

Supplementary Materials

Mapping variability of pasture sward height, dry matter availability and disappearance during grazing

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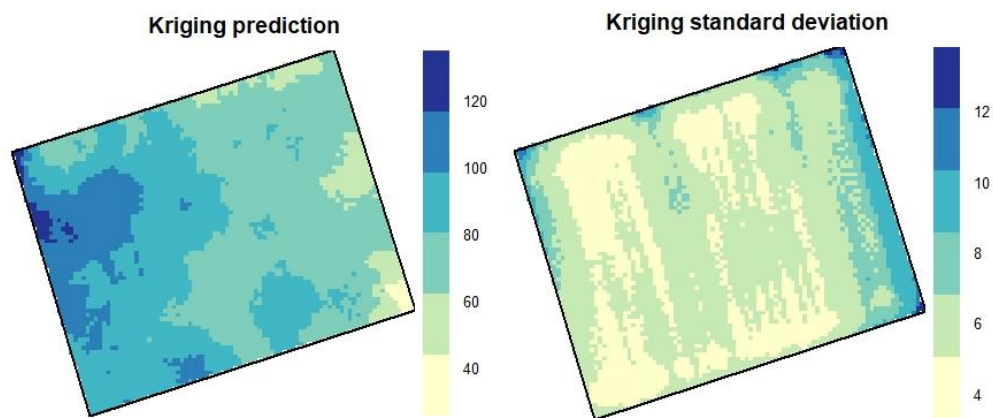
^DSchool of Environmental and Rural Science, University of New England, Armidale, NSW 2351, Australia.

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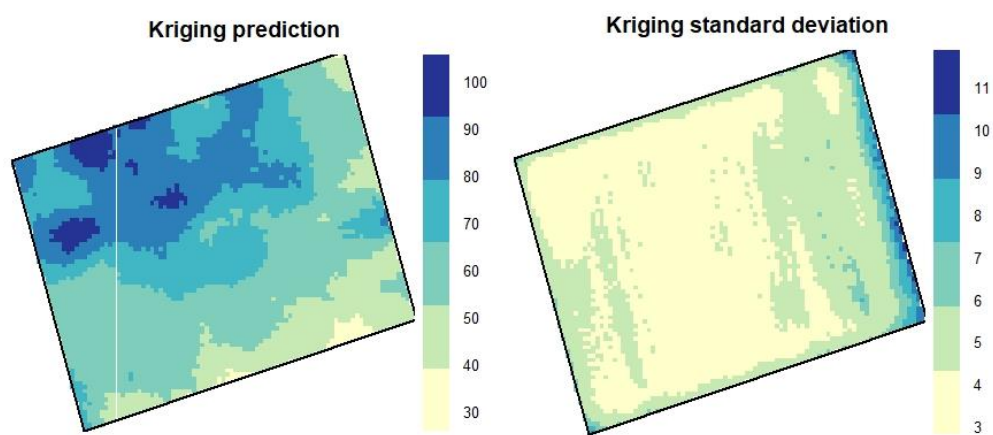
Supplementary Material Figures

The following figures are surface plots for each individual paddock.

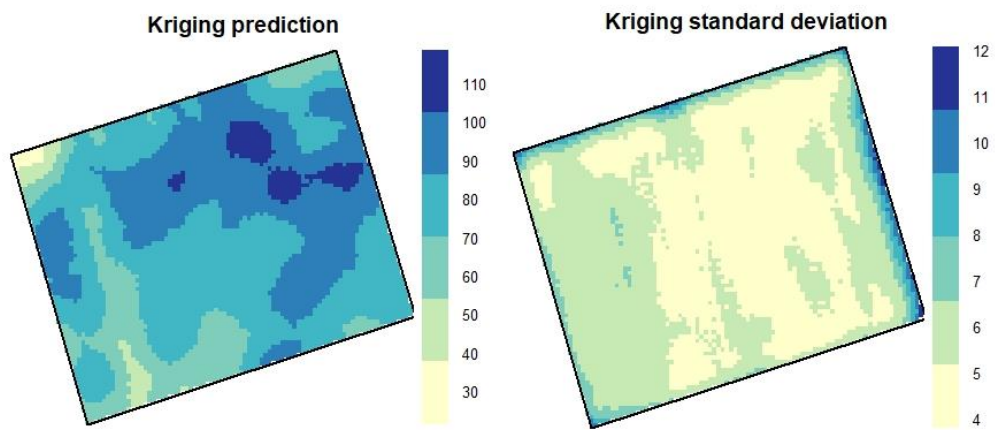
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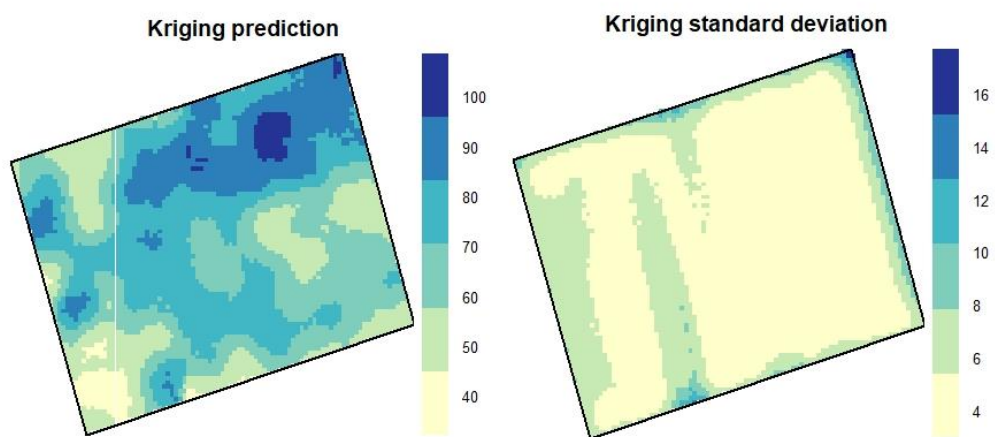
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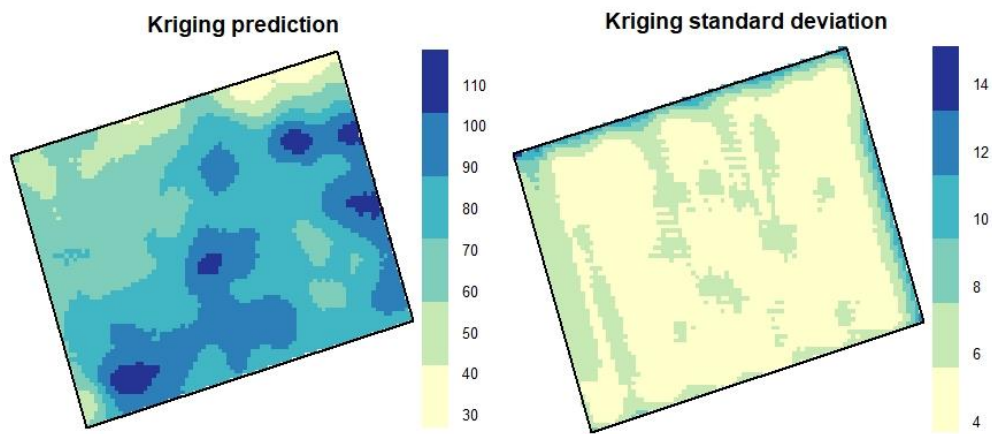
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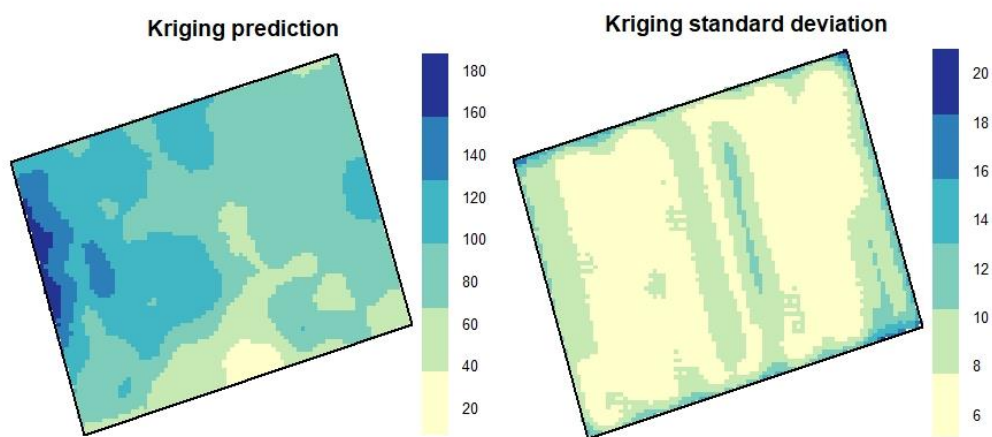
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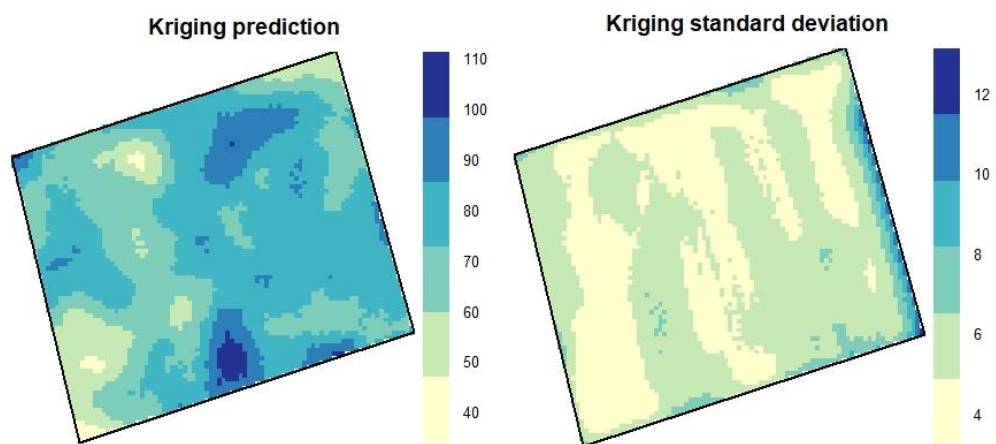
Paddock 5



Paddock 6



Paddock 7



Paddock 8

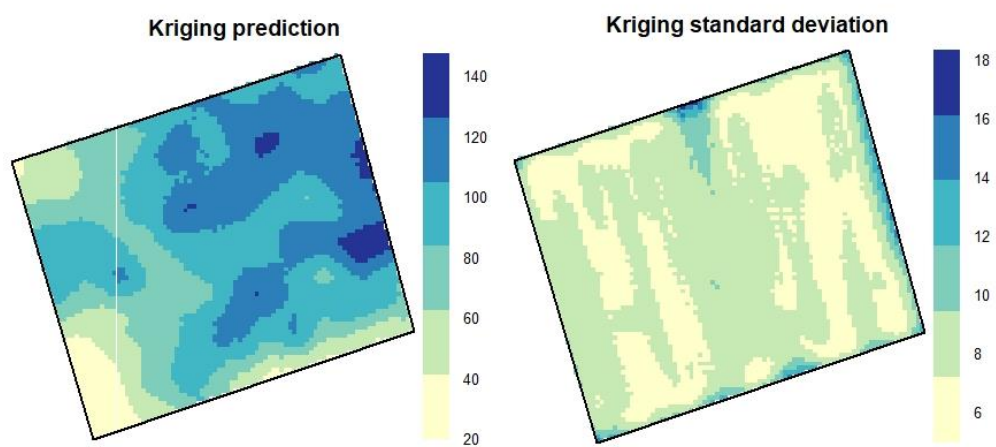
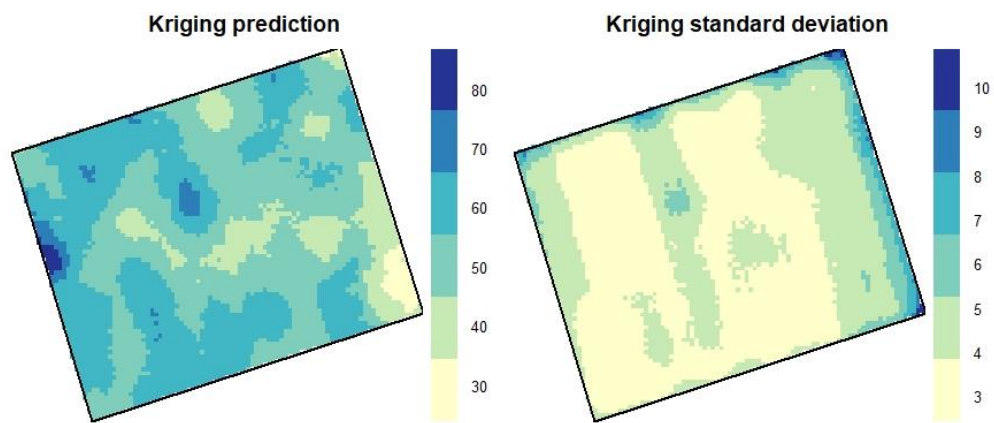
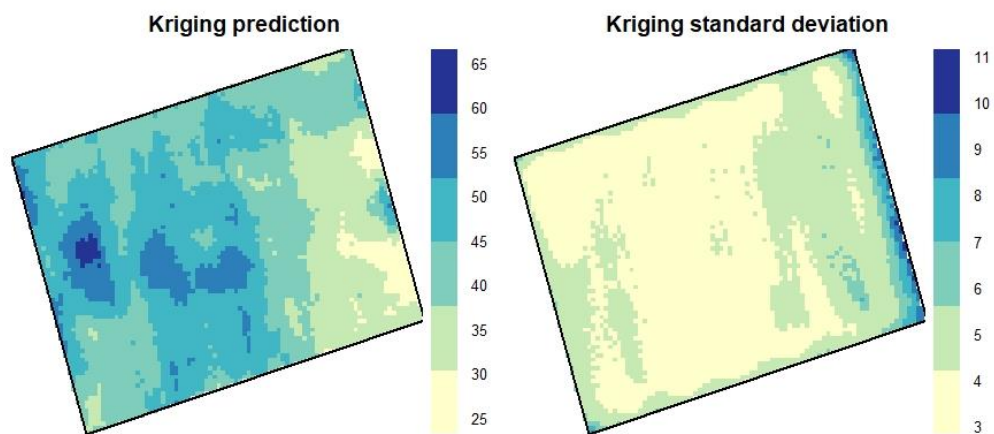


Figure S1. Individual paddock kriging predictions and standard errors for pre-grazing sward height (mm) during phase 1.

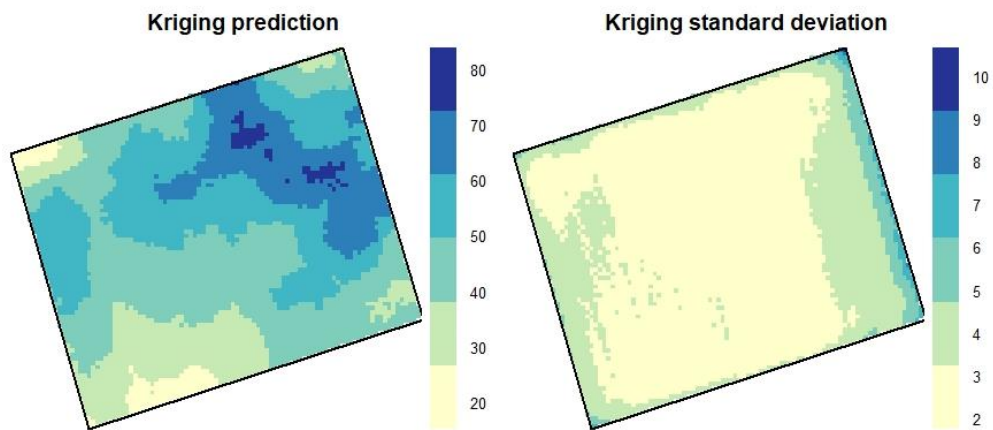
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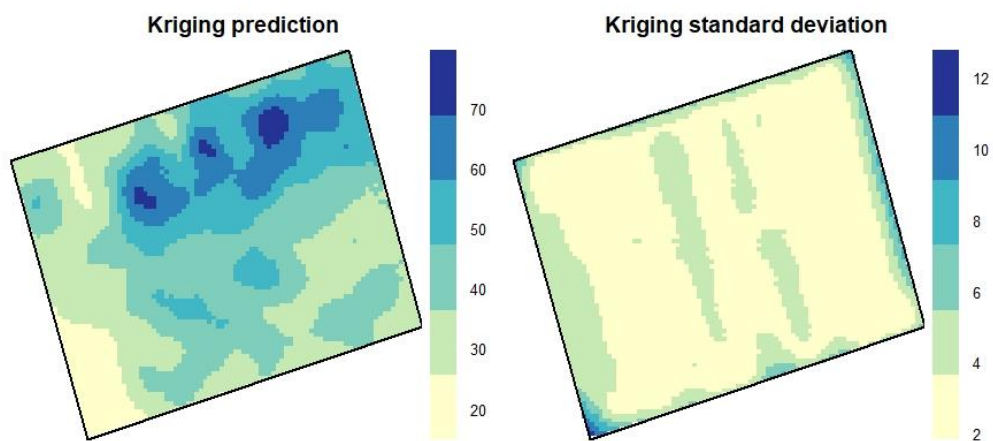
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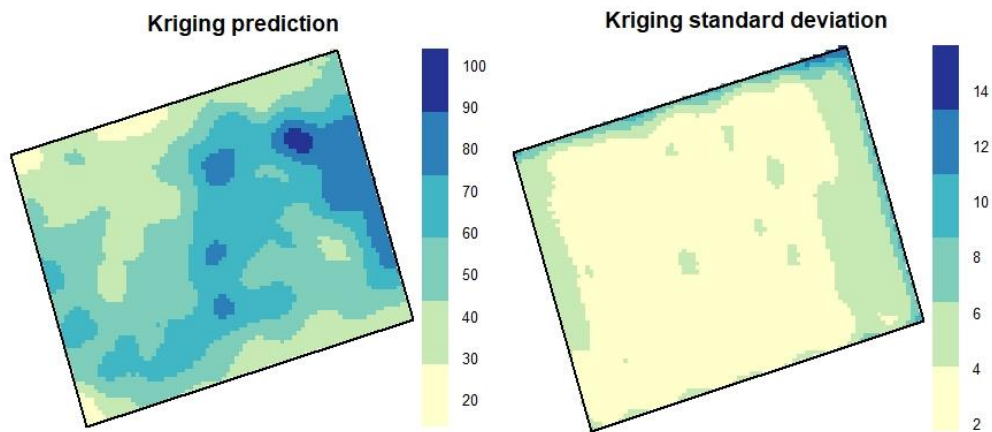
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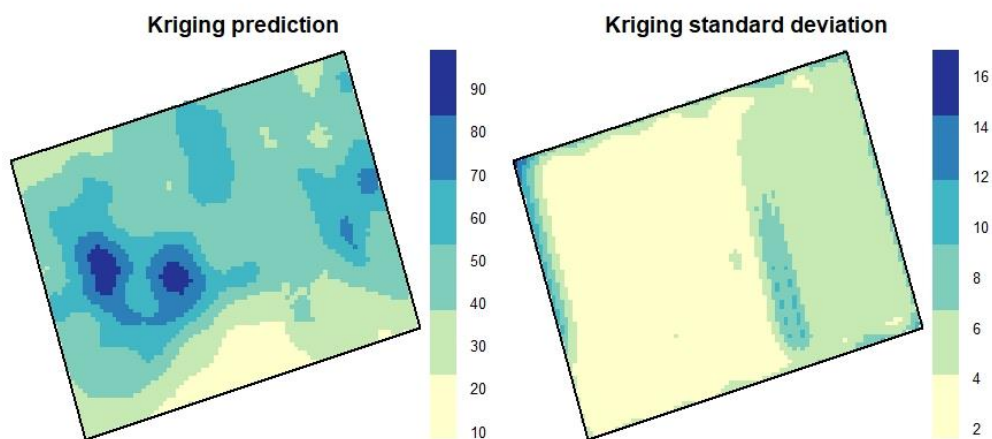
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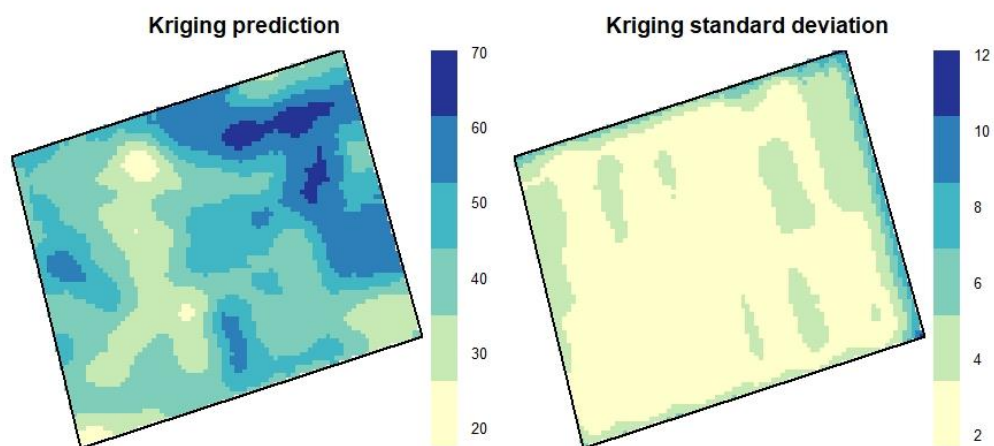
Paddock 5



