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Prosulfocarb residue findings in Parsley

Summary:

Investigation	Prosulfocarb residue in Organic Parsley
Location	
Timing	Parsley with residue sampled at start of November 2015
Crop involved	Organic Parsley
Level of residue	0.1mg/kg, no B-test analysis possible. MRL at 0.05mg/kg
Investigation period	Weeks 2 and 3, 2016
SYT evaluators	
External investigator	
External consultant	

Baggrund / Indsamling af data:

Nordfyn, har fået målt rester af prosulfocarb i et parti økologisk persille i efteråret 2015. På den baggrund har Syngenta bedt Patriotisk Selskab om at undersøge forholdene omkring brug af prosulfocarbholdige ukrudtsmidler inden for en afstand af 600 m fra den forurenede persillemark.

Der er taget kontakt til alle landmænd der dyrker landbrugsjord inden for 600 m af den forurenede mark. 3 af disse har marker med vintersæd der er ukrudtssprøjtet med et middel indeholdende prosulfocarb. De øvrige marker der ligger tættere end 600 m, er enten ikke vintersæd, eller de er vintersæd, men har ikke været ukrudtssprøjtet i efteråret 2015.

På nedenstående kort er den forurenede mark markeret med rødt i midten af cirklen med radius på 600 m.

De landmænd der har dyrket ukrudtsbehandlet vintersæd inden for cirklen er:

Vejrdata for de relevante sprøjtedage fremgår af nedenstående grafik der er taget fra Danmarks Meteorologiske Instituts "Arkivvejr". I Arkivvejr er hele Fyn regnet som en region. Mere lokale data fra enkelte vejrstationer kan bestilles ved DMI med 2 ugers leveringstid.

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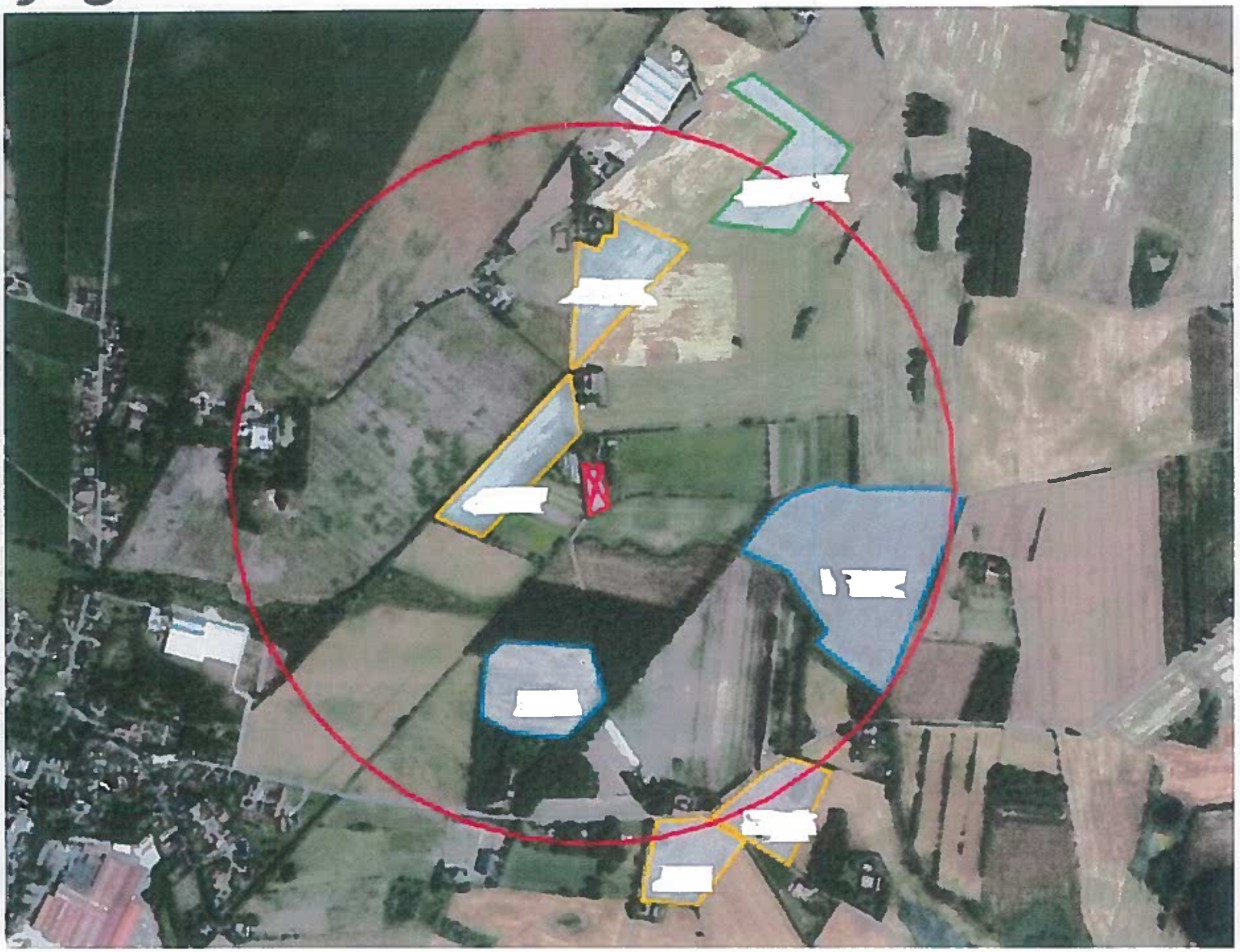

