


Article

Crop monitoring using Sentinel-1 data: A case study from the Netherlands

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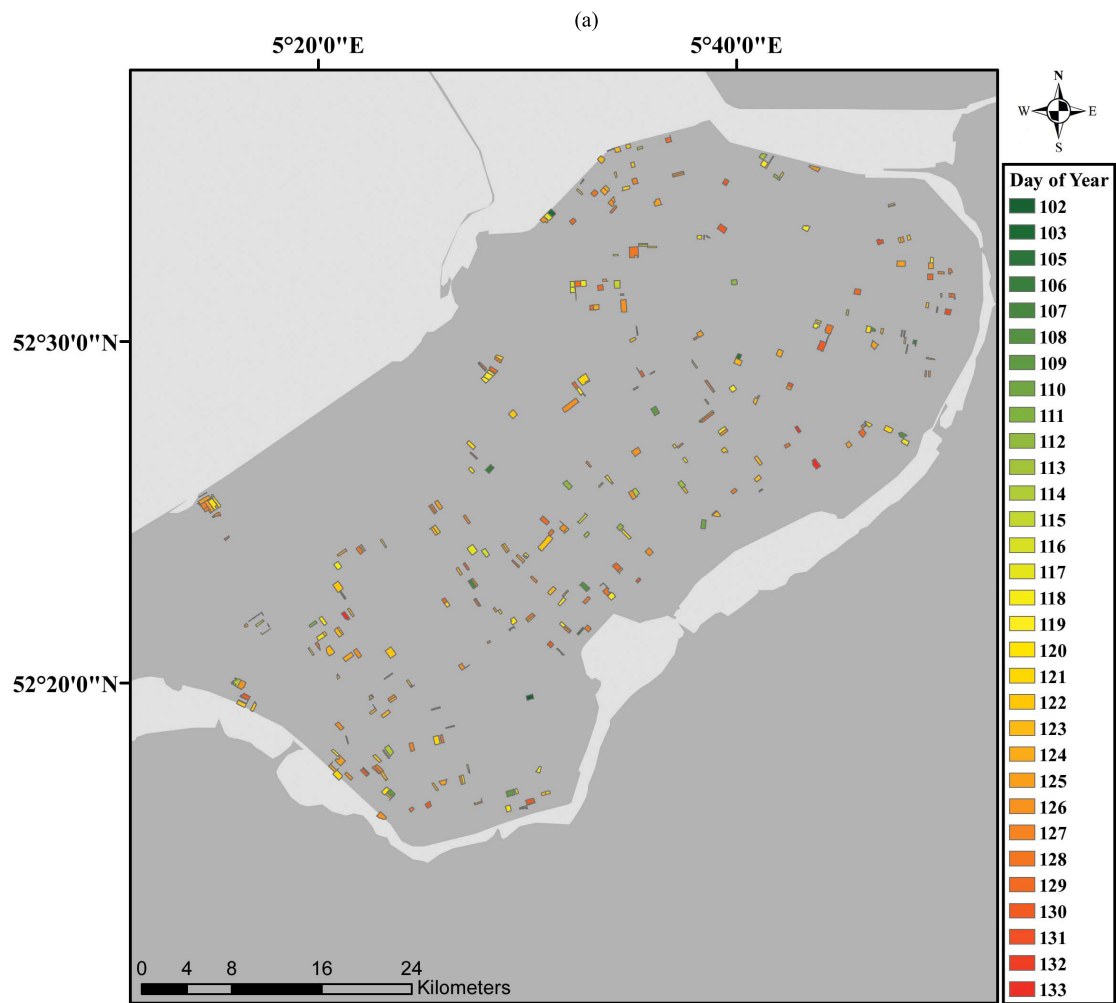
Table S1. Ridge geometry for monitored potato fields

Field Name	Ridge width (cm)	Ridge height (cm)	Top ridge width (cm)	Furrow width (cm)
RBW	74	20	20	10
HF1	71	22	19	9
DB	74	22	18	11
AKW	73	20	17	10.5

Table S2. Cultivation calendar in Flevopolder (year 2017). BBCH stage numbers and names are provided for each of 5 crops.

