

Prosulfocarb residue findings in Organic Pears

Summary:

Investigation	Prosulfocarb residue in Organic Pears
Location	
Timing	Pears with residue sampled on the 13 th October
Crop involved	Organic Pears, approximately 2 t involved
Level of residue	0.022mg/kg, confirmed by B-test analysis
Investigation period	Mid November – Mid December
SYT evaluators	
External investigator	
External consultant	

Investigation details:

Sampling of Pears and residue levels:

The plantation belongs to .
indicated in the red square in the photo below:



Pears from the plantation were sampled on 2 occasions. The first sample was taken on 6th of October (approximate location in green circle) – with no detectable residues of prosulfocarb.

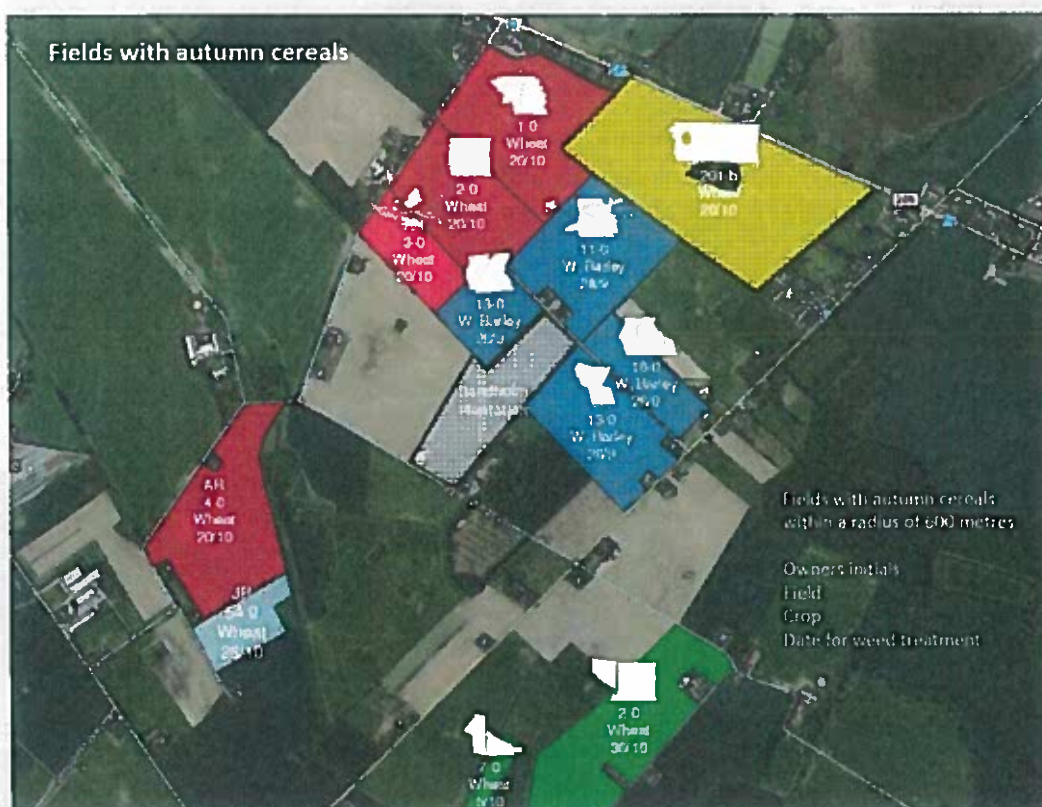
The second sample was taken on the 13th of October (approximate location in orange). This sample had a residue result (confirmed by Miljø- og Fødevarerministeriet) of 0.022 mg/kg prosulfocarb.

Photographs of this part of the plantation show some limited physical breaks for the wind coming from the fields around the plantation (Appendix 1).

B-tests (analysed by Eurofins): The residues found on the two samples are within 0.018 and 0.021 mg/kg prosulfocarb.