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Mark	Retning	Afstand	Afgrøde	Sprøjte-dato	Tid	Produkt	Dosis	Vand l/ha	Dyser	Tryk bar	Hastig-hed	Bom-højde	Vejr
63-1	N for forurenet mark	190 m	Vinterrug	20 okt	Aften (ca kl 23)	Boxer	1,3 l/ha	150 l/ha	Gul 0,2 Turbo Teejet	2 bar	6,5 km/t	40-50 cm	Se vejrdata for 20 okt. i appendix 2
63-2	V for forurenet mark	50 m	Vinterrug	20 okt	Aften (ca kl 23)	Boxer	1,3 l/ha	150 l/ha	Gul 0,2 Turbo Teejet	2 bar	6,5 km/t	40-50 cm	
79-0	SØ for forurenet mark	590 m	Vinter-hvede	24 okt	Morgen (ca kl 6)	Boxer	1,3 l/ha	150 l/ha	Gul 0,2 Turbo Teejet	2 bar	6,5 km/t	40-50 cm	Se vejrdata for 24 okt. i appendix 2
81-0	S for forurenet mark	580 m	Vinter-hvede	24 okt	Morgen (ca kl 6)	Boxer	1,3 l/ha	150 l/ha	Gul 0,2 Turbo Teejet	2 bar	6,5 km/t	40-50 cm	
	Ø for forurenet mark	270	Vinterrug			Boxer	1 l/ha	175 l/ha	Lilla 0,25 Lowdrift Hardi	2,5 bar	6,5 km/t	50 cm	
	S for forurenet mark	250	Vinterrug			Boxer	1 l/ha	175 l/ha	Lilla 0,25 Lowdrift Hardi	2,5 bar	6,5 km/t	50 cm	
26-0	NØ for forurenet mark	500 m	Vinter-hvede	26 okt	Ca kl 15	Boxer	1 l/ha	180 l/ha	Lilla 0,25 Turbo Teejet	3 bar	5-6 km/t	50 cm	Se vejrdata for 26 okt. i appendix 2

Yellow turbo Teejet nozzles 0,2 at 2 bar should give coarse droplets, but are not at the same level as the compact air injection (minidrift) or air injection nozzles. Unfortunately none of the nozzles used by the growers above have been assessed by JKI or Lerap for drift reduction (see table below).

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For the closest fields, a cross check with local weather stations indicates that the wind was blowing from west at estimated 0-1,6 m/s at just before midnight on the 20th of October (field at the star).