Paddock 6



Paddock 7



Paddock 8

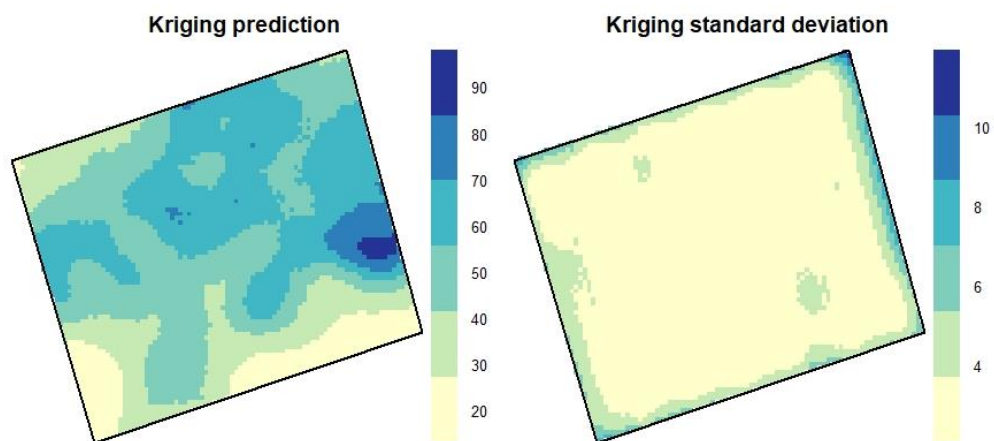
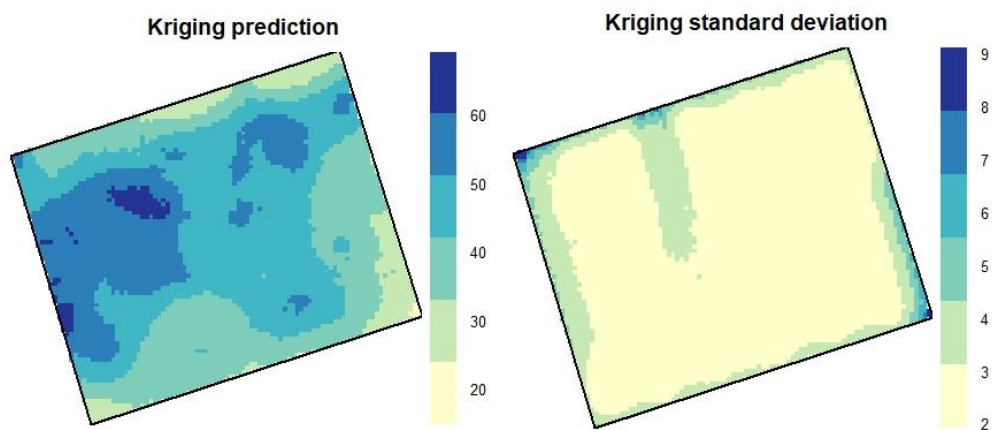
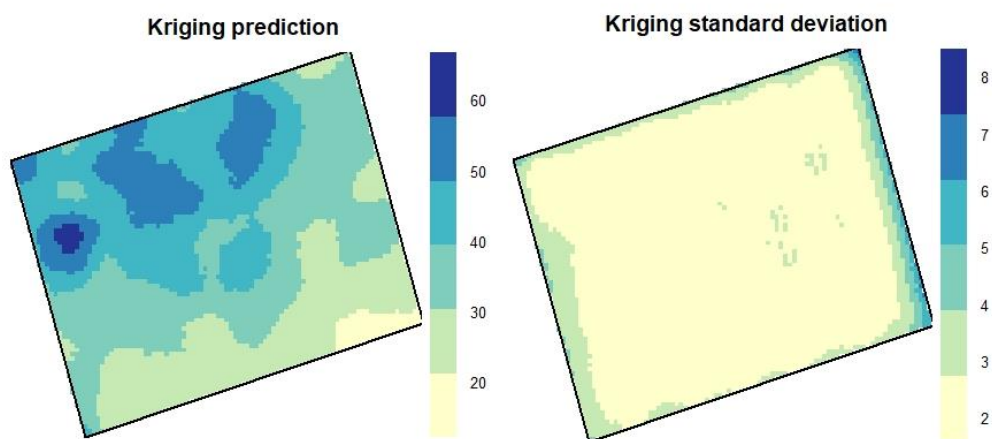


Figure S2. Individual paddock kriging predictions and standard errors for post-grazing sward height (mm) during phase 1.

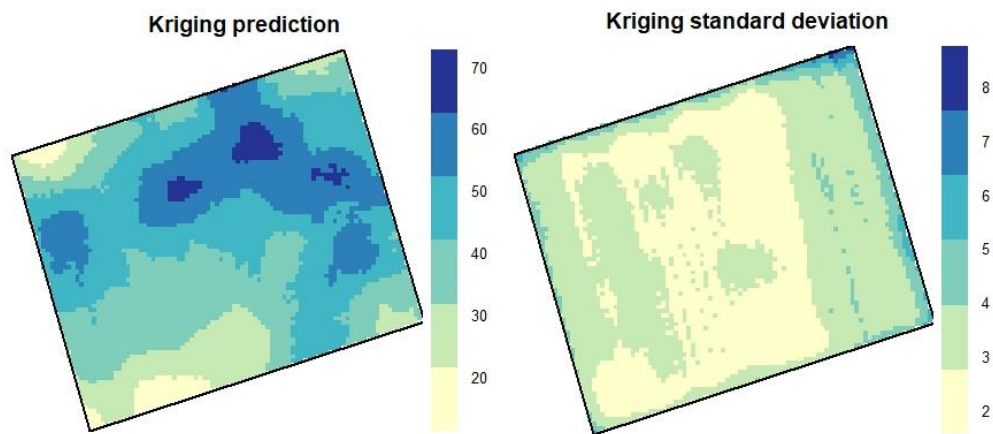
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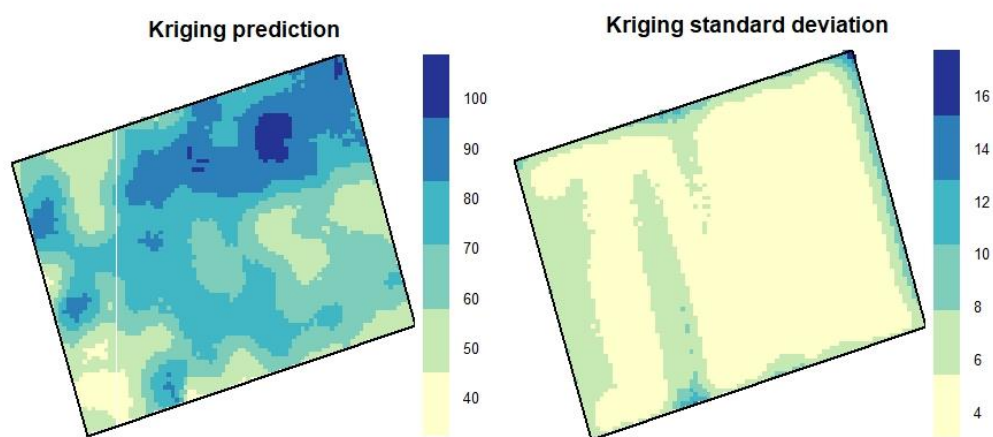
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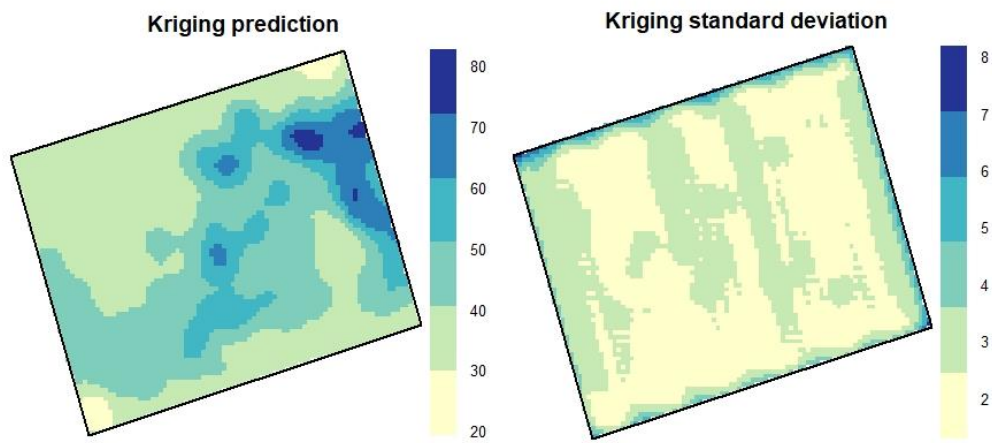
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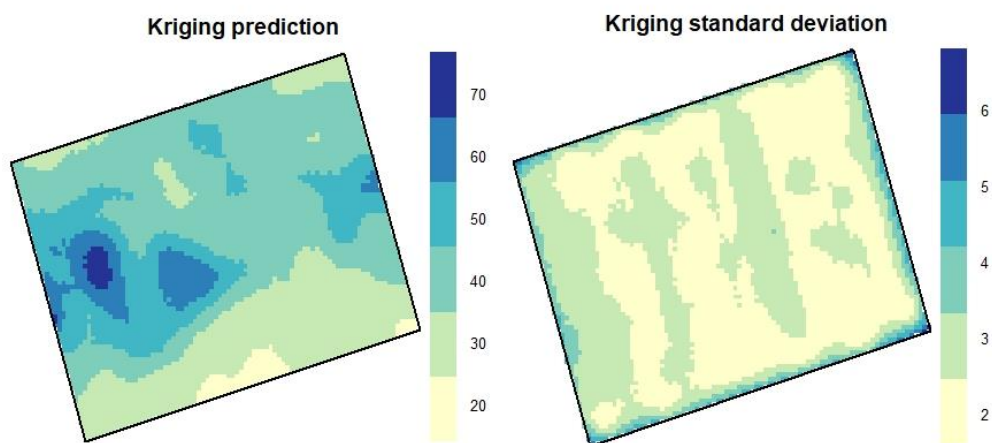
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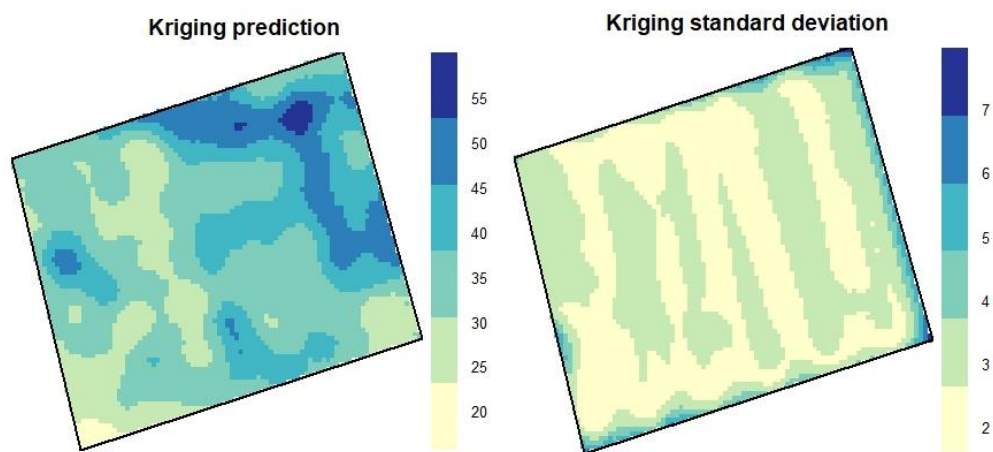
Paddock 5



Paddock 6



Paddock 7



Paddock 8

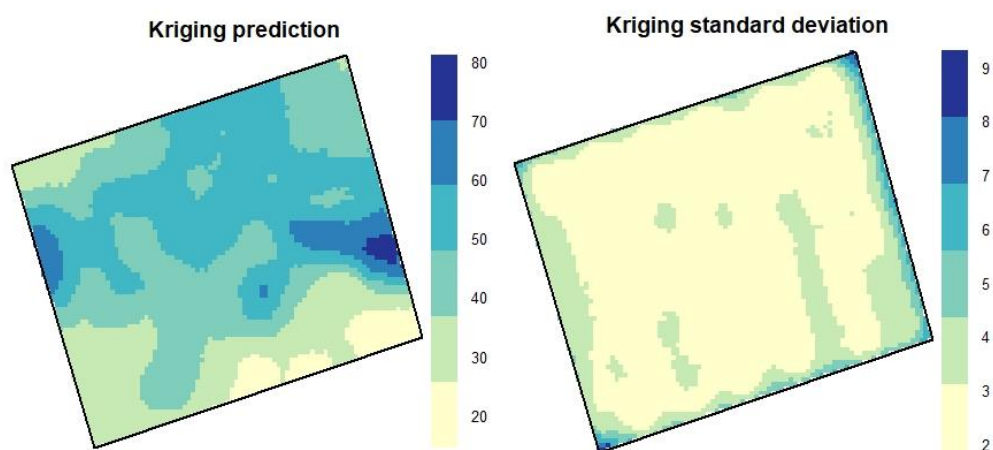
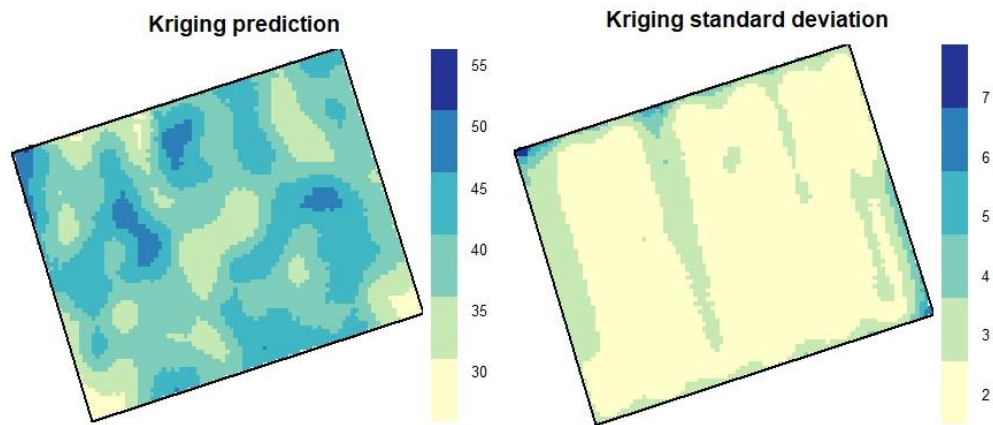
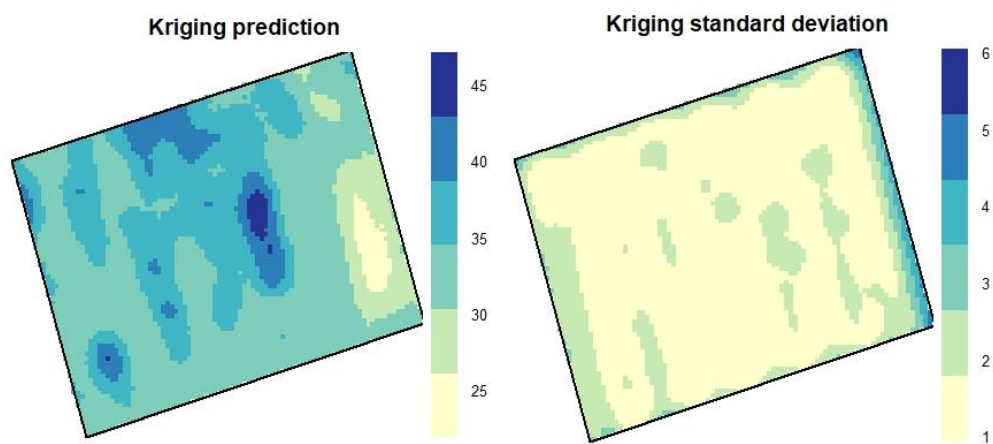


Figure S3. Individual paddock kriging predictions and standard errors for pre-grazing sward height (mm) during phase 2.