DOY	Date	Phenology stages (BBCH)							
		Maize		Potato		Sugar beet		Wheat	
138	18/05/2017	12	Leaf Development					45	Late boot
143	23/05/2017	13	Leaf Development					50	Inflorescence Emergence
150	30/05/2017	16	Leaf Development						
159	08/06/2017	31	Stem Elongation					65	Flowering
166	15/06/2017	33	Stem Elongation						

172	21/06/2017	36	Stem Elongation	62	Flowering	36	Rosette growth	73	Early Milk
178	27/06/2017	37	Stem Elongation	63	Flowering	37	Rosette growth	76	Medium Milk
184	03/07/2017	39	Stem Elongation	64	Flowering	39	Rosette growth	83	Early Dough (Ripening)
191	10/07/2017	51	Inflorescence Emergence	65	Flowering			85	Soft dough
194	13/07/2017			65	Flowering	49	Development of harvestable vegetative part(Beet root)	85	Soft dough
198	17/07/2017	63	Flowering	66	Flowering	49		87	Hard dough
208	27/07/2017	71	Development of fruit	67	Flowering			89	Fully Ripe
214	02/08/2017	73	Development of fruit			49		92	Over-ripe (Senescence)
223	11/08/2017	75	Development of fruit			49		99	Harvested product
229	17/08/2017	79	Development of fruit					.	
235	23/08/2017	85	Ripening	91	Beginning of Leaves yellowing				
250	09/09/2017	87	Ripening	93	Most leaves yellow				
258	15/09/2017	89	Senescence	95	50% of leaves brownish	49			



(b)

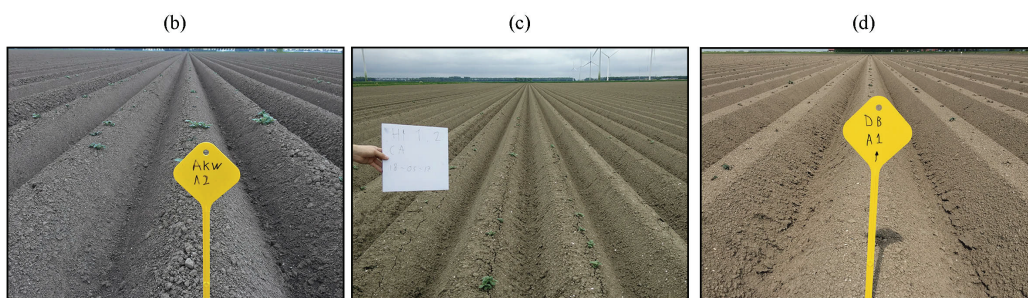
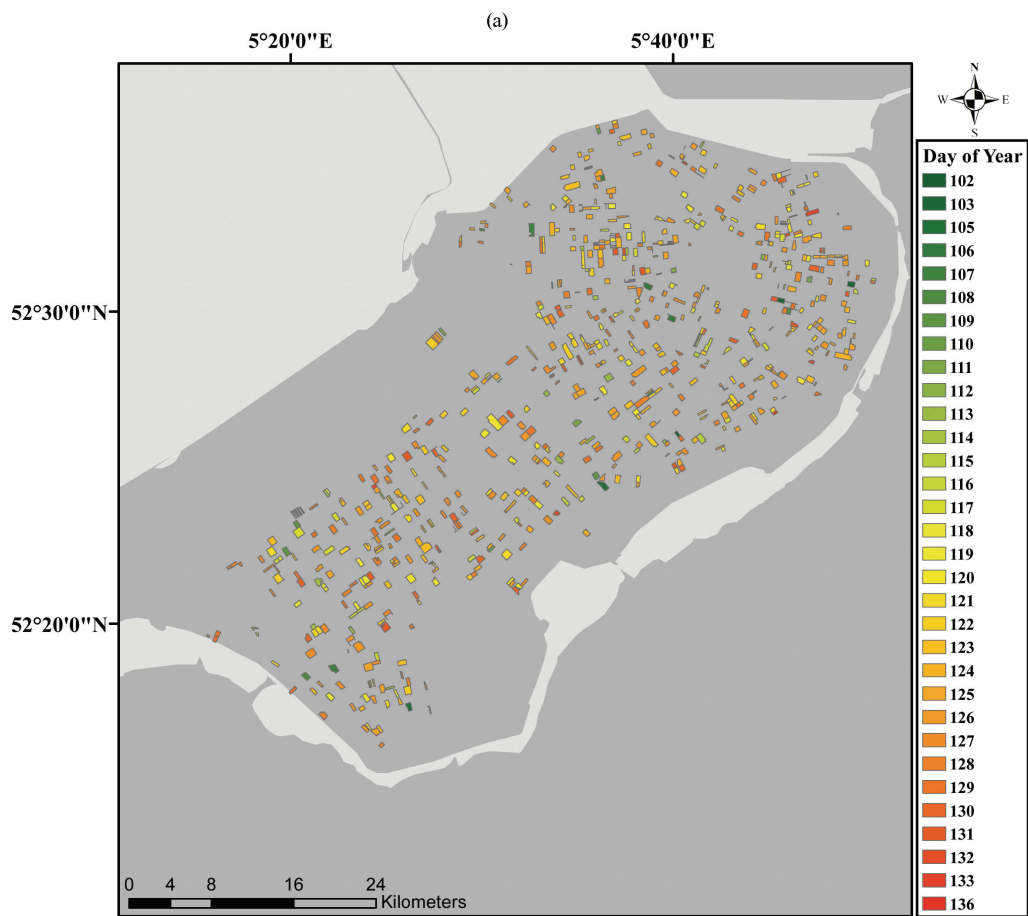