Nozzle	Pressure	Water Volume	Speed	JKI Drift Reduction	LERAP Drift Reduction
02-110 Turbo Teejet (TT11002)	2 bar	150l/ha	5.6 kph	N/A	N/A
025-110 Turbo Teejet (TT110025)	3 bar	180l/ha	5-6 kph	N/A	N/A
025 Lowdrift Hardi	2.5bar	175l/ha	6.5 kph	N/A	N/A

Conclusion:

After assessing the impact of local prosulfocarb applications the evidence suggests that the most likely source of the residue is via drift from the applications made on the 20th October (field 63-2). The weather conditions were aligned to the stewardship recommendations at the time of application, however the application equipment used did not provide a high drift reduction.
Rainfall contamination from local application of prosulfocarb is discounted due to the low probability discussed in other investigations and the very low level of rainfall between applications and sampling.

Changes to stewardship recommendations:

1. The main focus should be on 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 nozzles selected were not giving a minimum of 70% drift reduction.
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.

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Appendix 1: Tables showing nozzle characteristics for neighboring farmers:

Turbo TeeJet® (TT) og Turbo TeeJet® Duo (QJ90-2XTT)

	bar										
	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6
TT11001 QJ90-2XTT11001	C	M	M	M	F	F	F	F	F	F	F
TT110015 QJ90-2XTT110015	C	C	M	M	M	M	M	F	F	F	F
TT11002 QJ90-2XTT11002	C	C	C	M	M	M	M	M	M	M	F
TT110025 QJ90-2XTT110025	VC	C	C	M	M	M	M	M	M	M	M
TT11003 QJ90-2XTT11003	VC	C	C	C	C	M	M	M	M	M	M
TT11004 QJ90-2XTT11004	XC	VC	C	C	C	C	C	C	M	M	M
TT11005 QJ90-2XTT11005	XC	VC	VC	VC	C	C	C	C	C	M	M
TT11006 QJ90-2XTT11006	XC	VC	VC	VC	C	C	C	C	C	C	M
TT11008 QJ90-2XTT11008	XC	XC	VC	VC	C	C	C	C	C	C	M

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HARDI ISO LD-110

LowDrift dyser

ISO størrelse/farve	bar	1.5	2.0	2.5	3.0	4.0	5.0
	l/min						
01-Orange		0.28	0.33	0.37	0.40	0.46	0.52
015-Grøn		0.42	0.49	0.55	0.60	0.69	0.77
02-Gul		0.57	0.65	0.73	0.80	0.92	1.03
025-Lilla		0.71	0.82	0.91	1.00	1.15	1.29
03-Blå		0.85	0.98	1.10	1.20	1.39	1.55
04-Red		1.13	1.31	1.46	1.60	1.85	2.07
		1.41	1.63	1.83	2.00	2.31	2.58

	bar	l/min		l/ha ved km/t 6	7	8	10	12	15	20	25
025-Lilla	**SYNTAL-CT** 371958 (12 stk. 750630)						**SYNTAL-S** 371957 (12 stk. 750632)				
	1.5	0.71	G	141	121	106	85	71	57	42	34
	2.0	0.82	G	163	140	122	98	82	65	49	39
	2.5	0.91	M	183	156	137	110	91	73	55	44
	3.0	1.00	M	200	171	150	120	100	80	60	48
	4.0	1.15	M	231	198	173	139	115	92	69	55
	5.0	1.29	M	258	221	194	155	129	103	77	62

= Sprøjtekvalitet: Meget fin (MF), Fin (F), Medium (M), Grov (G), meget grov (MG).