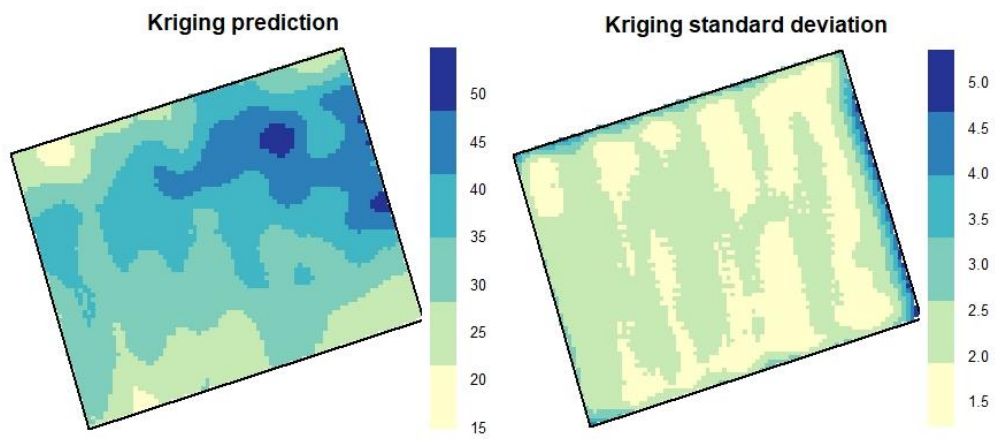
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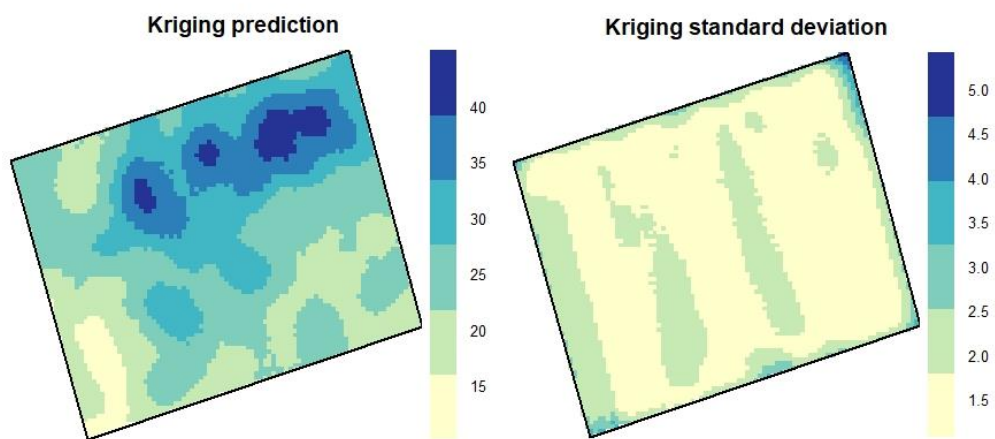
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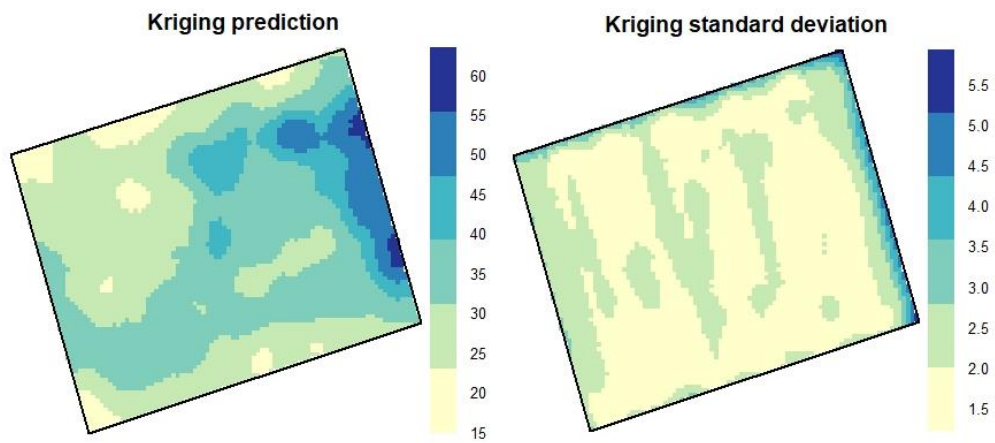
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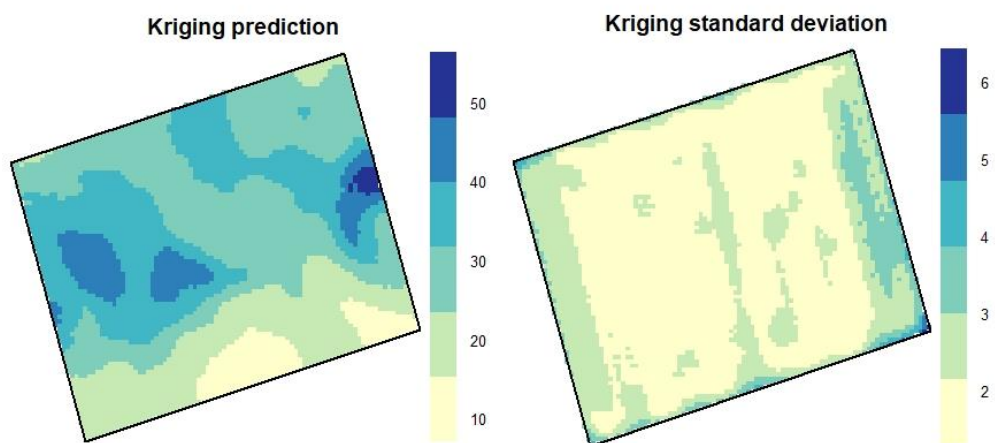
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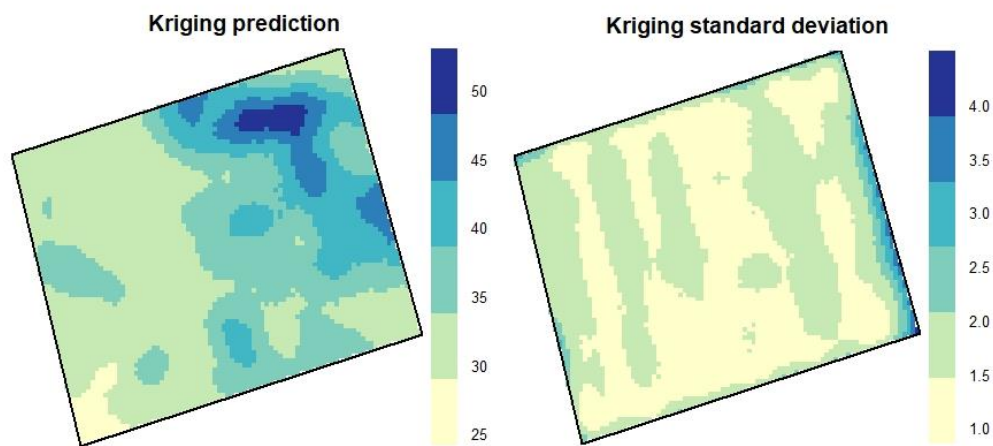
Paddock 5



Paddock 6



Paddock 7



Paddock 8

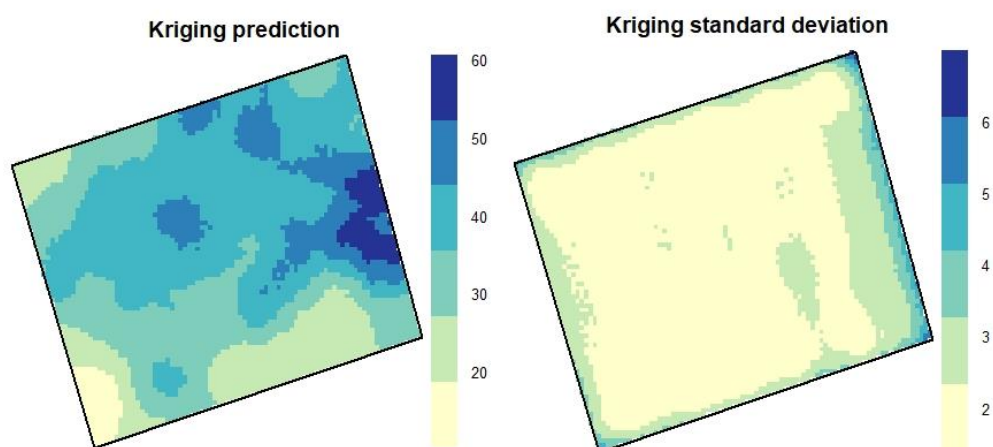
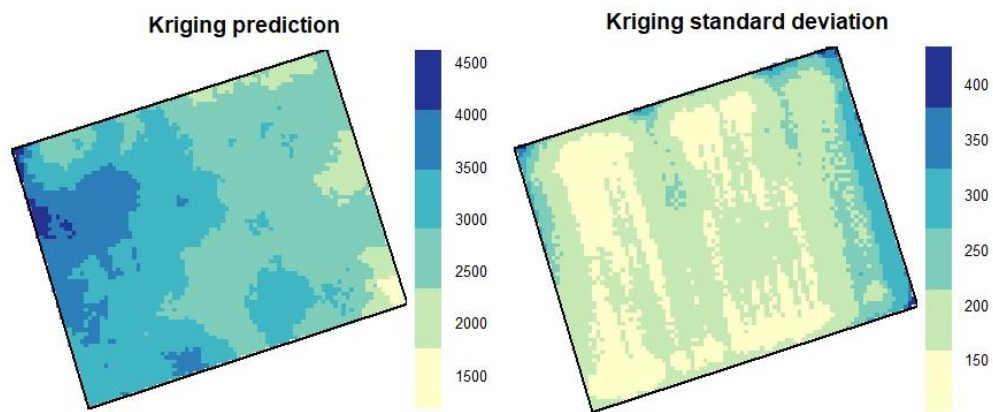
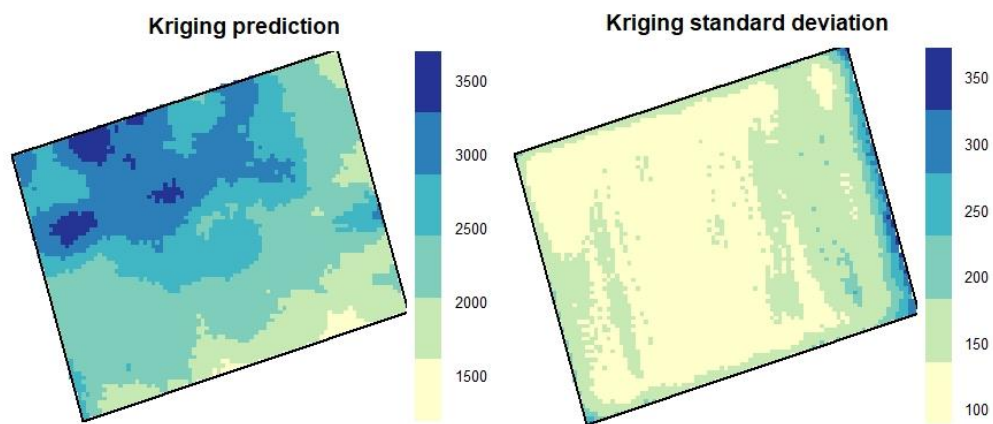


Figure S4. Individual paddock kriging predictions and standard errors for post-grazing sward height (mm) during phase 2.

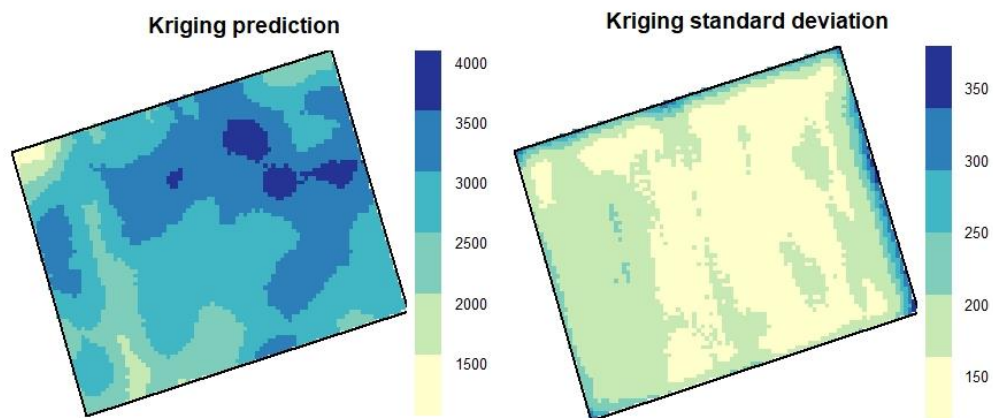
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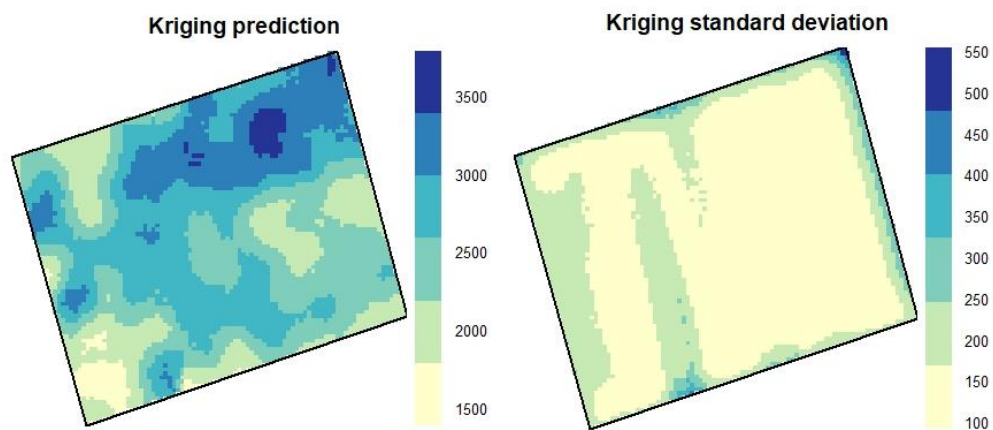
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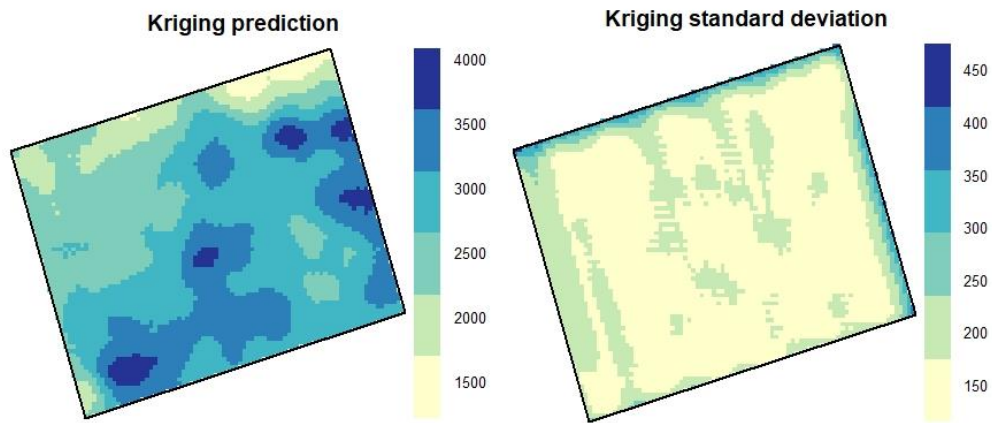
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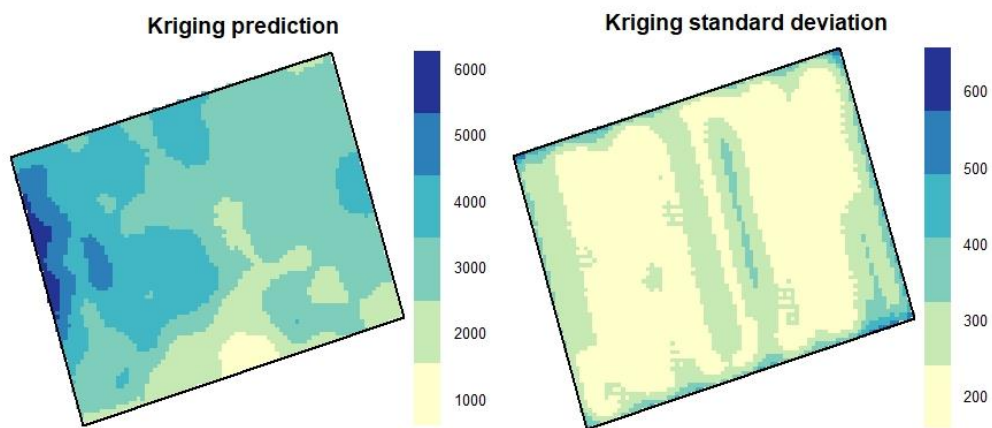
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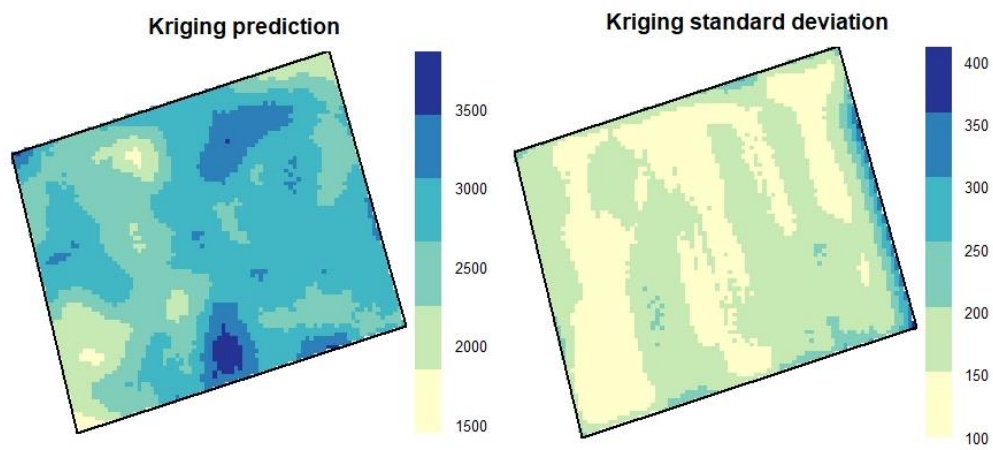
Paddock 5