Local application of prosulfocarb (Appendices 2 & 3):

Neighbouring farmers used prosulfocarb in winter cereal crops within 1km of the plantation, colored on the map below. Several close fields were treated before the first sampling on 6th October but no detection was observed. Remaining applications were made after the two samples were taken. is a winter cereal crop but did not receive a prosulfocarb application.



Field reference	Crop	Prosulfocarb rate l/ha	Application date
10-0	Barley	1.2	28 th Sep
11-0	Barley	1.2	28 th Sep
12-0	Barley	1.2	28 th Sep
13-0	Barley	1.2	28 th Sep
1-0	Wheat	1.3	20 th Oct
2-0	Wheat	1.3	20 th Oct
3-0	Wheat	1.3	20 th Oct
4-0	Wheat	1.3	20 th Oct
2-0	Wheat	0.75	30 th Oct
7-0	Wheat	0.75	5 th Oct
	Wheat	0.75	20 th Oct

Application equipment used by the neighbouring growers:

All growers have applied using Amazone machines. The grower applying product to the winter barley fields around the plantation used a nozzle recommended in the stewardship plan – with air-injection to increase droplet size and reduce drift. The pressure used by the grower () is relatively high increasing the amount of smaller droplets produced, with an estimate of drift reduction of 50.

The majority of remaining growers further from the plantation used low drift nozzles with the exception and . These nozzles have not been officially assessed however experts familiar with these nozzles suggest that they could typically deliver maximum 25% drift reduction in comparison to the same sized flat fan nozzle and are not aligned to the stewardship plan recommendations.

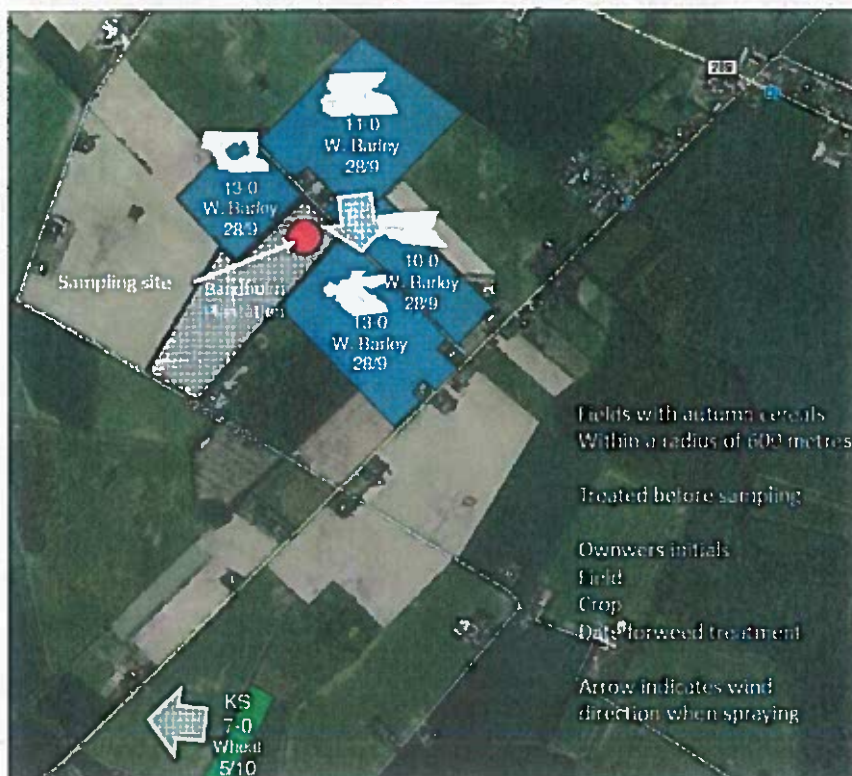
Grower	Sprayer	Nozzle type	UK LERAP Rating Drift Reduction* @ pressure specified	German JKI rating Reduction @ pressure specified	Pressure / bar	Boom height / cm	Speed / km/h	Water rate / l/ha
	Amazone 5200l 36 m	ISO Lechler 120-03 IDKT 2x015	50% when sold as Hardi MiniDrift Duo	50%	2.5-3.0	50	7.7	180
	Amazone UK 24 m trailed	ISO Lechler 120-02 AD	No drift reduction approval	No drift reduction approval	2.5	40	5.8	150
	Amazone 28m trailed	ISO Hardi 120-025 LD	No drift reduction approval	No drift reduction approval	2	50	6.5	150
	Amazone 36m trailed	ISO Lechler 120-025 AD	No drift reduction approval	No drift reduction approval	3		6-7	180
	Amazone 24m trailed	ISO 03 FF	no drift reduction approval	no drift reduction approval	2	50	6.5	188