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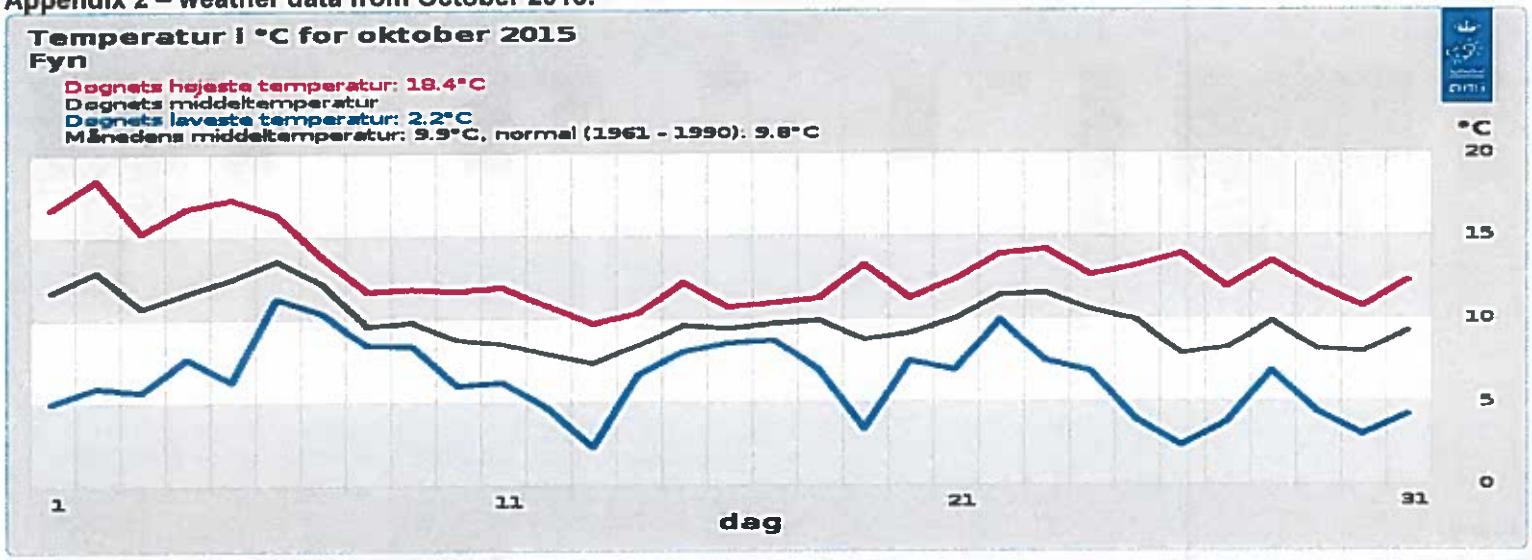