Paddock 6



Paddock 7



Paddock 8

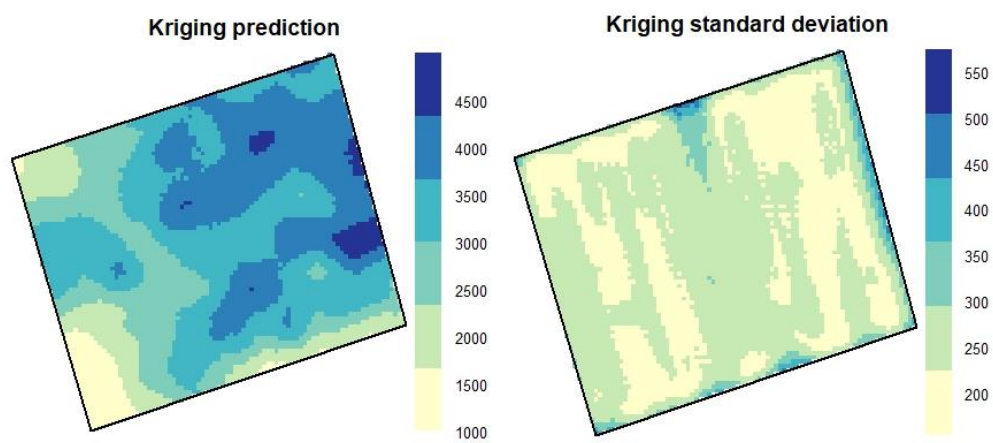
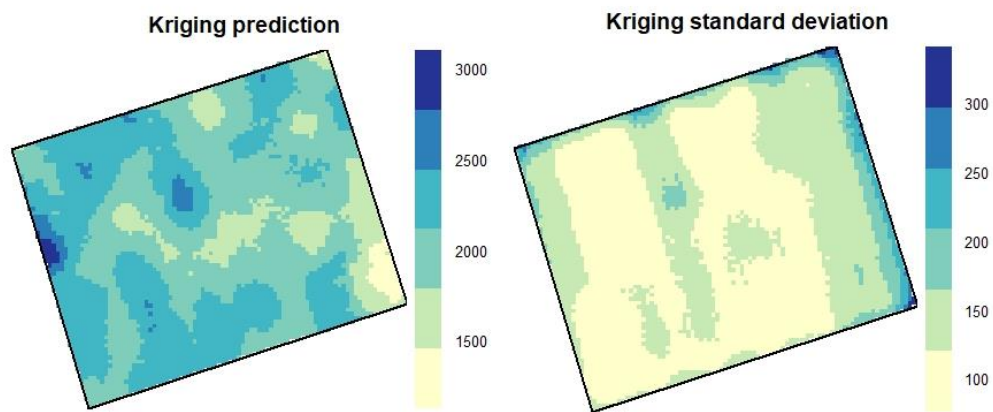
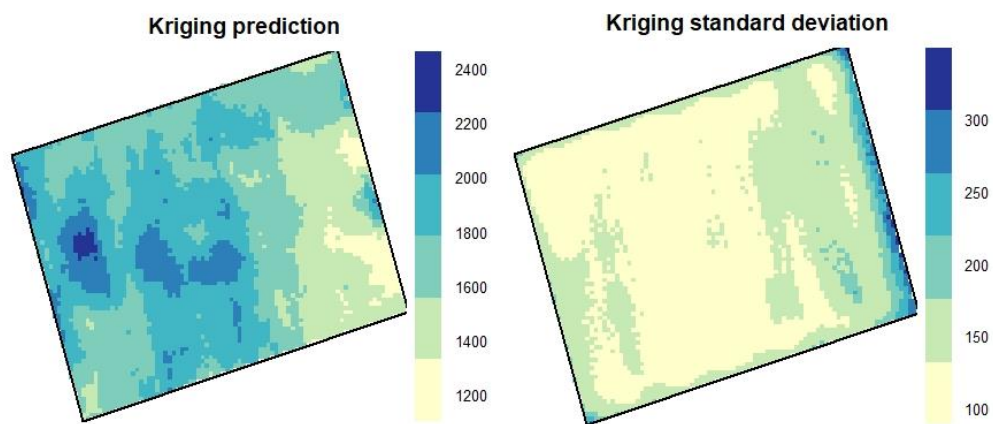


Figure S5. Individual paddock kriging predictions and standard errors for pre-grazing dry matter yield (kg/ha) during phase 1.

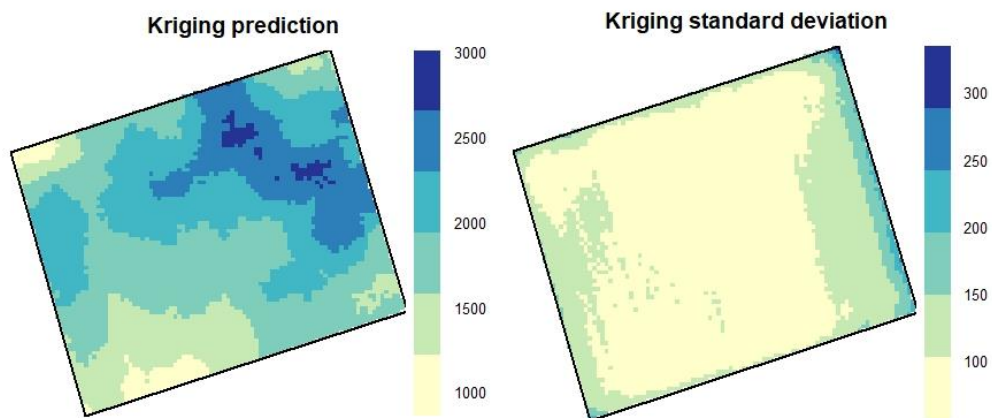
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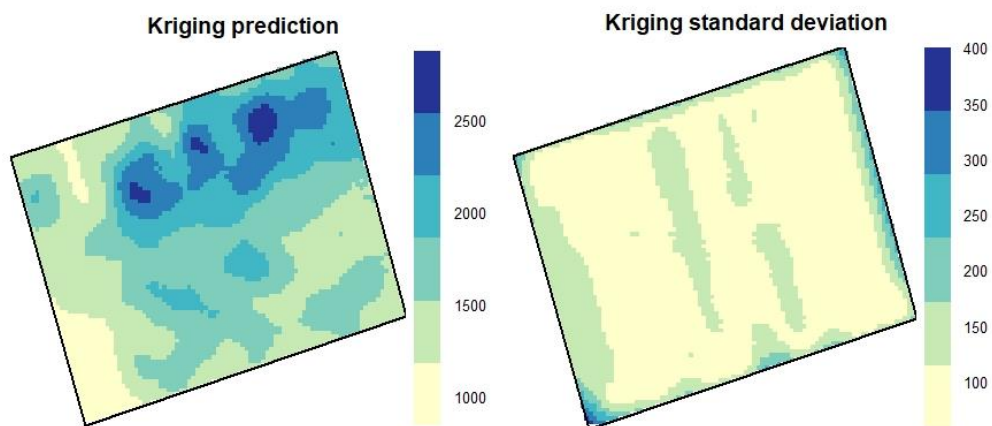
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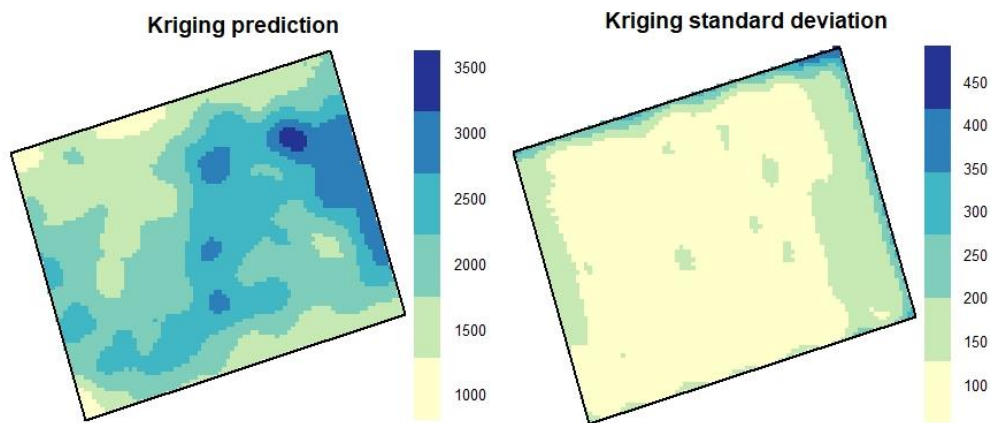
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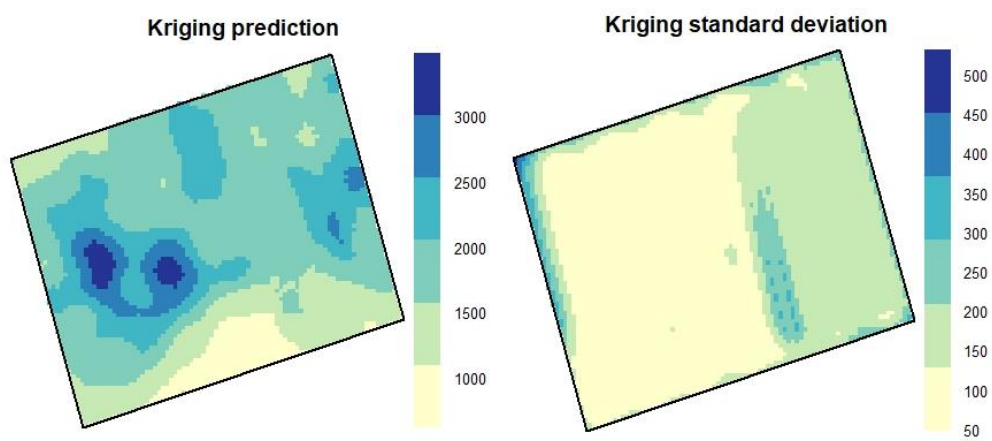
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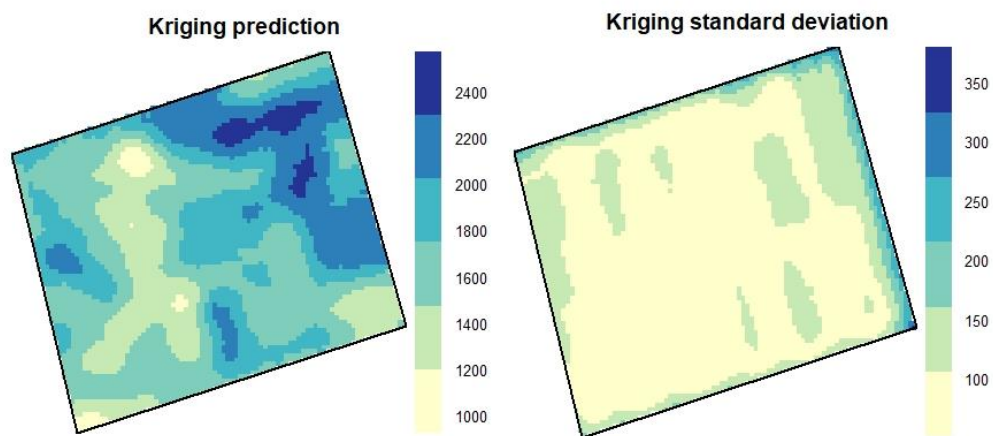
Paddock 5



Paddock 6



Paddock 7



Paddock 8

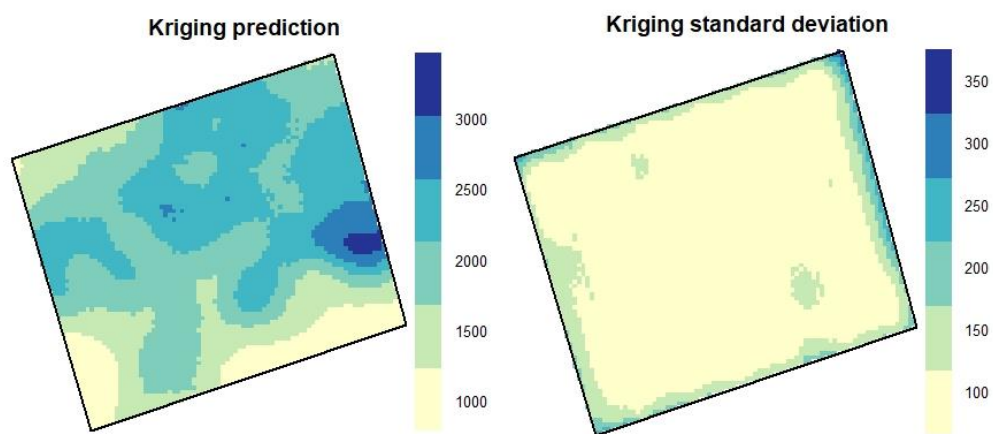
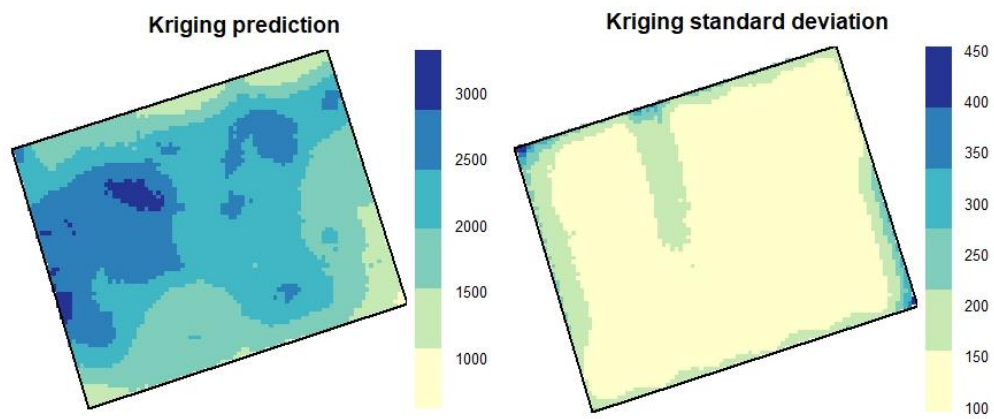
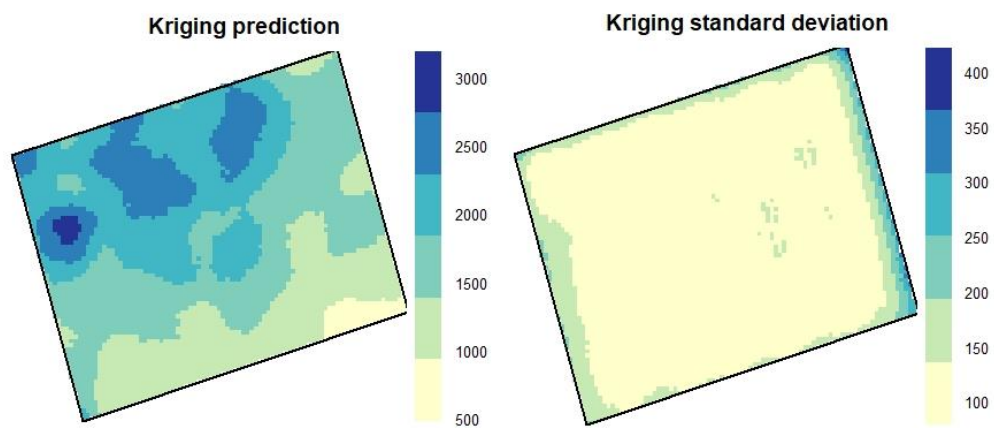


Figure S6. Individual paddock kriging predictions and standard errors for post-grazing dry matter yield (kg/ha) during phase 1.

