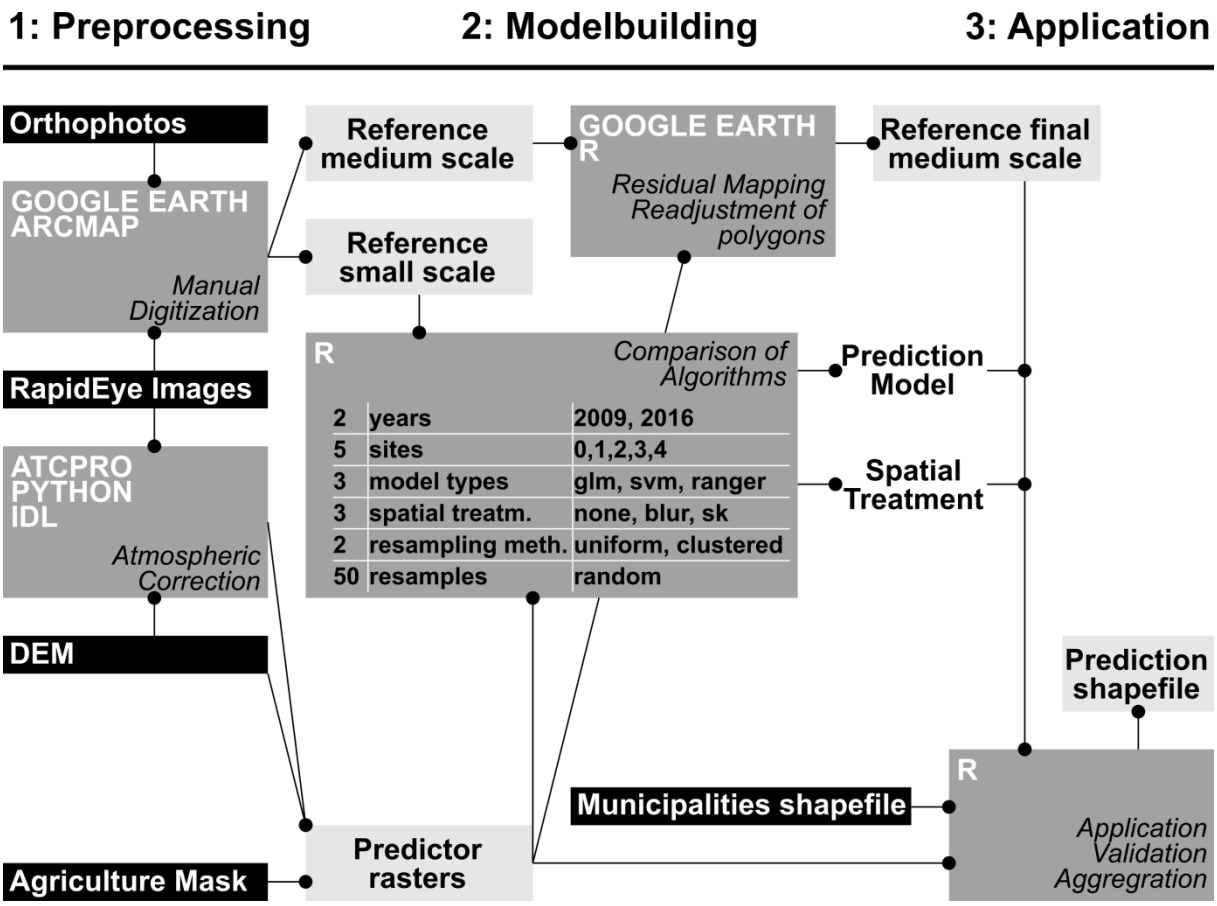
Supplementary material

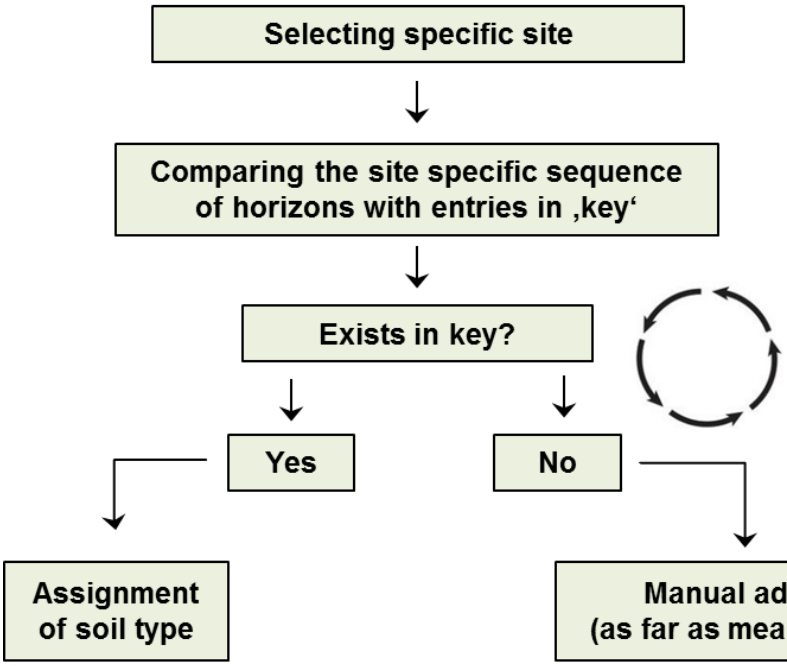
Supplementary material 1: Characterization of the climatic gradient present in the study area on the basis of long-term mean monthly temperature and precipitation data (1981-2010) of three meteorological stations located in the southern, central and northern part of the study area. Data derived from German Meteorological Service (2018).

	Temperature °C			Precipitation mm		
	South	**Central**	**North**	**South**	**Central**	**North**
January	1.4	0.4	-0.6	80	101	135
February	1.5	0.6	-0.1	64	71	113
March	5.0	4.2	2.7	73	82	111
April	7.4	7.6	6.1	59	60	79
May	12.6	12.0	10.3	70	72	87
June	15.5	15.0	13.1	68	68	91
July	17.6	17.2	15.3	70	67	93
August	17.0	16.5	14.9	58	65	84
September	13.3	12.7	11.5	80	77	100
October	9.8	8.6	7.5	77	83	109
November	4.7	4.0	3.0	71	78	113
December	1.9	1.2	0.2	93	106	135
Σ / Ø	9.0	8.3	7.0	861	931	1250
South: Olsdorf: 328 masl.; 49.944°N, 6.382°E (station-ID: 1964)						
Central: Manderscheid, 413 masl.; 50.102°N, 6.801°E (station-ID: 3155)						
North: Schneifelforsthaus, 649 masl.; 50.297°N, 6.419°E (station-ID: 4508)						

Supplementary material 2: Flowchart explaining the steps and methods for the remote sensing based classification of maize fields acc. to [53].



Supplementary material 3: Flowchart explaining the steps for classification of soil types based on site-specific sequences of soil horizons.



Key:

Sequence of horizons	Soil type
Ah Bw C	Cambisol
Ap Ah	Anthrosol
Ap Bg C	Stagnosol
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