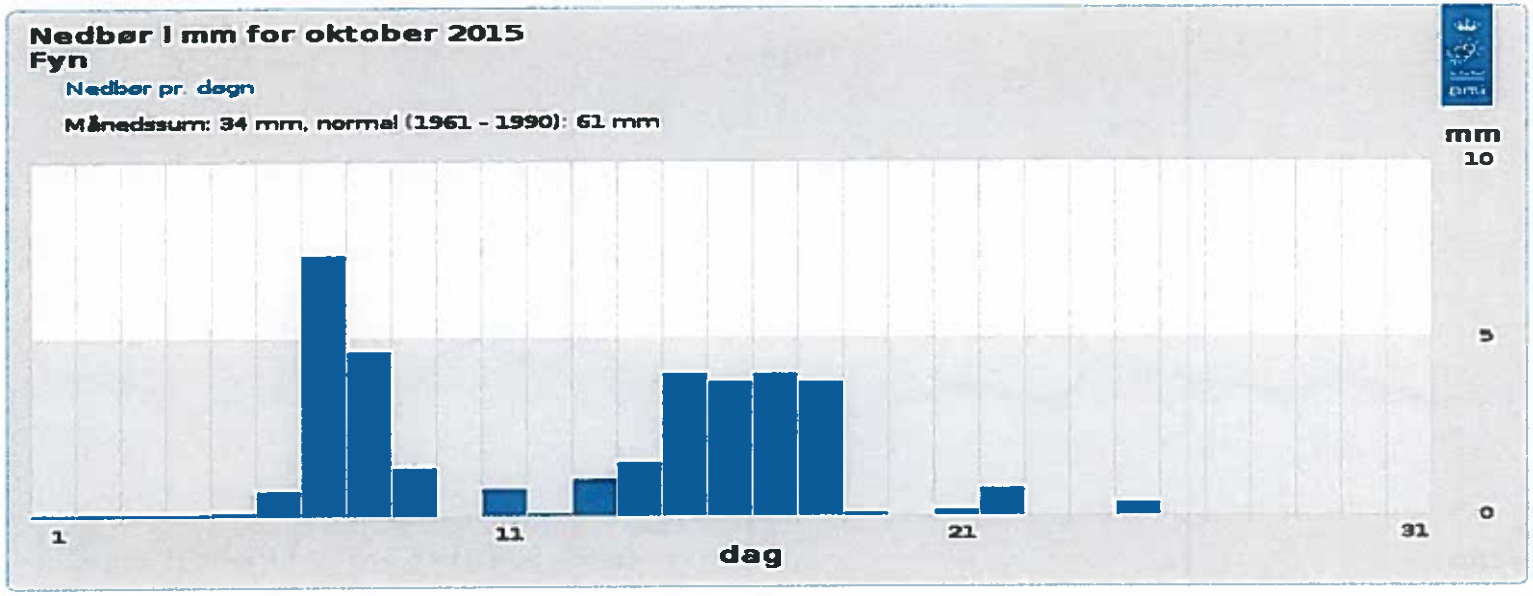