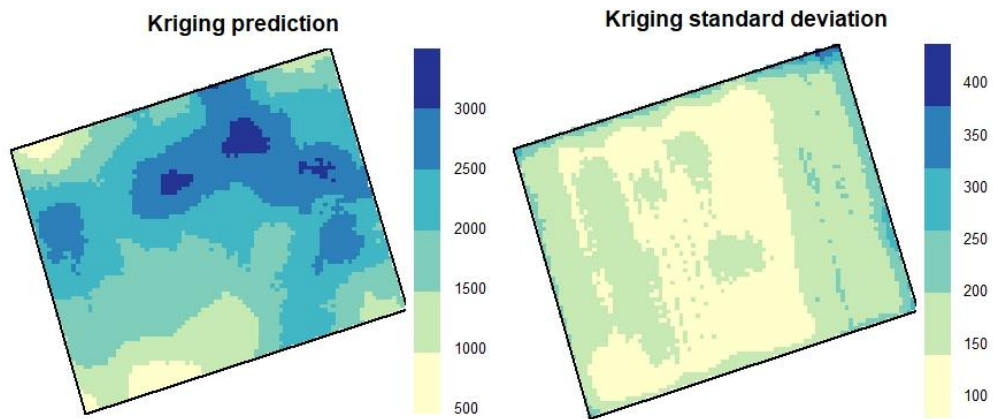
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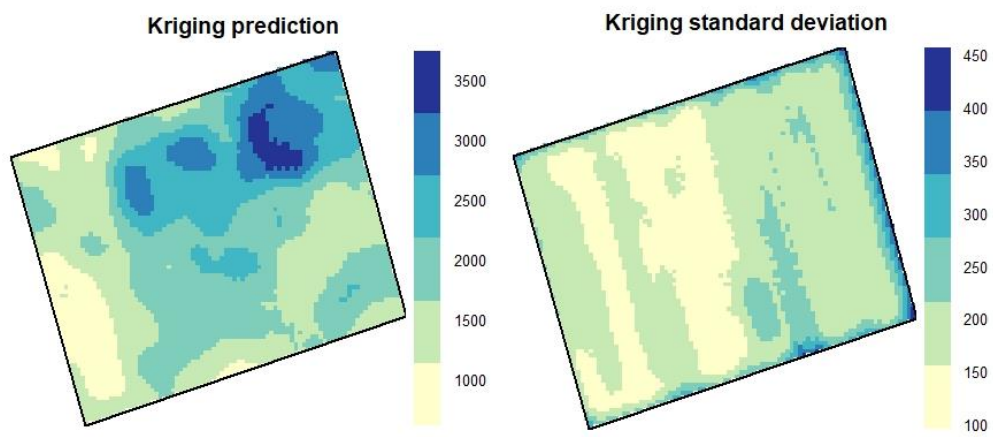
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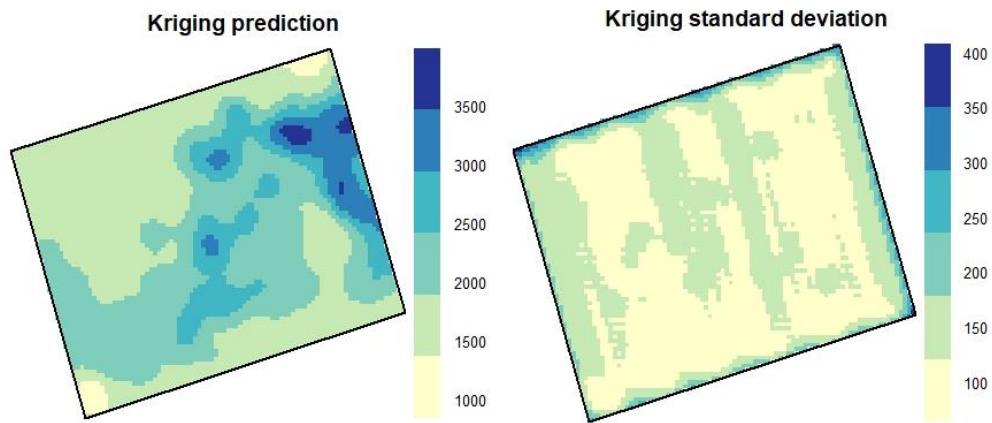
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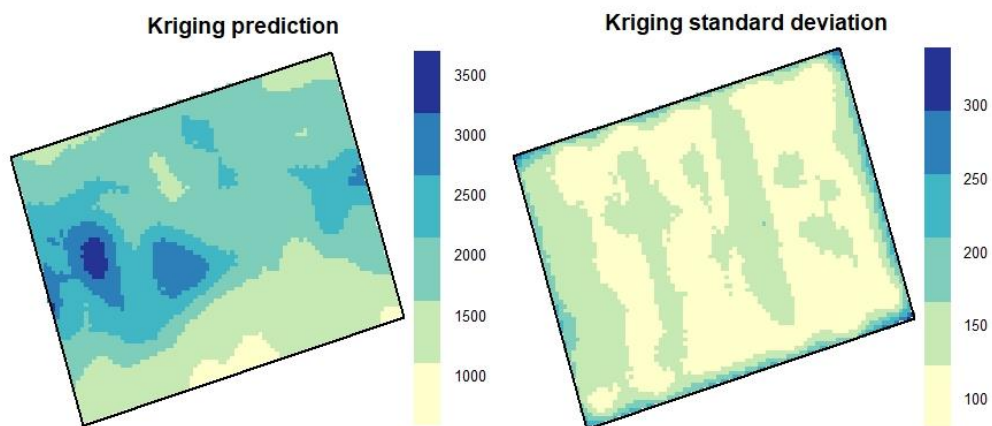
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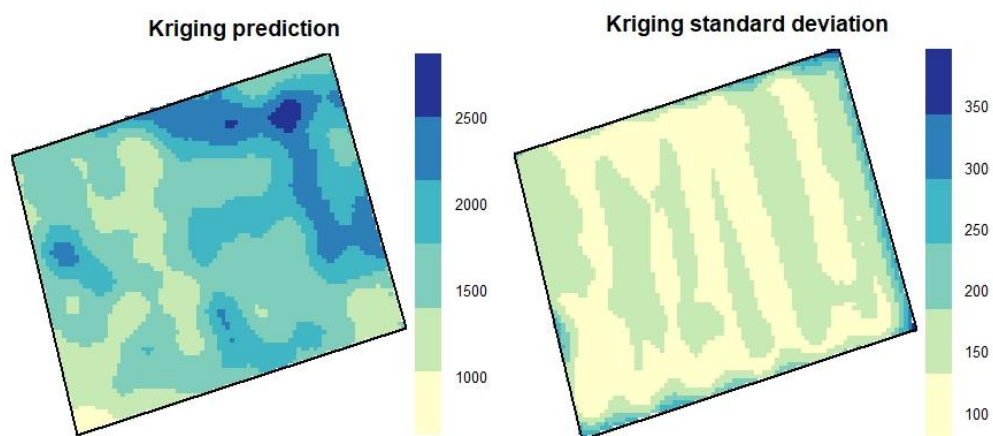
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Paddock 6



Paddock 7



Paddock 8

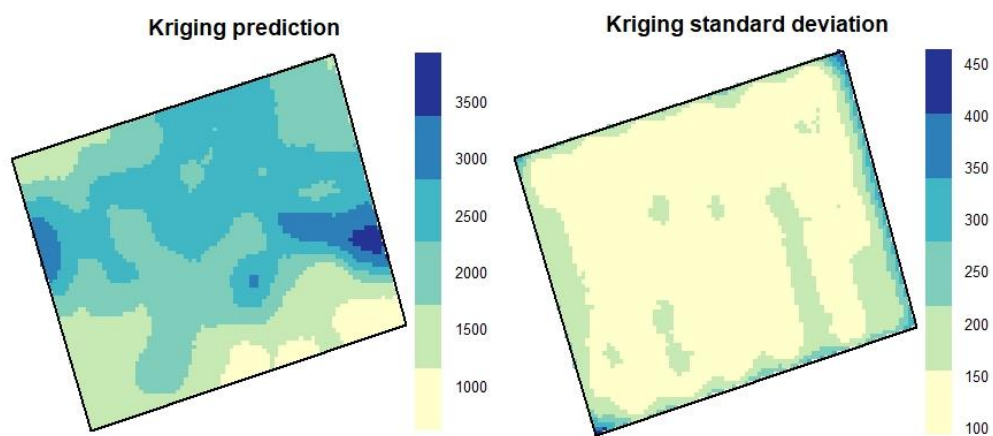
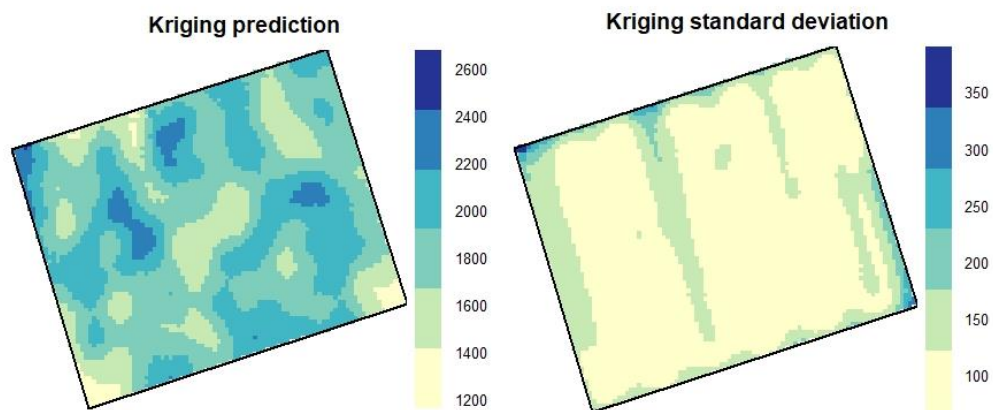
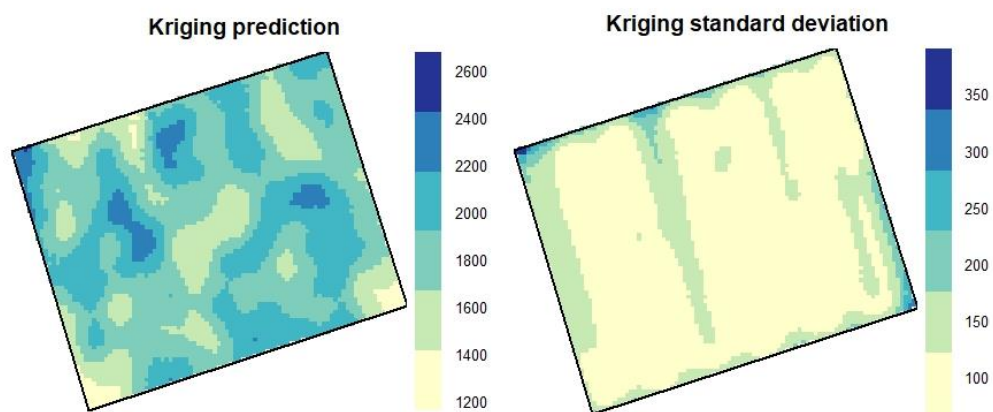


Figure S7. Individual paddock kriging predictions and standard errors for pre-grazing dry matter yield (kg/ha) during phase 2.

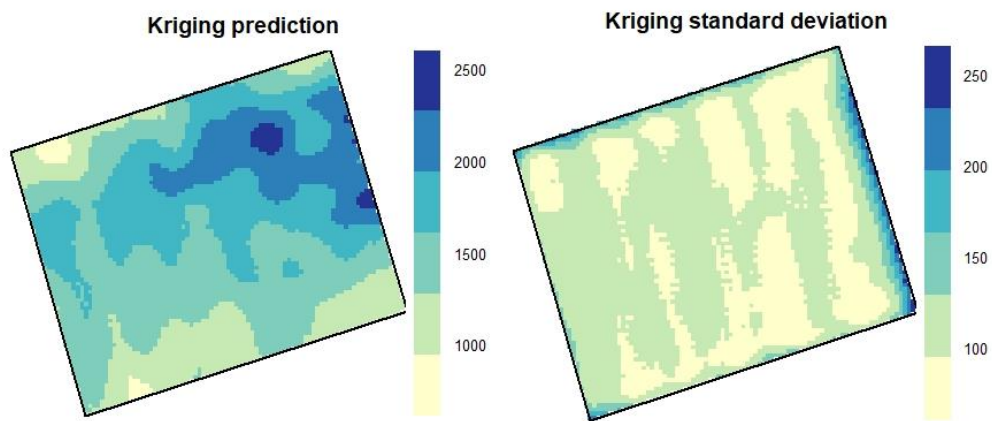
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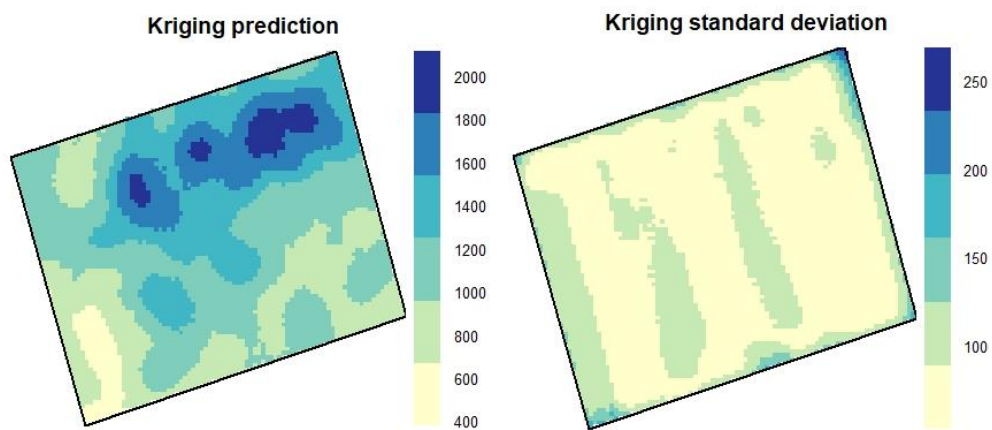
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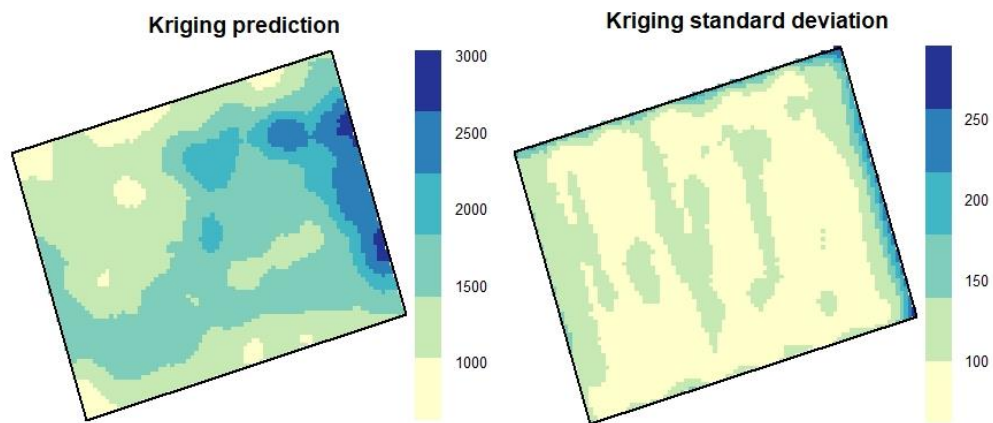
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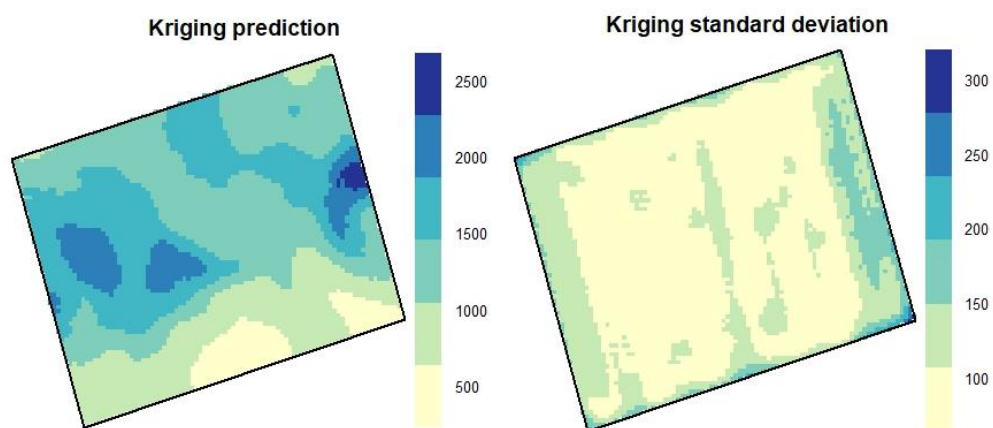
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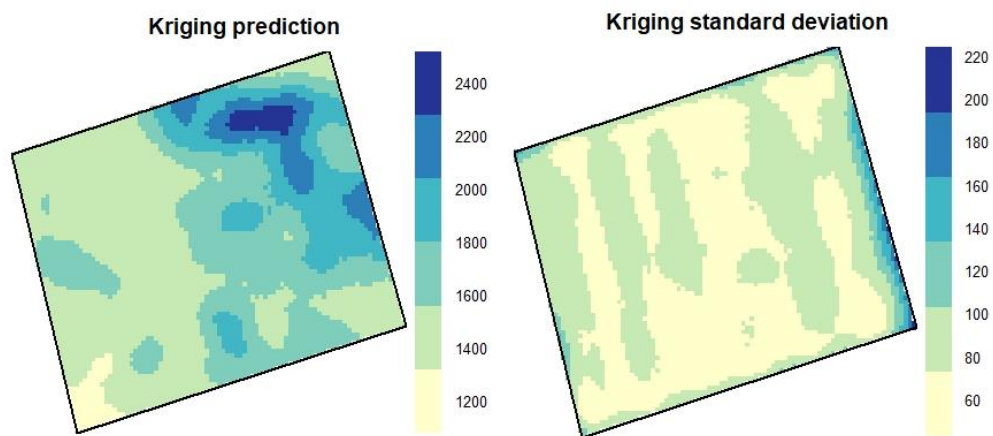
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Paddock 6