Wind and rainfall (Appendix 4):

Weather summary data over a 72 hour period and during the spray day for the relevant applications show that applications prior to the 6th of October sample were made in warm (up to 16 °C) but relatively still conditions reducing the risk of drift contamination.

Application date	72 hr rainfall cumulative (mm)	72 hr temp range (°C)	Spray day wind speed range m/s	Spray day dominant wind direction
28 th September	None	~4-17	0-3	N, NW
5 th October	~6	~8-17	0-4	SW, E
12 th October	~5	~4-10	1-7	NE, SE

The closest application on the 28th September did have a wind direction from the North and North West increasing the risk of drift contamination from fields above the plantation – see photo below.



The sample made on the 6th of October showed no residue detect. Little rain was recorded between the 28th and 6th sampling date according to rainwater records from the plantation (Appendix 5). At the time of sampling on the 13th the weather had cooled significantly further reducing the relevance for volatilization.

Between the 6th and the 13th rain events occurred with approximately 5-8mm recorded (Appendix 5). Rainfall effects prior to the sampling on 13th October cannot be fully ruled out but are considered to be of very low significance due to the relatively low amount of rainfall and the low probability that a detectable residue should occur in plantation crops from rain containing prosulfocarb (Appendix 6 – calculation for apples).

Weather data for the later applications are included in appendix 2 but considered not relevant for the investigation.

Conclusion:

After assessing the impact of prosulfocarb applications within 1km of the plantation prior to the contaminated fruit sampling the weight of evidence suggests that the most likely source of the residue is via drift from the applications made on the 28th September.

It is not possible to explain why there was no residue detect from the sample on the 6th October, however.

Relatively low wind speeds around application would reduce the risk.

Volatilization into rainfall is estimated to be of low relevance due to the combination of a low amount of rainfall hitting the pear crop and calculations showing that the levels detected in official studies over 2 months of rainfall could not generate a significant residue in a similar orchard crop.

Changes to stewardship recommendations:

3 areas are worthy of attention

1a. There should be an increase in and clarification of communication to farmers regarding greater attention to correct nozzle and operational pressure selection. Although all growers applied in good spraying conditions the pressure used by the nearest grower is high, and the growers further from the plantation did not use nozzles according to the stewardship guidelines.

1b. There should be work to evaluate the efficacy and drift reduction potential for different air injection nozzles strengthening advice for growers.

2. In many areas the practical approach of discussing harvest and herbicide application between neighbours has helped delay spraying to minimize risk of drift contamination – this advice should be strengthened.

Appendix 1: Photographs of the plantation and surrounding area



Billeder fra

Appendix 2: Maps of surrounding fields



Prosulfocarb marker (

Appendix 3: Application details from neighbouring cereal farmers



Prosulfocarb
Syngenta GB.pdf

Appendix 4: Weather details for the plantation



Klimadata ved

Appendix 5: Rainwater data from the plantation



Plantation data.pdf

Appendix 6: Contamination potential from rainwater containing prosulfocarb



Prosulfocarb
rainwater calculations

DE 6 BILAG ER IKKE UDLEVERET TIL MILJØSTYRELSEN.