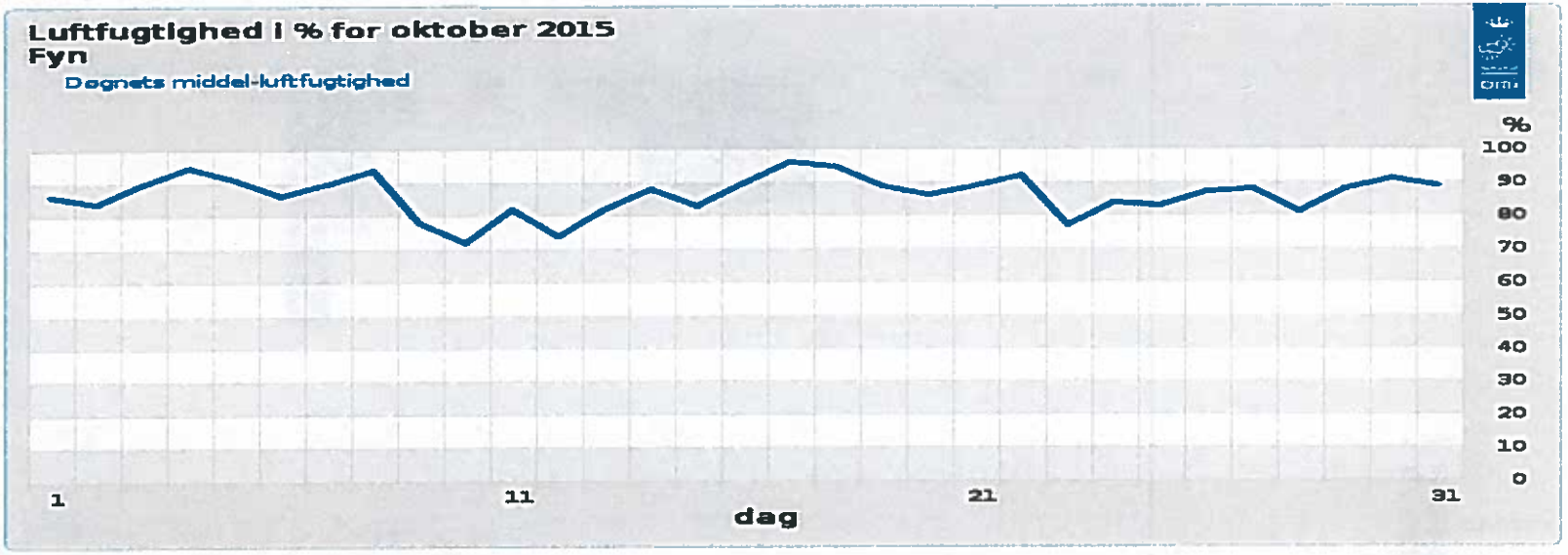
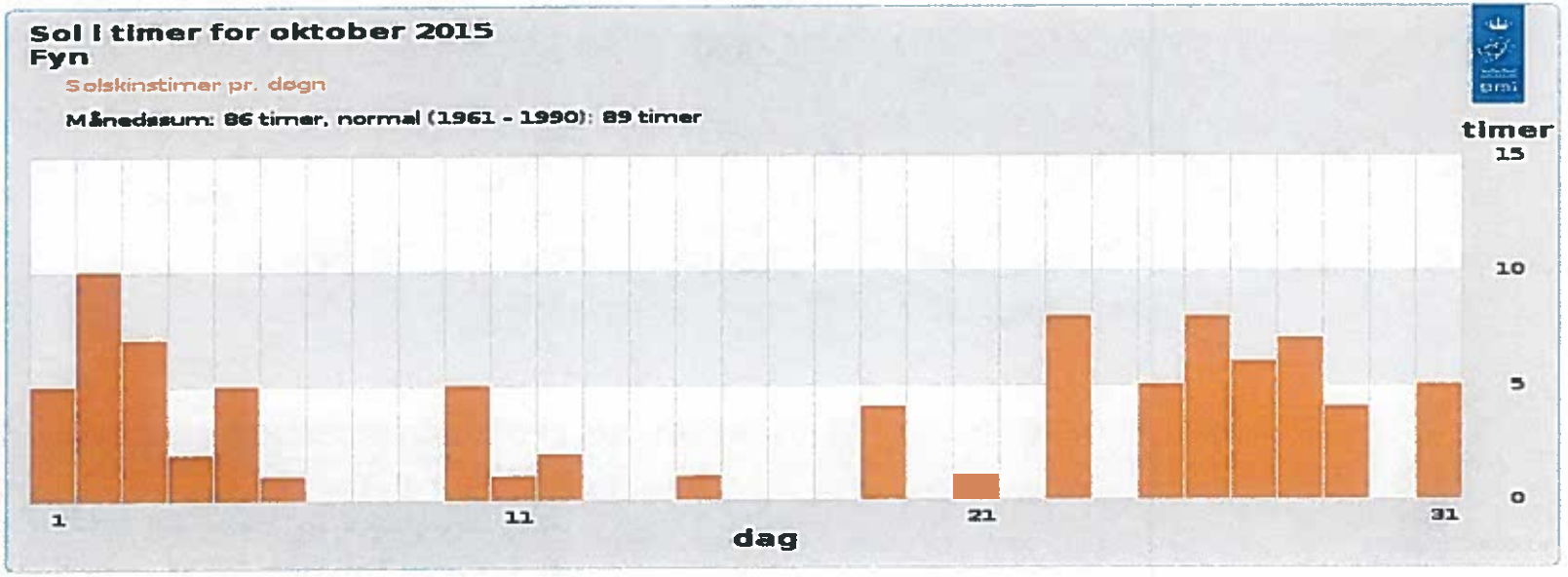
