

Figure S1. Crop calendars of 2018 for major crops in Germany based on DWD (Deutscher Wetterdienst) phenology observation data (DWD-CDC (2001); own outlier analysis and visualization).

Table S1: Model and map accuracy metrics (precision, recall, and F1-score) for crop type classifications for the Germany-wide RF models using different input feature sets. namely all Sentinel-1 and -2 features (S12). only the Sentinel-1 features (S1) and only the Sentinel-2 features (S2).

Crop	Class	S12						S1						S2					
		model			map			model			map			model			map		
		Prec	Rec	F1	Prec	Rec	F1	Prec	Rec	F1	Prec	Rec	F1	Prec	Rec	F1	Prec	Rec	F1
winter wheat	11	0.69	0.74	0.71	0.92	0.74	0.82	0.60	0.65	0.63	0.90	0.65	0.75	0.62	0.65	0.63	0.90	0.65	0.75
winter barley	12	0.76	0.72	0.74	0.81	0.72	0.76	0.70	0.62	0.66	0.76	0.62	0.68	0.68	0.66	0.67	0.74	0.66	0.70
winter rye	13	0.69	0.70	0.70	0.61	0.70	0.65	0.61	0.60	0.60	0.57	0.60	0.58	0.56	0.62	0.59	0.41	0.62	0.49
other winter cereals	14	0.55	0.53	0.54	0.33	0.53	0.41	0.58	0.53	0.55	0.47	0.53	0.50	0.48	0.43	0.45	0.26	0.43	0.32
spring wheat	21	0.54	0.52	0.53	0.23	0.52	0.32	0.42	0.52	0.47	0.14	0.52	0.22	0.51	0.46	0.48	0.20	0.46	0.28
spring barley	22	0.63	0.60	0.61	0.71	0.60	0.65	0.54	0.49	0.51	0.50	0.49	0.49	0.53	0.53	0.53	0.63	0.53	0.58
spring oat	23	0.52	0.50	0.51	0.27	0.50	0.35	0.36	0.11	0.17	0.09	0.11	0.10	0.47	0.43	0.45	0.24	0.43	0.31
maize	30	0.78	0.84	0.81	0.97	0.84	0.90	0.59	0.71	0.64	0.91	0.71	0.80	0.77	0.82	0.80	0.97	0.82	0.89
legumes	40	0.66	0.64	0.65	0.39	0.64	0.48	0.65	0.55	0.60	0.32	0.55	0.40	0.56	0.58	0.57	0.34	0.58	0.43
potato	50	0.80	0.60	0.69	0.74	0.60	0.66	0.72	0.49	0.58	0.49	0.49	0.49	0.72	0.55	0.62	0.61	0.55	0.58
sugar beet	60	0.92	0.91	0.92	0.92	0.91	0.91	0.84	0.85	0.84	0.79	0.85	0.82	0.90	0.91	0.91	0.89	0.91	0.90
rapeseed	70	0.90	0.92	0.91	0.95	0.92	0.93	0.85	0.94	0.89	0.91	0.94	0.92	0.89	0.86	0.87	0.92	0.86	0.89
clover / alfalfa	81	0.58	0.61	0.60	0.48	0.61	0.54	0.42	0.47	0.44	0.31	0.47	0.37	0.56	0.56	0.56	0.49	0.56	0.52
arable grass	82	0.54	0.53	0.54	0.48	0.53	0.50	0.47	0.46	0.46	0.37	0.46	0.41	0.50	0.47	0.48	0.42	0.47	0.44
vineyard	90	0.79	0.91	0.84	0.47	0.91	0.62	0.72	0.86	0.79	0.32	0.86	0.47	0.77	0.91	0.83	0.44	0.91	0.59
fruit trees	100	0.61	0.67	0.64	0.14	0.67	0.23	0.47	0.66	0.55	0.07	0.66	0.13	0.60	0.65	0.63	0.15	0.65	0.24
hops	110	0.91	0.93	0.92	0.20	0.93	0.33	0.81	0.91	0.85	0.11	0.91	0.20	0.85	0.93	0.89	0.11	0.93	0.20