Paddock 7



Paddock 8

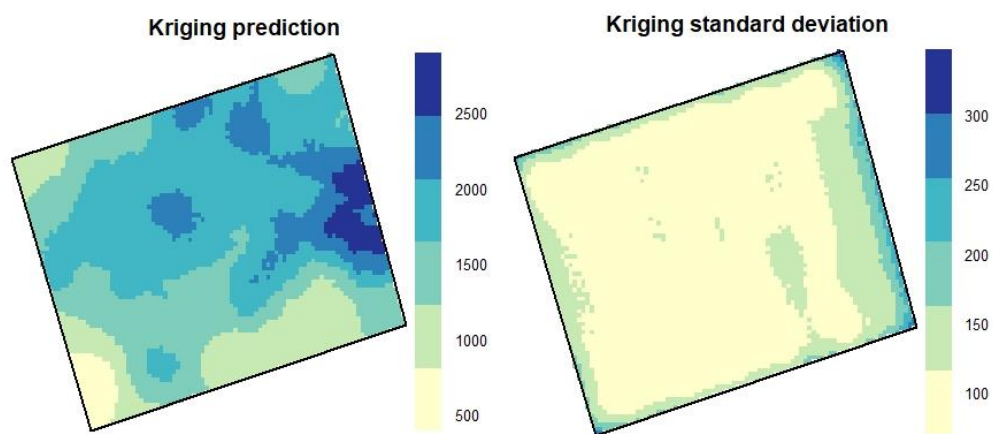
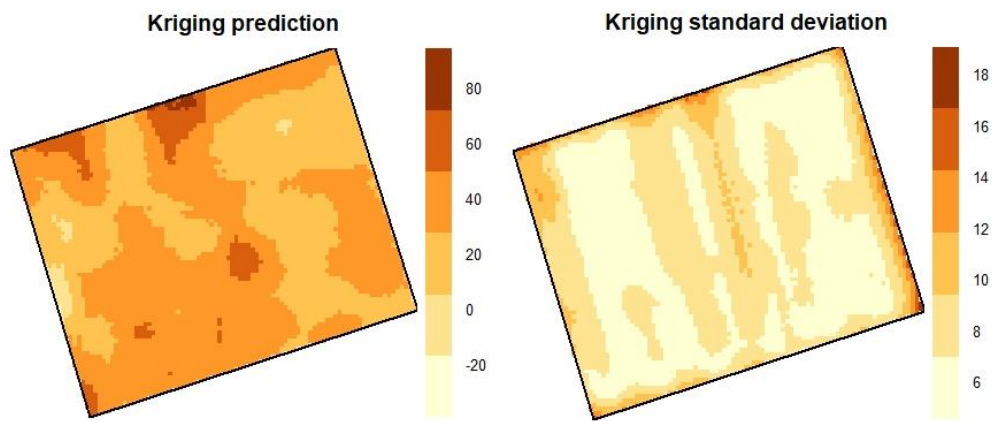
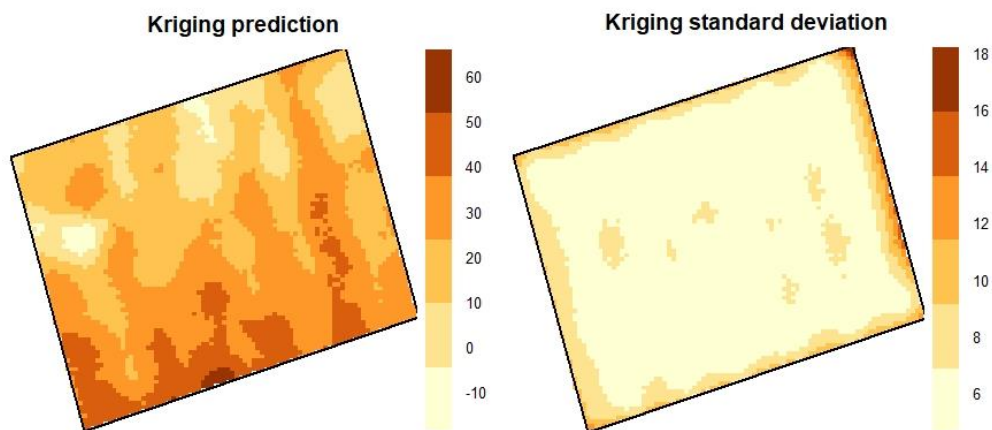


Figure S8. Individual paddock kriging predictions and standard errors for post-grazing dry matter yield (kg/ha) during phase 2.

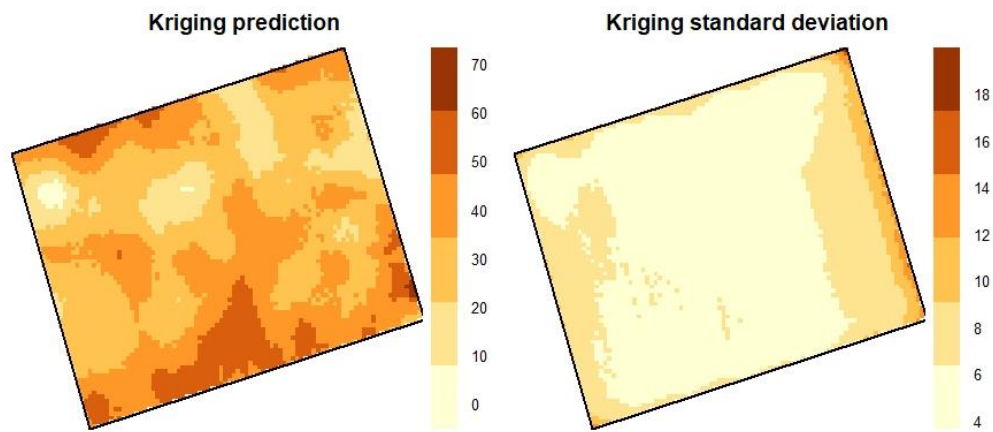
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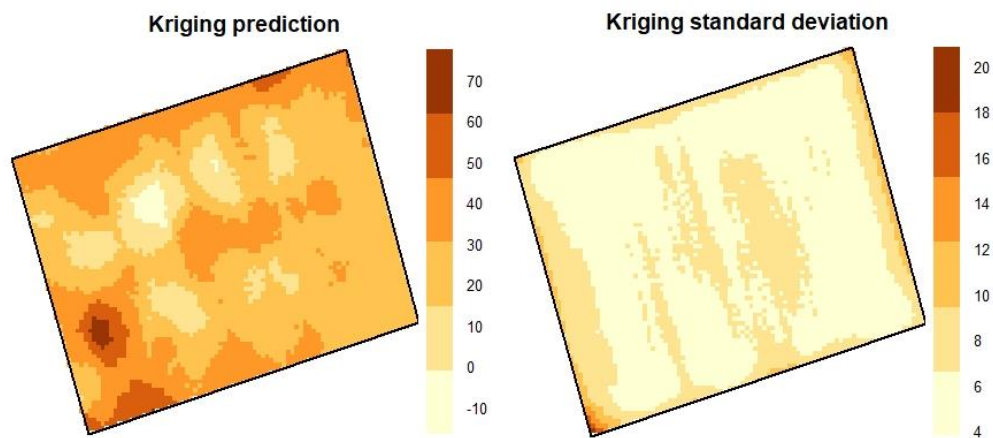
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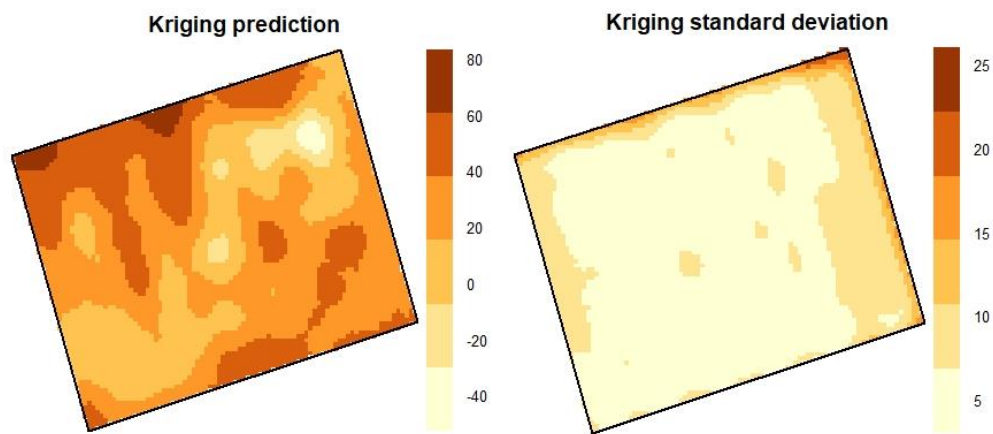
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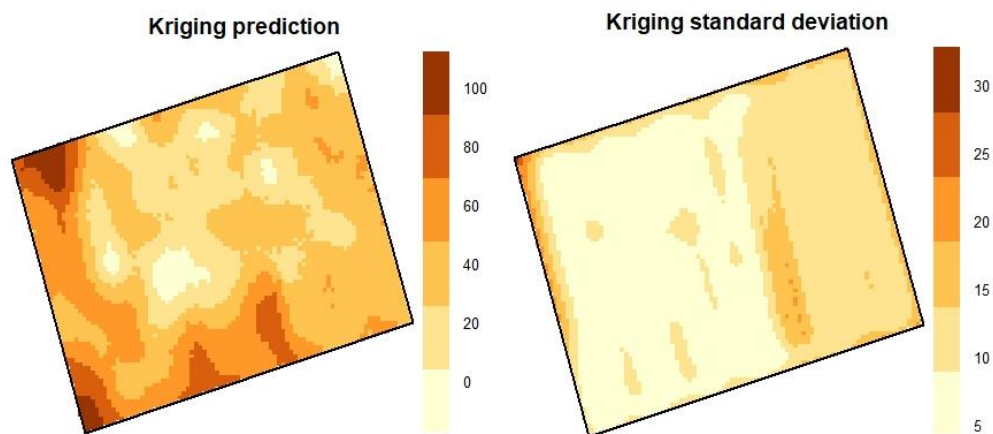
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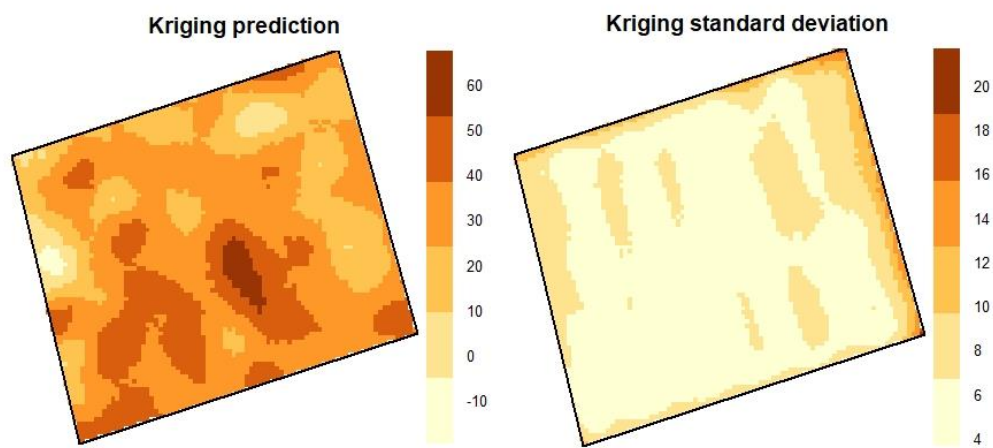
Paddock 5



Paddock 6



Paddock 7



Paddock 8

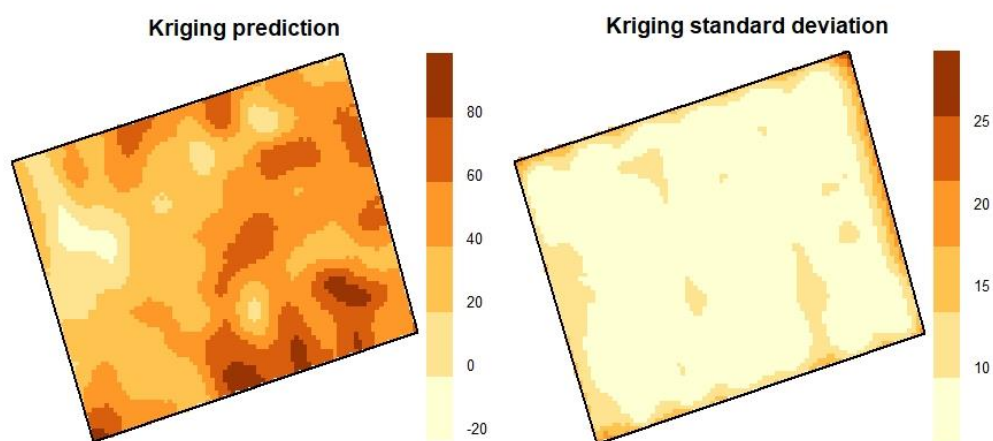
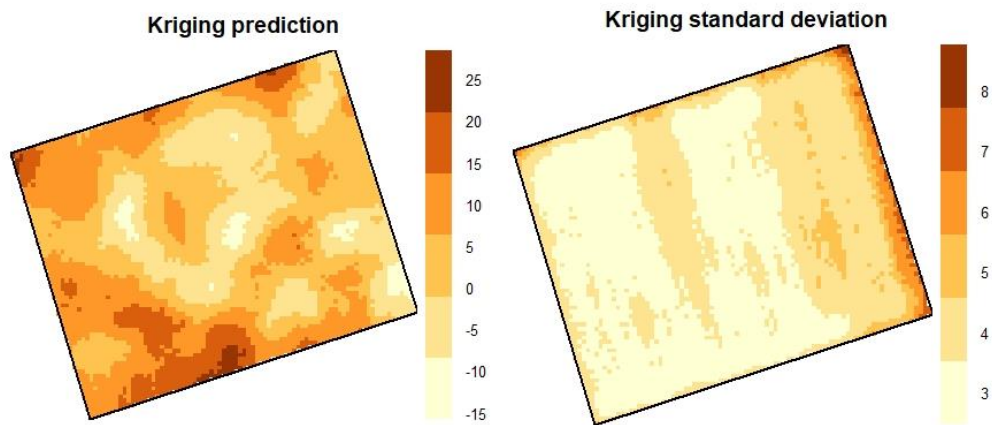
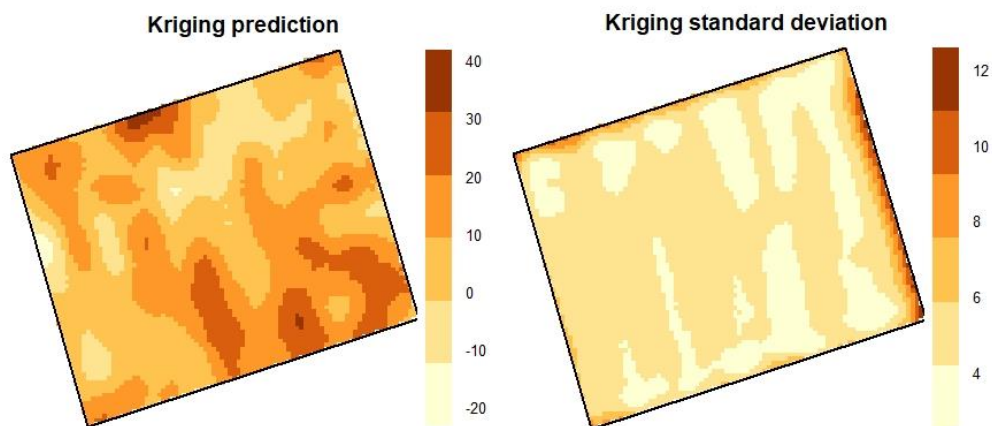


Figure S9. Individual paddock kriging predictions and standard errors for change in sward height (mm) during phase 1.