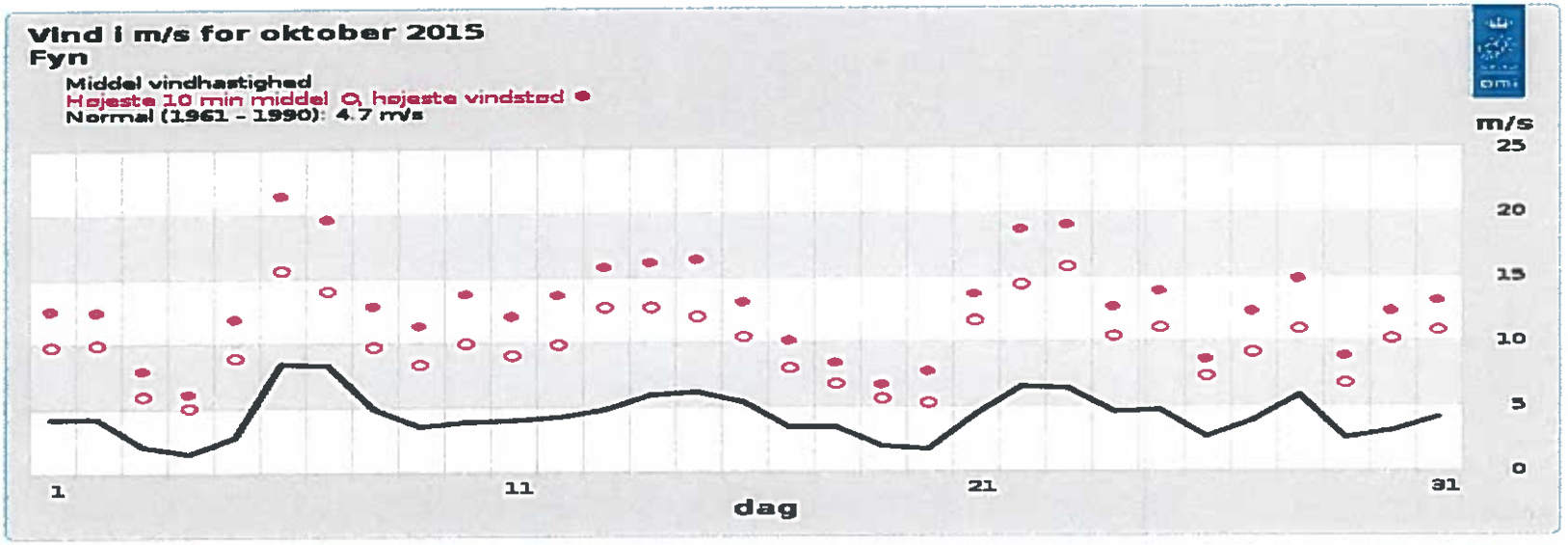
Appendix 2 – weather data from October 2015:

