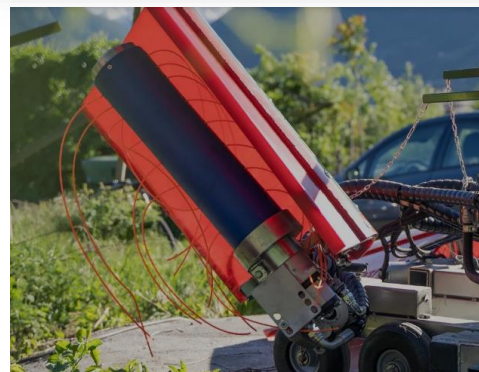
- Blackcurrant : main crop (150 ha)
- Conventional and organic farming
- Herbicide on conventional farming (3– 4 passes a year)
- Greenmaster used in organic plantation

Information about Greenmaster :

- Type : strings mower
- Cost : \approx 18 000€ (15.500£)
- Assembly in front of the tractor
- Possibility to work 2 half rows (*brochure*)



Superficial working (does not disturb the ground)



Mechanical Weeding : Greenmaster mower/strimmer

- Case study in Denmark 



•Weed management routine : \approx 10 passes a year
(5 before harvest / 5 after harvest)



•Cost/ha : + 600€ to 700€ more than traditional herbicide weed management (additional manual labour needed)

*Possible improvements
and routine suggested :*

Planting

+ cover crop in the row
+ drip irrigation
→ **Build a large and well
implanted bush**

2 / 3 years

Weed management by
planting cover crop in
the row

Productive
Bushes

Weed management by
using a machine that
doesn't disturb the
ground and damage
the roots (Greenmaster)

Weed Management practices

Mechanical Weeding : Combination K.U.L.T[®] Finger Weeder + Jagoda[®] Suza

- Case study in Germany



Information about the farm :

- 25 ha – organic since 2015
- Blackcurrant : secondary crop
- Row spacing : 3,5m
- Soil type : loam cover on weathered limestone
- Main weed observed : grasses, *ranunculus*, *camomilla*, *geranium*.



Information about K.U.L.T :

- Type : Finger weeder
- Works on 2 half rows
- Assembly in front of tractor
- Working width adjustable
- Speed : up to 10km/h
- Different size of weeder



K.U.L.T[®] Finger Weeder



Jagoda Suza

Mechanical Weeding : Combination K.U.L.T[®] Finger Weeder + Jagoda[®] Suza

- Case study in Germany



Weed management routine :

- Use of K.U.L.T[®] most of the time
- \approx 4 passes before harvest / 3 after the harvest (*but no fixed rules*)
- Suza is only used when necessary : after several rainy days/weeks, when it is not possible to work with K.U.L.T (*can operate in any weather condition and is efficient with large grown weeds*)



- Additional manual labour required
- The producer mows the inter row at the same time using finger weeder → Interest for mulching the inter row residue

Weed Management practices

Mechanical Weeding : Combination Disc Hoe + Ladurner® Weeder

- Case study in Germany



Information about the farm :

- 16 ha – organic
- Blackcurrant : main crop
- Soil type : Sandy loam
- Main weed observed : grass,
creeping thistle (*Cirsium
arvense*).



Weed Management practices

Mechanical Weeding : Combination Disc hoe + Ladurner® Weeder

- Case study in Germany



Information about the Discs:

- Own made vertical disc hoe (*breaks down clods, and uproots the weeds*)
- Cost \approx 5000 €
- Assembly in front of tractor
- Works on half row
- Speed : 5 –10 km/h
- Working depth : 8 cm
- Working width : 50 cm

Information about the Ladurner :

- Type : two rotors with blades (*breaks down clods, uproots, tears plants into pieces*)
- Cost \approx 40 000€
- Assembly on front of the tractor
- Hydraulic adjustment
- Works on 2 half rows
- Speed : 1,5 –3 km/h
- Working depth : 5 cm
- Working width : 50 cm



Mechanical Weeding : Combination Disc + Ladurner® Weeder

- Case study in Germany



After disc
hoe



After
Ladurner



Mechanical Weeding : Combination Disc + Ladurner® Weeder

- Case study in Germany



Weed management routine :

- 2 passes of each machine (\approx 4 passes a year)



- The scanning of the machine at the row could be better.
- Planting the currants with GPS rtk system helps for the weeding when bushes are established

Weed Management practices

Mechanical Weeding : Hybrid combination Glyphosate + Disc / Brushes

- Case study in France 

Information about the farm

- Hybrid weed management routine over a year (2021)
- Row spacing : 3m*0,5m
- Age of plantation : 11 years old

Information about the tools :

- Horizontal Disc Hoe
- Horizontal Brush



Mechanical Weeding : Hybrid combination Glyphosate + Disc / Brushes

- Case study in France



- Deadwood residues from winter trim that could disturb the use of the disc
- Disc Hoe : can work between the bushes + seem adapted to young bushes
- Brush : not adapted for young bushes
- Disc hoe + brush seem to be effective on young weeds
- Disc hoe + brush seem to have tendency to form « mounds » of ground.



Sept. 21



For a complete mechanical routine :

- Equipment : between 25k€ to 40k€ euros depending on the machine/tools acquired
- Cost/ha : up to 2,5 to 4 times more than herbicide (*depending on the size of the farm, depreciation, machine type, frequency of passes, etc.*), manual labour excluded.