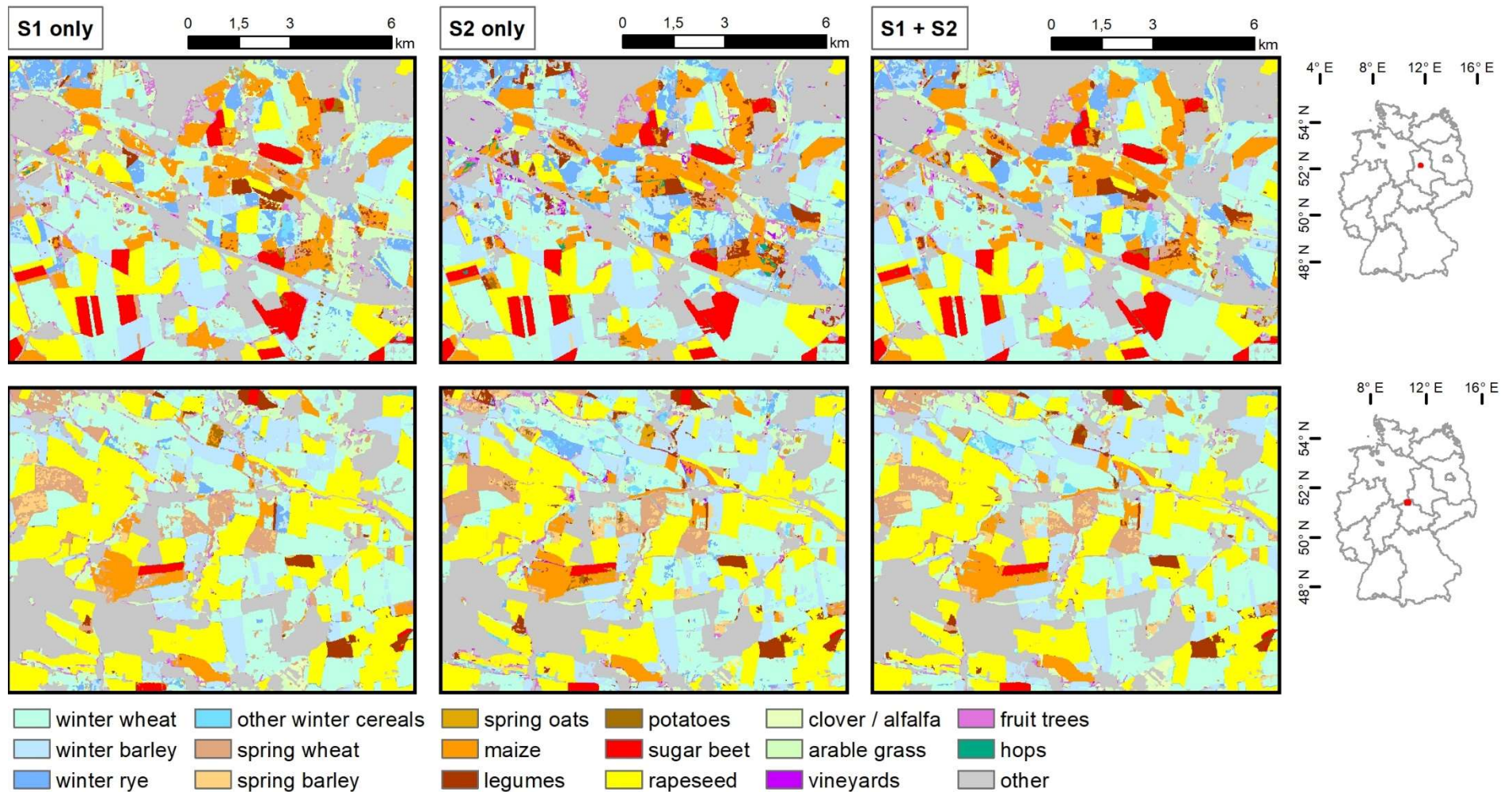


Figure S2: Comparison of the crop type classifications for Germany 2018 based on a) the S1 model, b) the S2 model and c) the S12 model for a subset in the Magdeburger Börde region in Saxony-Anhalt (upper row), and the "Eichsfeld" agricultural region in Thuringia (bottom row).