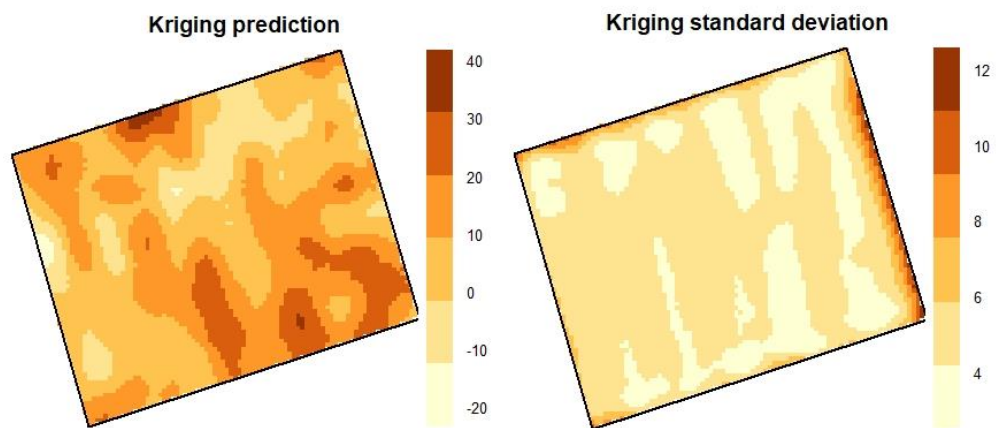
Paddock 1



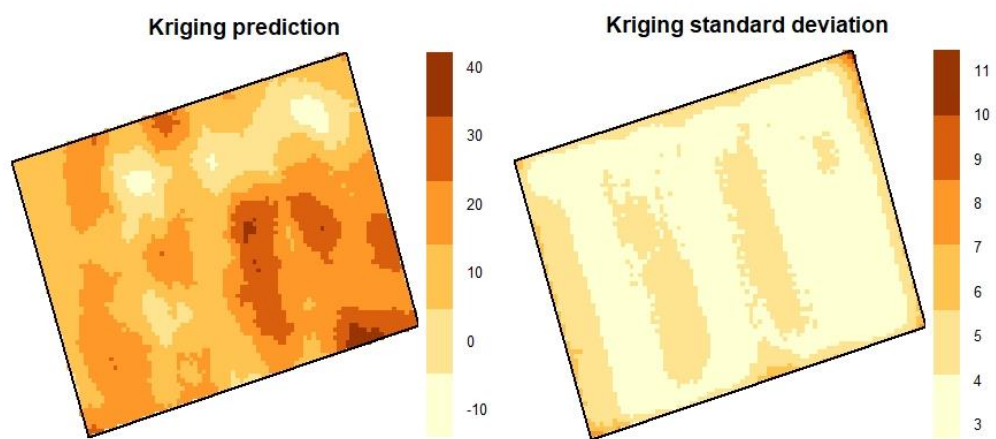
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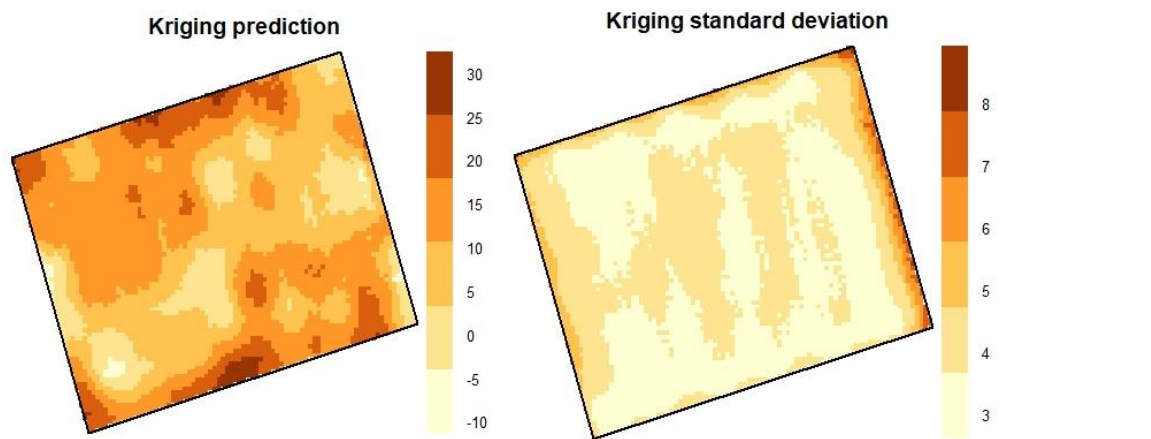
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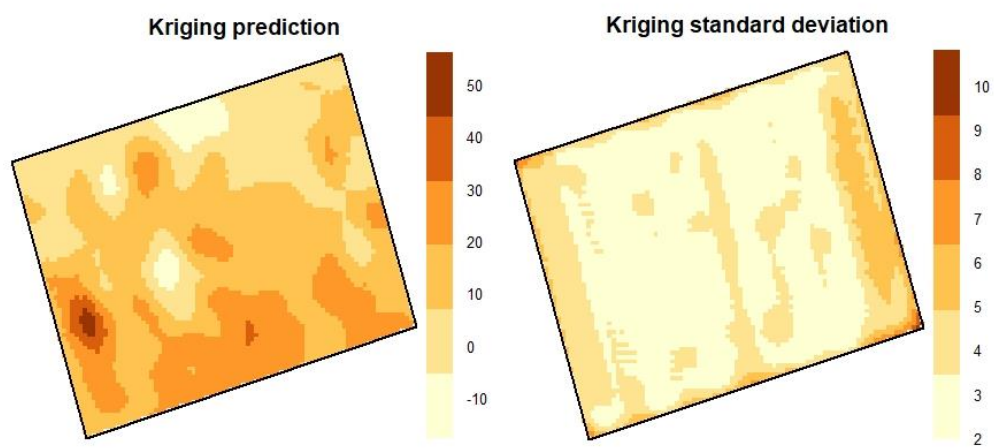
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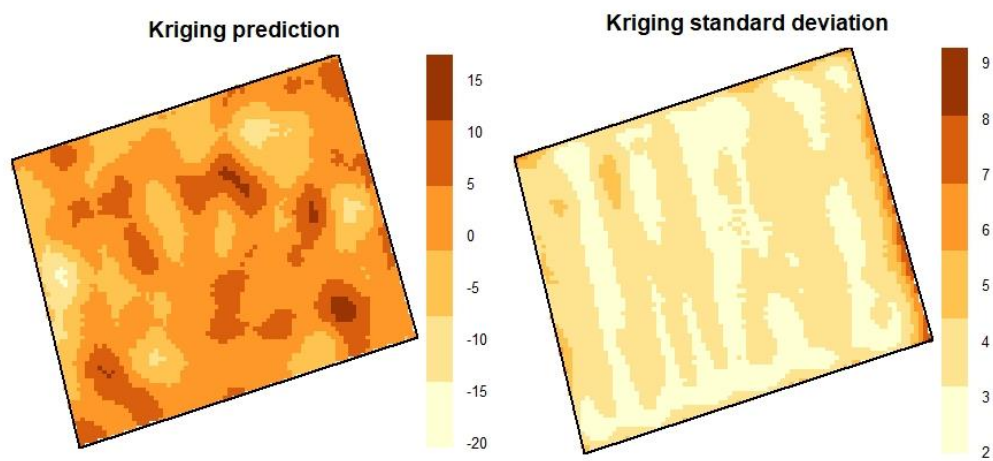
Paddock 5



Paddock 6



Paddock 7



Paddock 8

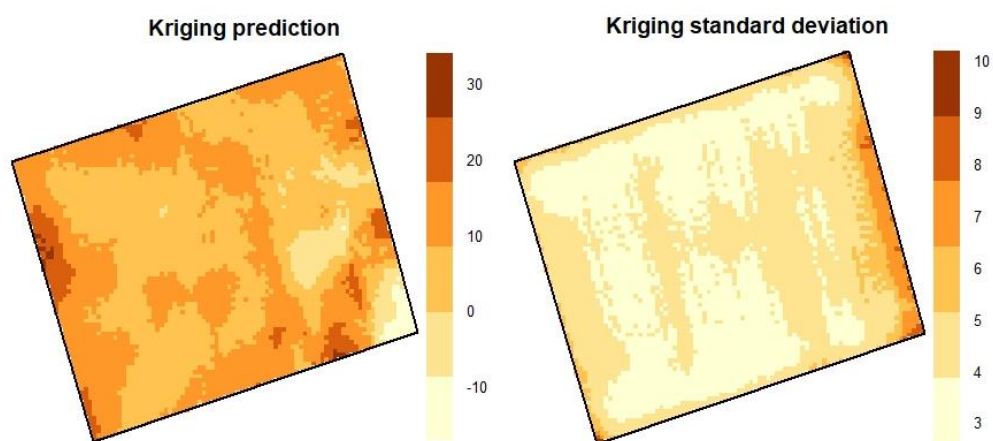
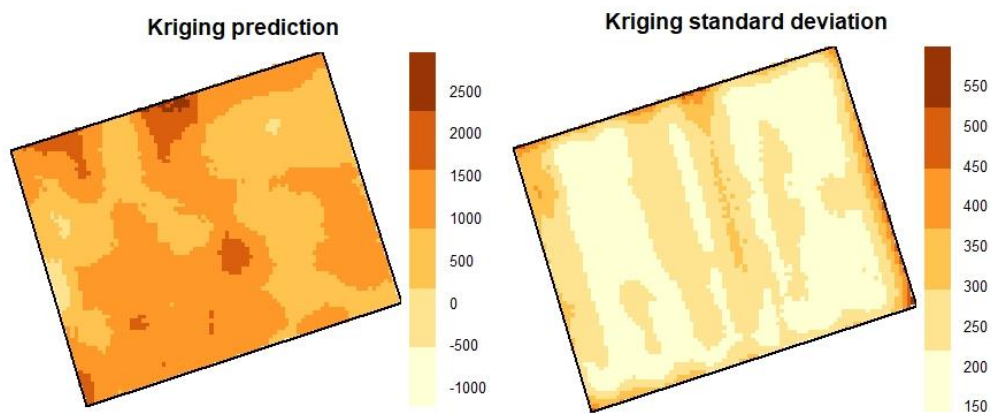
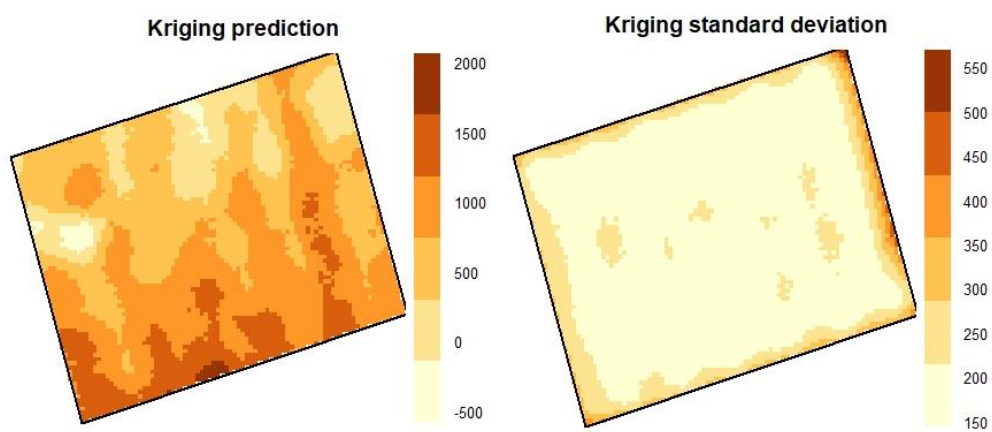


Figure S10. Individual paddock kriging predictions and standard errors for change in sward height (mm) during phase 2.

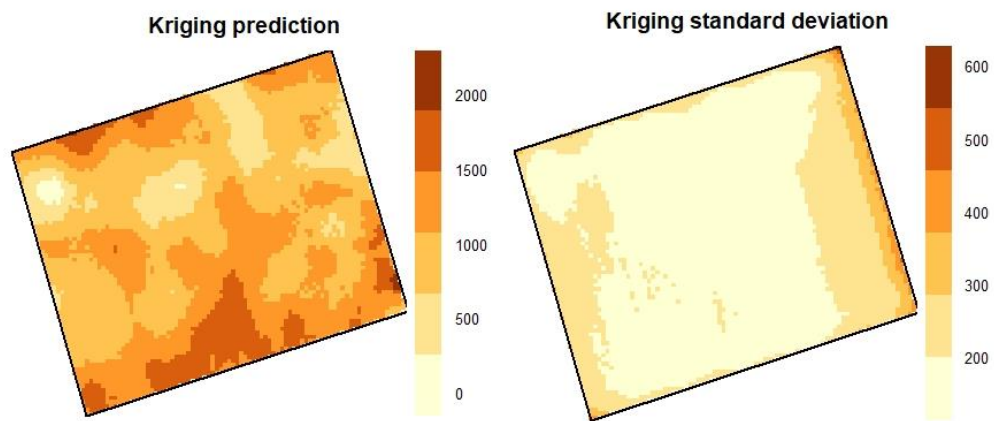
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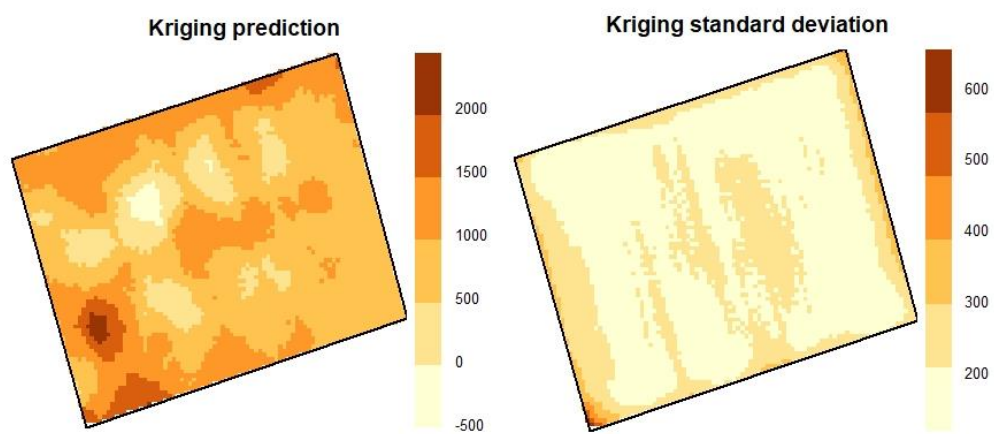
Paddock 2



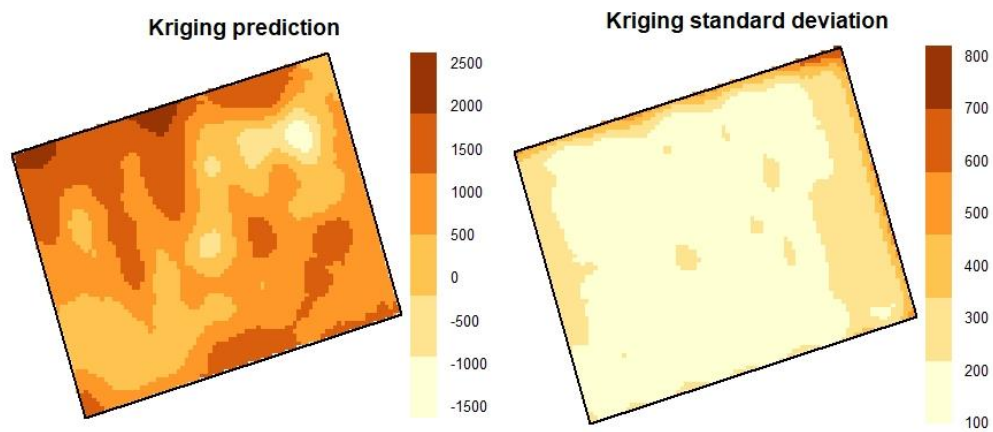
Paddock 3



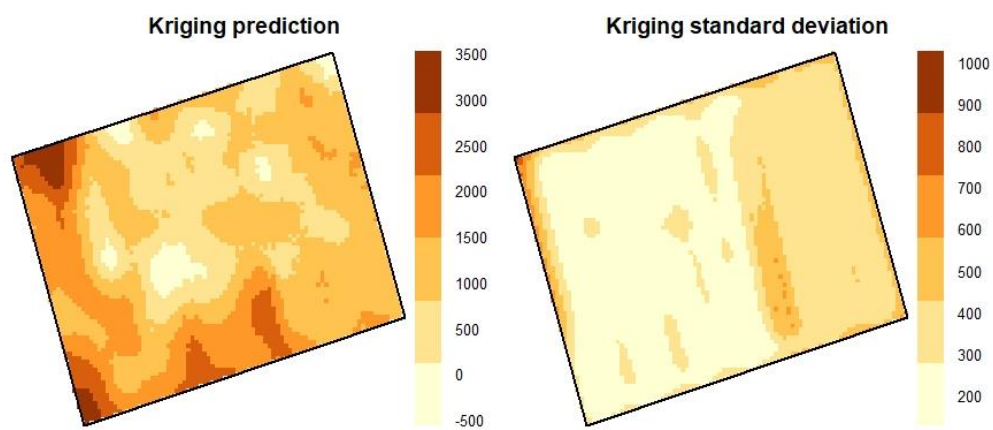
Paddock 4



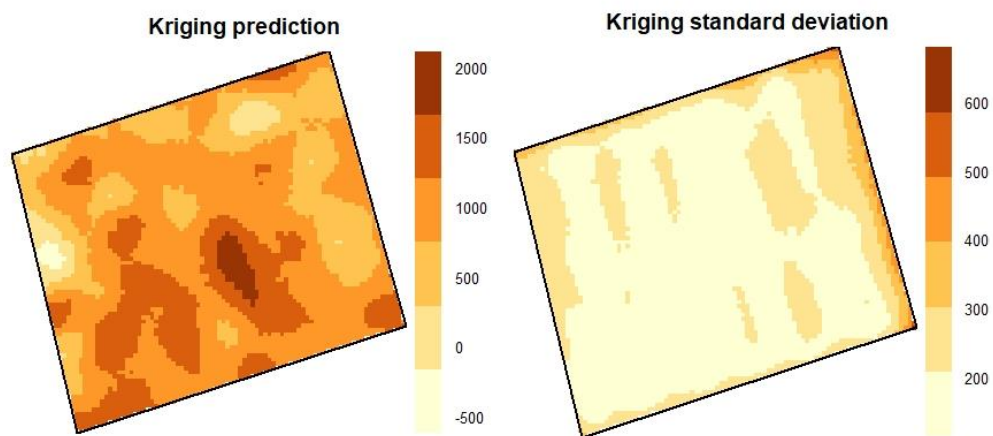
Paddock 5



Paddock 6



Paddock 7



Paddock 8

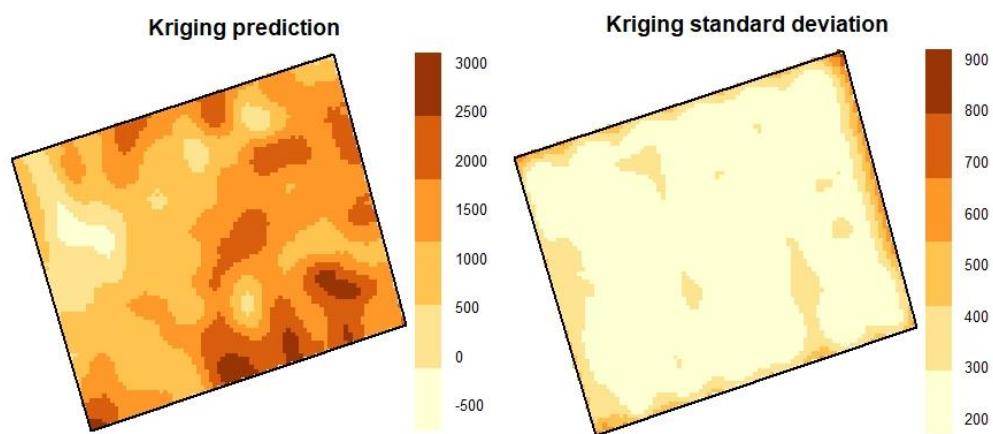
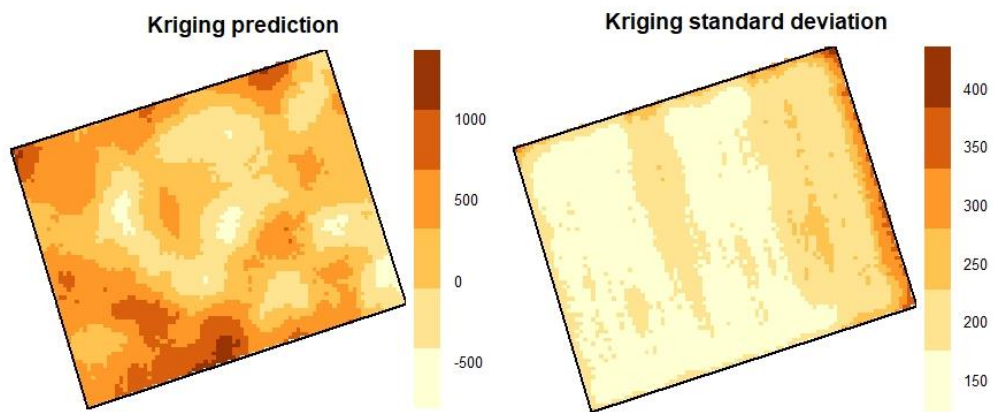
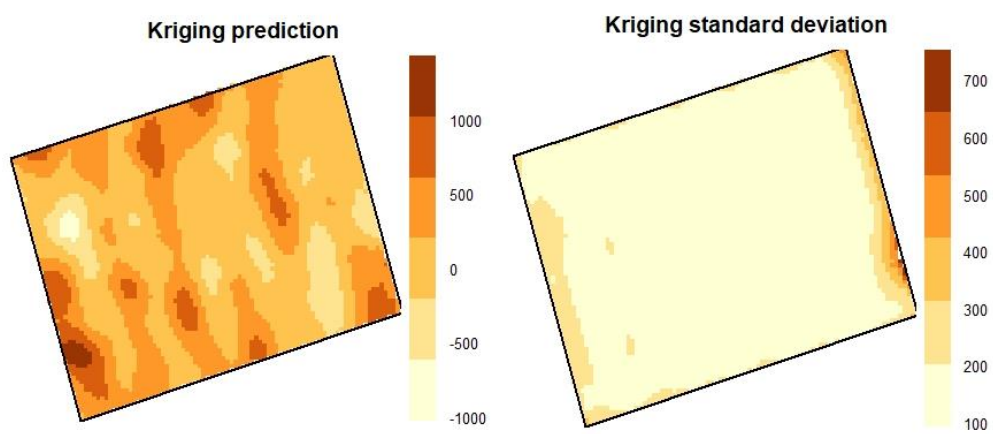


Figure S11. Individual paddock kriging predictions and standard for change in dry matter yield (kg/ha) during phase 1.