(c)



Field Name:	PVD	TK1
Photo Date:	18/05/2017	18/05/2017
Estimated Date:	14/05/2017	14/05/2017

Figure S1. Estimated emergence date for maize parcels in Flevopolder; (a) Map of emergence date; (b-c) Photos from monitored parcels in the closest time to emergence date.



Field Name:	AKW	HF	DB
Photo Date:	18/5/2017	18/5/2017	17/5/2017
Estimated Date:	4/5/2017	5/5/2017	7/5/2017

Figure S2. Estimated emergence date for potato parcels in Flevopolder; (a) Map of emergence date; (b-e) Photos from monitored parcels in the closest time to emergence date.

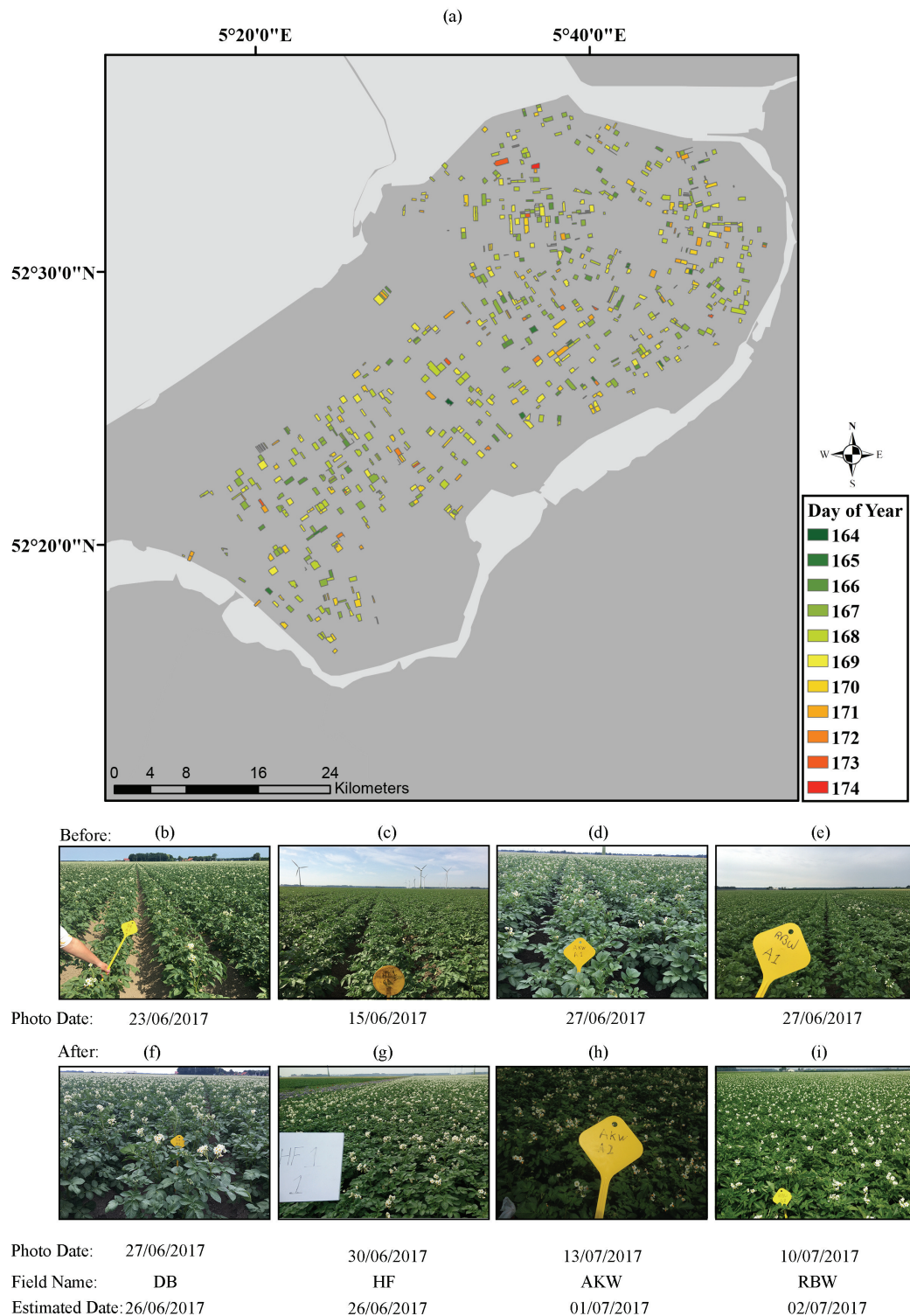


Figure S3. Estimated closure date for potato parcels in Flevopolder; (a) Map of closure date; (b-e) Photos from monitored parcels in the closest time before closure date; (f-i) Photos from monitored parcels in the closest time after closure date.