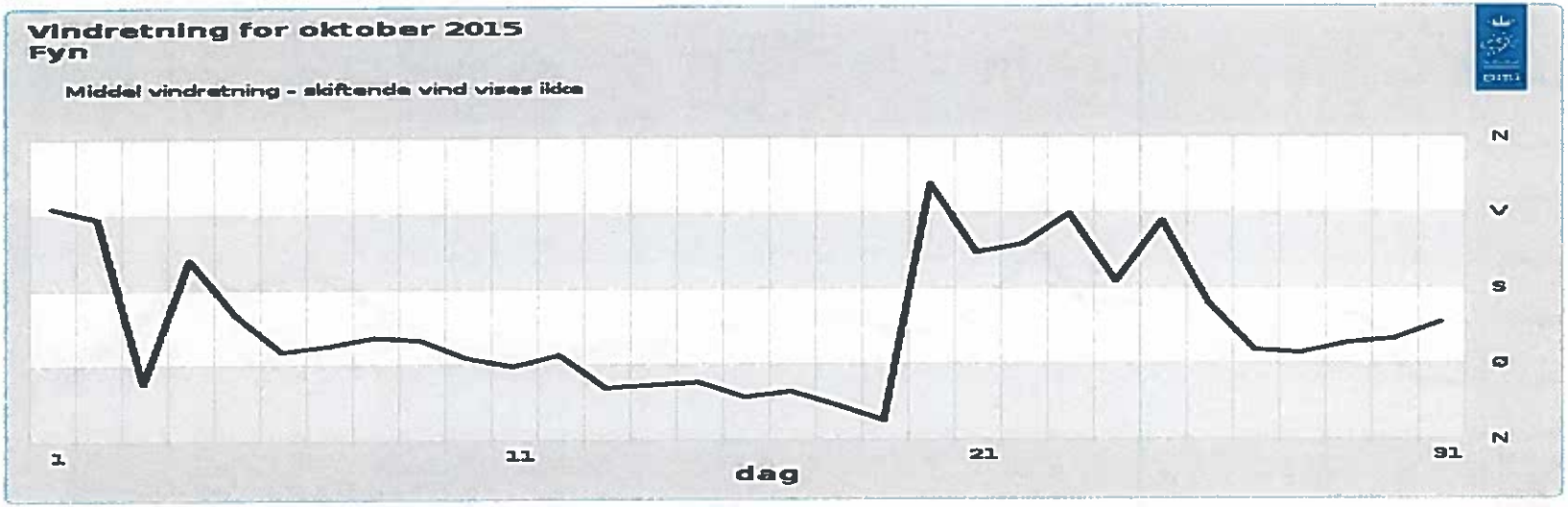


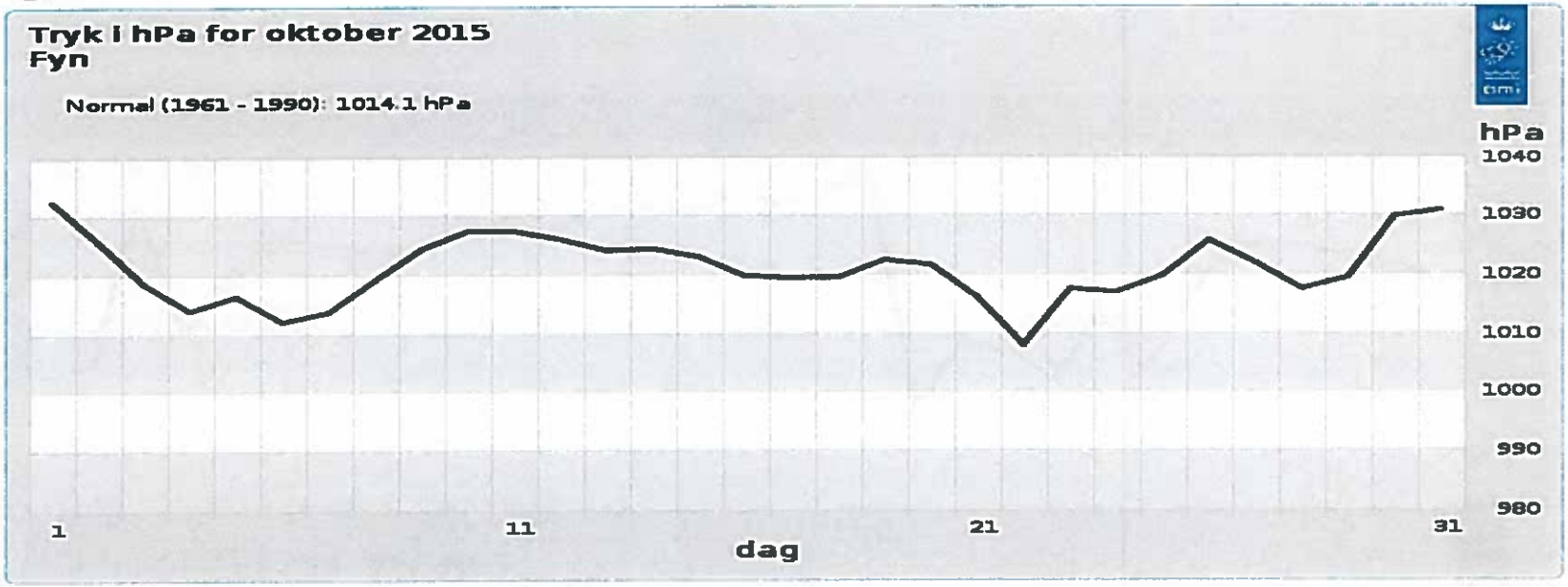



Luftfugtighed i % for oktober 2015
Fyn
Døgnets middel-luftfugtighed
%
100
90
80
70
60
50
40
30
20
10
0
1
11
21
31
dag


Sol i timer for oktober 2015
Fyn
Solskinstimer pr. døgn
Månedssum: 86 timer, normal (1961 - 1990): 89 timer
timer
15
10
5
0
1
11
21
31
dag






Tryk i hPa for oktober 2015
Fyn
Normal (1961 - 1990): 1014.1 hPa
hPa
1040
1030
1020
1010
1000
990
980
1
11
21
31
dag