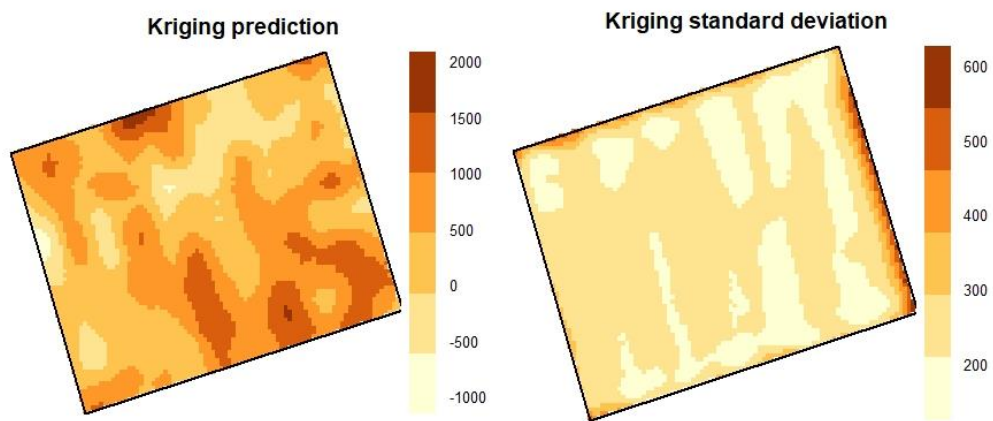
Paddock 1



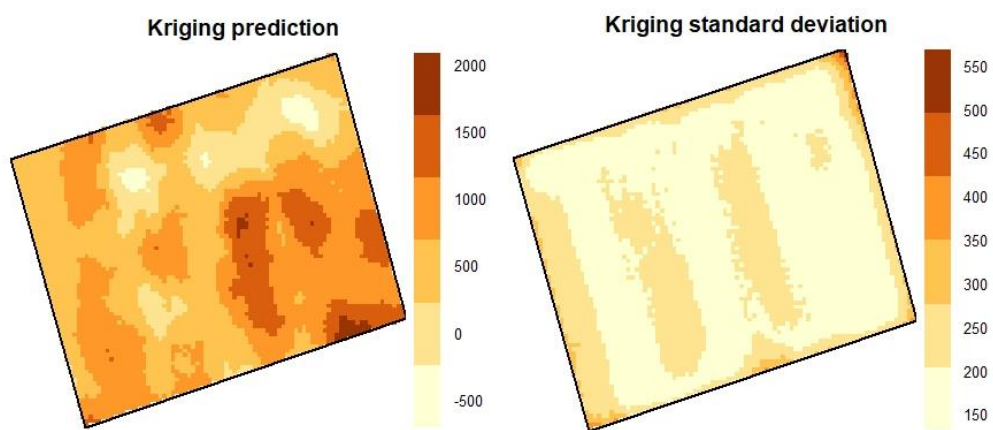
Paddock 2



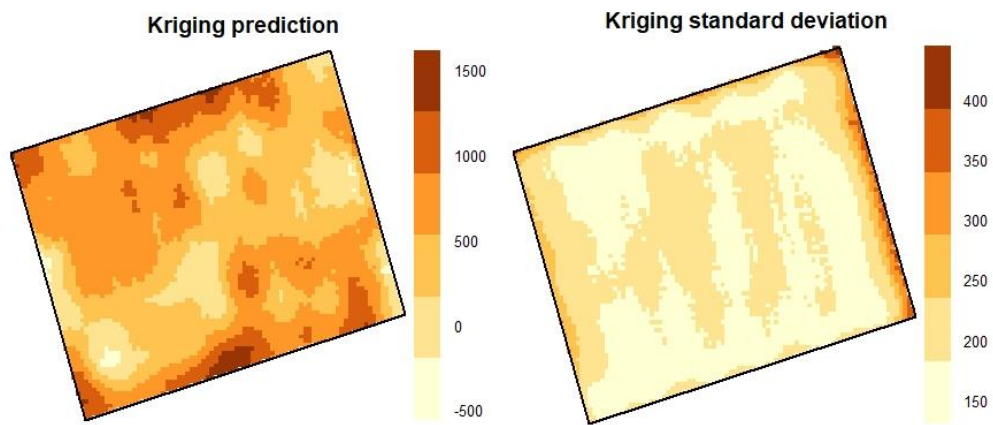
Paddock 3



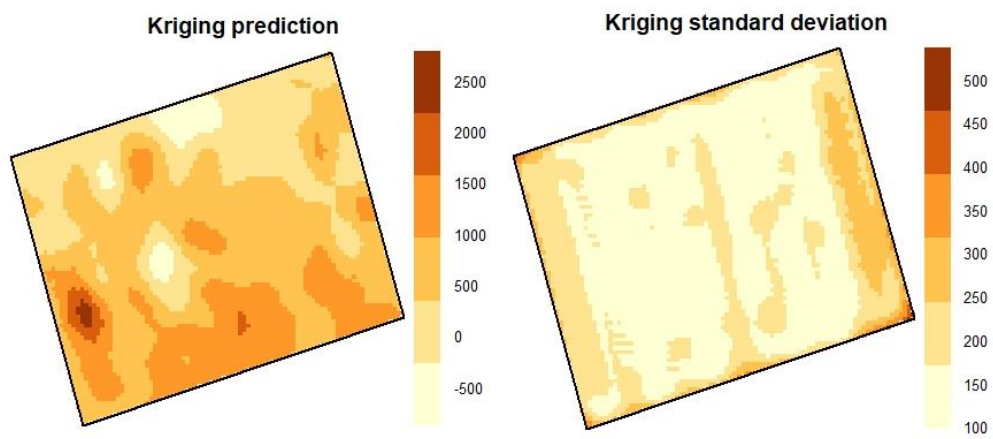
Paddock 4



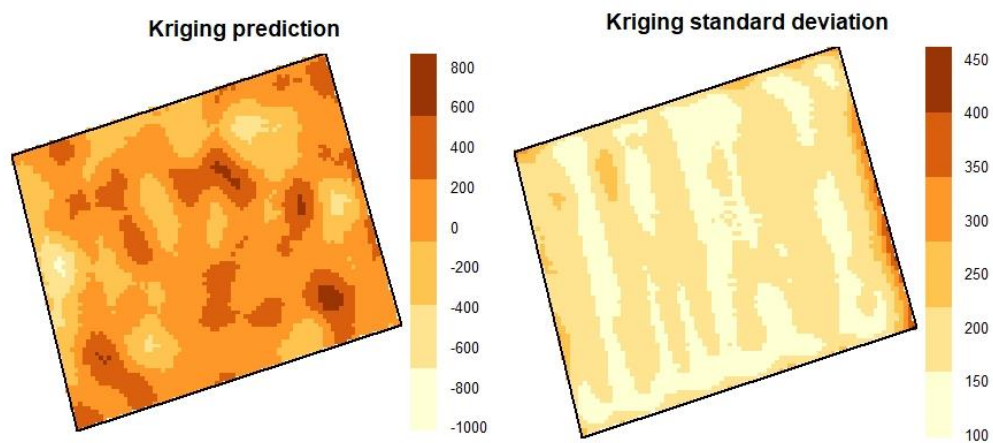
Paddock 5



Paddock 6



Paddock 7



Paddock 8

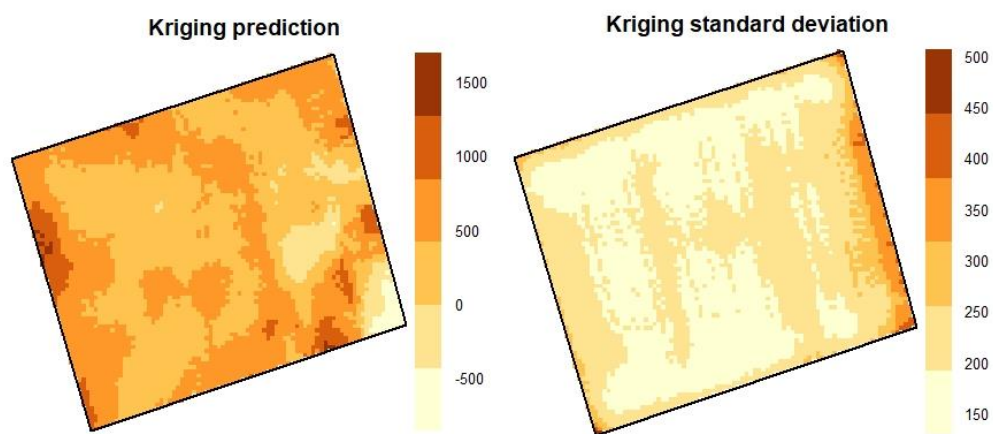


Figure S12. Individual paddock kriging predictions and standard errors for change in dry matter yield (kg/ha) during phase 2.

Supplementary Material Tables

The following tables are fitted variogram parameters for each individual paddock.

Table S1. Fitted variogram range (m), degree of spatial dependence (dSD), model, nugget, sill and kappa for sward height (mm) of individual paddocks

Paddock	Stage	Phase											
		1						2					
		Range	dSD*	Model**	Nugget	Sill	Kappa	Range	dSD*	Model**	Nugget	Sill	Kappa
1	pre	273	41.9	Ste	515	1228	10	21	59.1	Ste	107	181	1.4
	post	47	37.3	Ste	104	279	0.2	40	28.6	Ste	26	91	0.2
2	pre	695	9.2	Ste	276	3016	0.6	220	18.5	Ste	66	357	0.4
	post	10	82.6	Ste	232	281	0.6	26	4.6	Ste	2.1	46	0.2
3	pre	31	43.0	Ste	217	505	0.2	157	21.2	Ste	116	546	0.6
	post	68	40.1	Ste	151	377	1.1	50	27.4	Ste	29	106	0.3
4	pre	19	55.7	Ste	296	531	1.3	115	6.5	Ste	23	353	0.2
	post	27	13.6	Ste	37	272	0.3	67	25.2	Ste	26	103	0.4
5	pre	14	8.0	Ste	36	451	0.2	14	2.8	Ste	4.6	166	0.4
	post	21	16.2	Ste	57	352	0.4	18	38.3	Ste	36	94	0.9
6	pre	32	0.0	Ste	0	1156	0.2	55	27.4	Sph	55	201	na
	post	49	8.0	Ste	50	622	0.4	96	7.5	Ste	15	199	0.3
7	pre	14	73.0	Ste	381	522	10	8.5	57.3	Ste	71	124	5
	post	13	50.7	Ste	111	219	2	14	55.8	Ste	24	43	1.8
8	pre	61	17.3	Ste	226	1310	0.2	31	32.7	Ste	74	226	0.5
	post	25	42.0	Ste	163	388	1.7	30	43.3	Ste	58	134	1.2

* dSD = degree of spatial dependence; ** Model Exp = exponential, Gau = Gaussian, Sph = spherical, Ste = M. Stein

Table S2 Fitted variogram range (m), degree of spatial dependence (dSD), model, nugget, sill and kappa for predicted dry matter yield (kg/ha) of individual paddocks

Paddock	Stage	Phase											
		1						2					
		Range	dSD*	Model**	Nugget	Sill	Kappa	Range	dSD*	Model**	Nugget	Sill	Kappa
1	pre	271	42.3	Ste	506444	1196083	10	21	59.0	Ste	264799	448963	1.4
	post	47	37.3	Ste	102417	274388	0.2	40	28.8	Ste	64635	224518	0.2
2	pre	695	9.1	Ste	271393	2968133	0.6	220	18.6	Ste	164212	884660	0.4
	post	68	40.1	Ste	148836	371411	0.4	26	4.6	Ste	5227	114436	0.2
3	pre	31	42.9	Ste	213516	497167	0.2	157	21.3	Ste	287641	1348904	0.6
	post	68	40.1	Ste	148836	371411	1.1	50	27.0	Ste	70579	261800	0.3
4	pre	19	55.9	Ste	291580	522070	1.1	115	6.4	Ste	56204	873593	0.2
	post	27	13.7	Ste	36646	268118	0.3	67	25.5	Ste	64977	255006	0.4
5	pre	14	8.1	Ste	35896	443495	0.2	14	2.8	Ste	11304	410491	0.4
	post	21	16.1	Ste	55635	346403	0.4	18	38.0	Ste	88522	232667	0.9
6	pre	32	0.0	Ste	0	1137296	0.2	55	27.6	Sph	137319	497686	na
	post	49	8.0	Ste	49208	611996	0.4	96	7.6	Ste	37636	492919	0.3
7	pre	14	72.9	Ste	374607	514059	10	8.5	57.1	Ste	174783	306144	5
	post	13	50.6	Ste	108942	215092	2	14	56.7	Ste	60419	106539	1.8
8	pre	61	17.3	Ste	222665	1289245	0.2	31	33.0	Ste	184156	558373	0.5
	post	25	42.1	Ste	160701	382017	1.7	30	43.7	Ste	144655	330816	0.2

* dSD = degree of spatial dependence; ** Model Exp = exponential, Gau = Gaussian, Sph = spherical, Ste = M. Stein

Table S3. Fitted variogram range (m), degree of spatial dependence (dSD), model, nugget, sill and kappa for change in sward height (mm) of individual paddocks

Paddock	Phase											
	1						2					
Range	dSD*	Model**	Nugget	Sill	Kappa	Range	dSD*	Model**	Nugget	Sill	Kappa	
1	14	70.7	Ste	457	646	0.8	332	41.8	Ste	115	275	10
2	12	88.1	Ste	423	480	10	13	68.4	Sph	65	95	na
3	6.2	78.4	Ste	399	509	10	11	74.4	Ste	151	203	10
4	18	88.1	Ste	480	545	10	14	76.7	Ste	174	227	10
5	16	58.2	Ste	326	560	2	42	87.6	Ste	149	170	10
6	23	63.9	Ste	720	1126	1.3	13	26.4	Ste	42	159	0.4
7	8.3	60.7	Ste	458	754	10	2.3	0.0	Ste	0	67	0.2
8	8.4	71.0	Ste	716	1009	10	41	90.9	Ste	149	164	2

* dSD = degree of spatial dependence; ** Model Exp = exponential, Gau = Gaussian, Sph = spherical, Ste = M. Stein

Table S4. Fitted variogram range (m), degree of spatial dependence (dSD), model, nugget, sill and kappa for change in predicted dry matter yield (kg/ha) of individual paddocks

Paddock	Phase											
	1						2					
Range	dSD*	Model**	Nugget	Sill	Kappa	Range	dSD*	Model**	Nugget	Sill	Kappa	
1	14	70.8	Ste	449752	635470	0.8	323	52.6	Ste	283316	538370	10
2	12	88.2	Ste	416467	472179	10	13	68.4	Sph	161101	235689	na
3	6.2	78.4	Ste	392852	500972	10	11	74.5	Ste	373973	501939	10
4	18	88.0	Ste	472378	536805	10	14	76.8	Ste	431478	562082	10
5	16	58.2	Ste	320791	551396	2	42	87.7	Ste	369713	421687	10
6	23	63.9	Ste	708134	1107643	1.3	13	26.5	Ste	103892	392462	0.4
7	8.3	79.8	Ste	450819	564820	10	1.6	27.6	Exp	45151	163868	na
8	8.4	70.9	Ste	704207	992574	10	41	90.5	Ste	368273	406821	2

* dSD = degree of spatial dependence; ** Model Exp = exponential, Gau = Gaussian, Sph = spherical, Ste = M. Stein