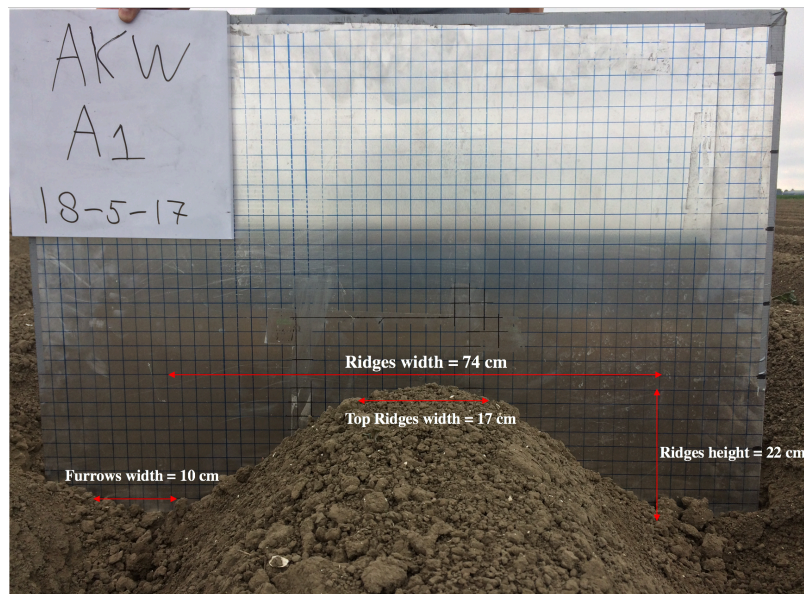


Figure S4. Potato ridge geometry

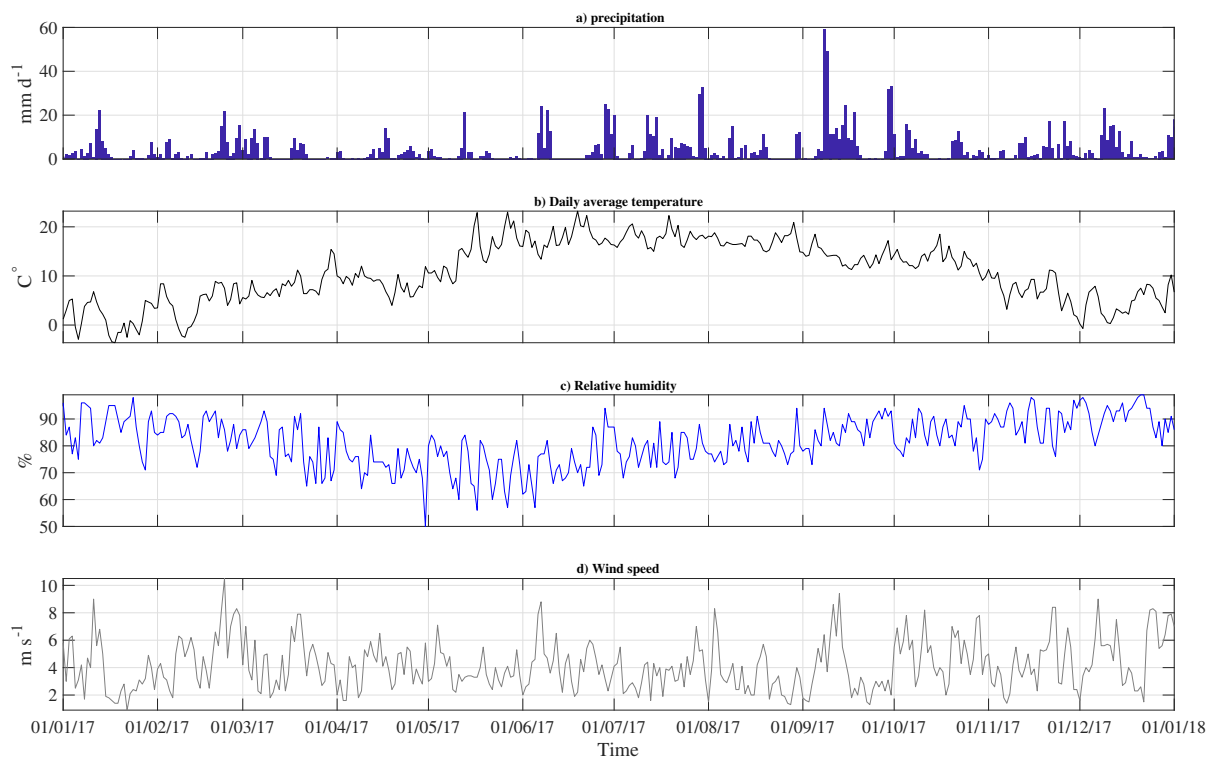


Figure S5. Meteorological data collected at the KNMI Lelystad weather station: (a) Precipitation data (mm day^{-1}) (b) Daily Average Temperature ($^{\circ}\text{C}$) and