Other Mechanical Weeding :



Elkær Berry Trimmer,
associated with
brush in UK



ROLL weeder on young
crop in Germany



Weed Management practices

Others : Electric Weeder Zasso ®

- Case study in France 
- One producer bought the machine this year

Information about the farm :

- Blackcurrant : secondary crop (≈ 22 ha)
- Young crop : < 3-year-old
- 3m*0,65m
- Soil : Loamy/chalky/sandy
- Main weeds : *Alopecurus*, *Cirsium arvense*, *Trifolium*



Pl 3068. *A l'ulpin des prés, Alopecurus pratensis* L.



Weed Management practices

Others : Electric Weeder Zasso[®]

- Case study in France



30cm

General characteristics about Zasso[®] :

- Cost : 110 000 €
- Speed : \approx 1 ha/h
- Gas Consumption : 13 l/h (\approx 13 l/ha)
- Operates at 2 half rows at the same time
- 8 generators (4 on each side) with strips : works only when in direct contact with weed
- Working width : 30 cm (*adjustable : possibility to buy larger strings to expand the width*)



Weed Management practices



Needs to be associated with electric cultivator **Cultivion** by **Pellenc**® to reach between the bushes



Others : Electric Weeder Zasso[®]

- Case study in France



Weed management routine

- 3 passes of Zasso done before the harvest (mid-February, mid-March, beginning of May)
 - 1 pass expected after the harvest
- ⇒ 4 passes/year (operates in any weather condition)



Requires additional 3 passes of electric cultivator Pellenc



Total cost of the routine :

- 1000€/ha/year (*included cost of machines and depreciation + labour + gas*)

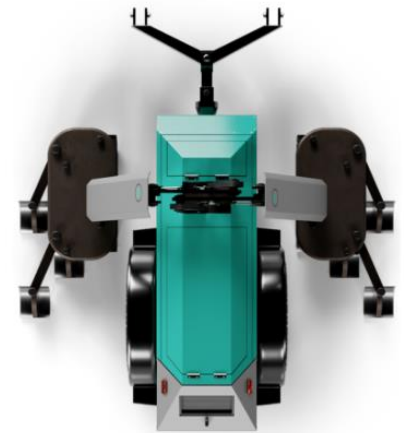


- Doesn't reach the row between the bushes = possibility to buy an extension (20cm) to get closer to the row (*but loss in the working width in the inter row*)
- Works better if weather a little bit moisty
- Tractor with GPS rtk system is necessary
- Impact depending on the type of the weed (*instant killing, or drying after a couple of days*)

Others : Electrical Weeder RootWave



- Development of an electric weeder RootWave® (for apple, vineyard, blackcurrant)
- Prototype stage : commercial development in 2024
- Expected cost : + de 100.000£ (≈115k€)
- First trials : work well with docks and deep weeds



Other : High Pressure Water

- Case study in UK 
- 2 producers have bought this type of machine
- Machine and Manufacturer : GrassKiller by Caffini®
- High pressure water (up to 1000 bar)



Information (brochure) :

Speed : 2,5 km/h (on wine)

Price : 30.000£ – 45.000£ (35k€ – 51k€)

Frequency of passes : 3 passes a year

Water consumption : \approx 2000l/ha

Other projects : Living mulches in the row

- Case study in UK 
 - Previous trials using green waste, compost, and woodchip but did not show promising results (*difficulties to implement on a large scale, not competitive enough for the weeds, etc.*)
 - Implementation of **living mulches this year** (cover crop) in farms :
 - Cover the ground with a mix of different species : clover, legumes, etc. (*but no grass, too competitive*).
 - Weed suppression and nutrients transmission to the soil
 - Implementation on year one of currant establishment

Other ideas : Weeding robot



- Developed by KOKI for hazelnuts
- Would it be interesting to work on trials in blackcurrants on a European level?
- Common research on other solutions?

General Conclusion :

- Fears and concerns about the use of “invasive” mechanic and electric weeders and their impact on the ground (insects, root system, yield, etc.) ;
- Young bushes might be difficult to manage with mechanical alternatives ;
- Optimizing the passes of different machines could be an option to reduce cost (trimmer + weeder, etc.) ;
- Necessity of combining different machines and tools, depending on the type of soil, weather condition, and other activities of the farm (orchards, gardening, etc.) ;
- Not a single way to manage integrated weed management : each producer must find the routine which is the best for his situation ;
- A global increase of total weeding management routine cost is to be considered, as well as a global increase of manual labour associated to weed management ;
- Further research and trials at a global level should be undertaken.











Need for sharing more, deepen knowledge and feeding a data base of the different alternatives (*projects, machines, routines, cost, etc.*) in order to make regular updates and collectively finding the best solutions.













Weed management practices – Summary table

Weed Management practices

Case study location	Name	Photo	Company	Type	Speed	Cost	Frequency of passes
Latvia 	KLAUDIA		Jagoda	Finger weeder + vertical disc hoe	5km/h	≈4.500€	≈4
	LUCY			Blade tiller	1,5km/h	≈4.500€	No fixed rules
Denmark 	Greenmaster		Greenmaster	Mower/stripper		≈18.000€	≈10
Germany 	K.U.L.T		K.U.L.T	Finger Weeder			≈7
	SUZA		Jagoda	Rotary Discs			No fixed rules

Weed Management practices

Case study location	Name	Photo	Company	Type	Speed	Cost	Frequency of passes
Germany 	Own made disc			Vertical discs	5-10 km/h	≈ 5.000 €	≈ 2
	Ladurner		Ladurner	Rotors with blades	1,5-3km/h	≈ 40.000 €	≈ 2
France 	Zasso		Zasso	Electric weeder	≈ 1ha/h	110 k€	≈ 4
UK 	Rootwave (prototype)		Rootwave	Electric weeder		115 k€	
	Grasskiller		Cafini	High pressure Water	≈ 2,5km/h	35k-50k€	≈ 3



Weed Management practices

Contact

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Thank you!