solar radiation (W m^{-2}) (c) Relative Humidity (%) (d) Wind Speed (m s^{-1}).[?]

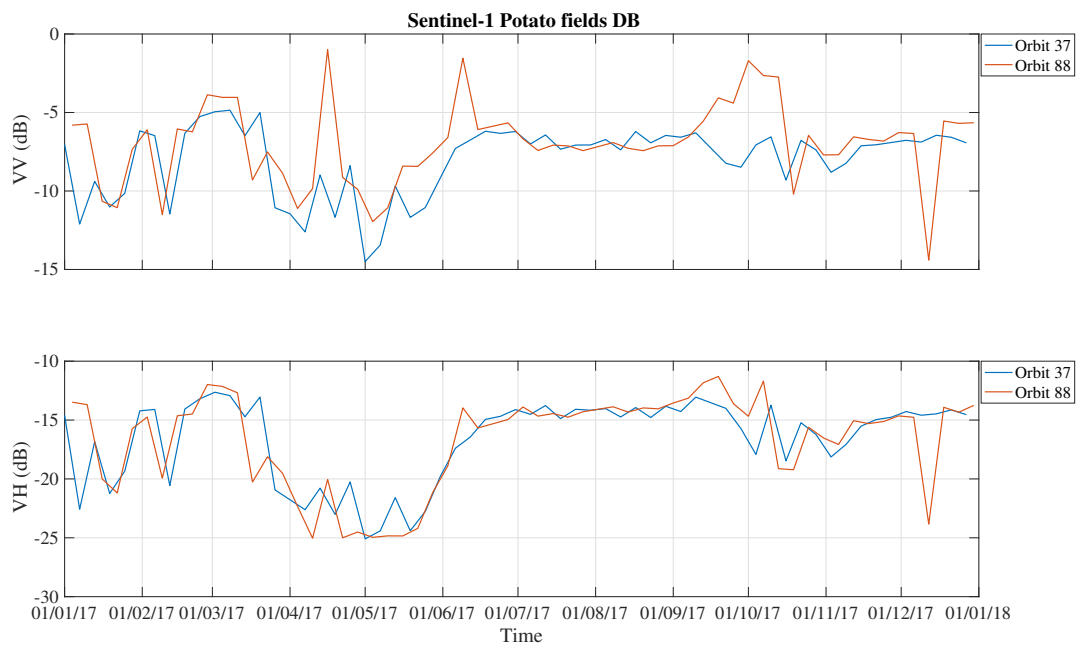


Figure S6. Time series of Sentinel-1 from relative orbit numbers 37 and 88 for potato field DB



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