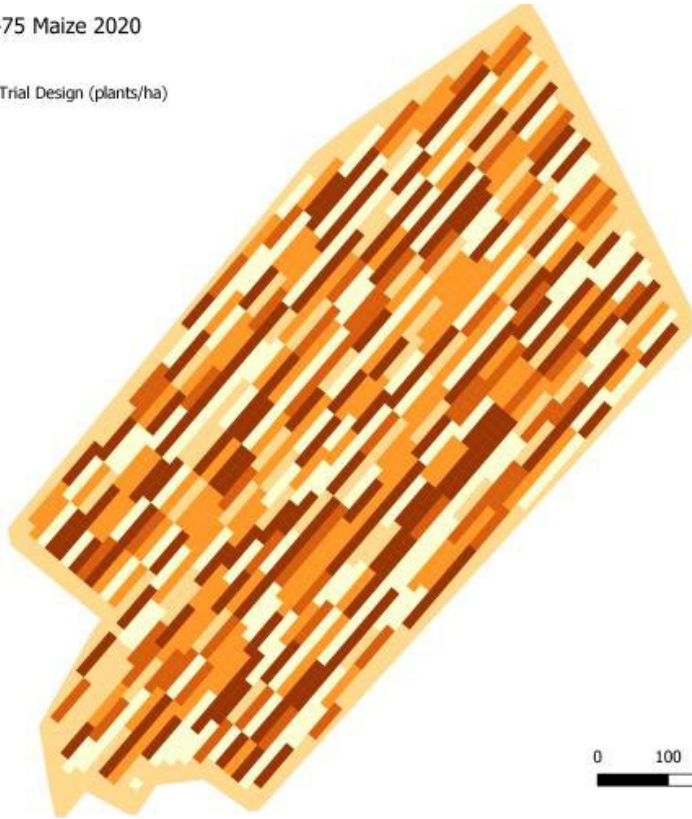
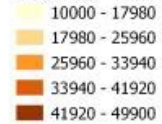


Trial design & execution

J. Minnaar - Uitsny3475 Maize 2020

Henneman

Uitsny 3457 - Seeding Rate Trial Design (plants/ha)

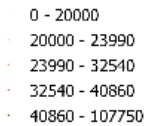


J. Minnaar - Uitsny3475 Maize 2020

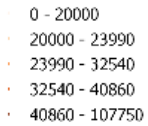
Henneman

As Planted Files

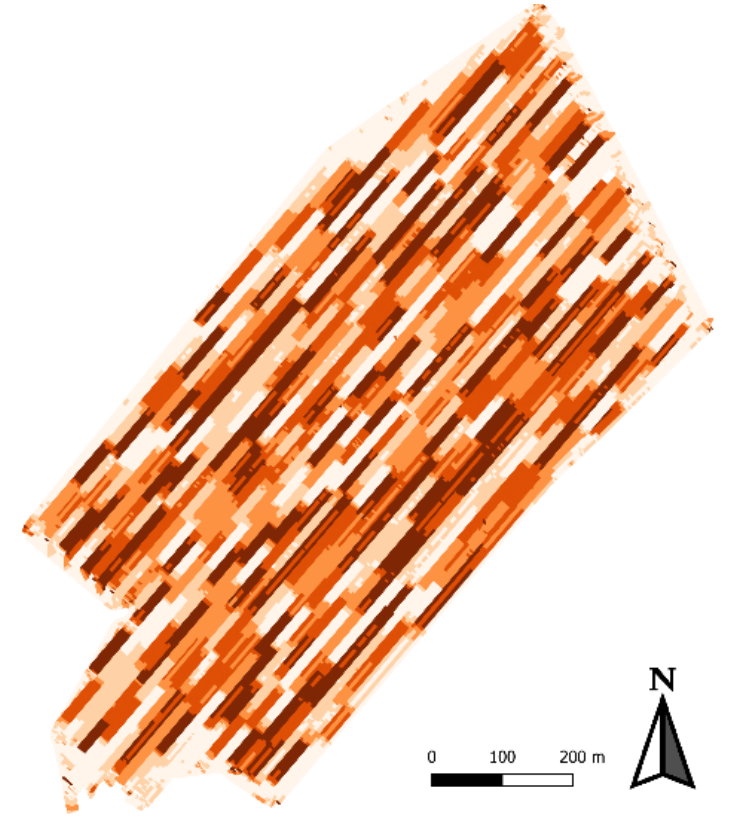
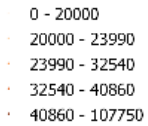
As Planted 1



As Planted 2



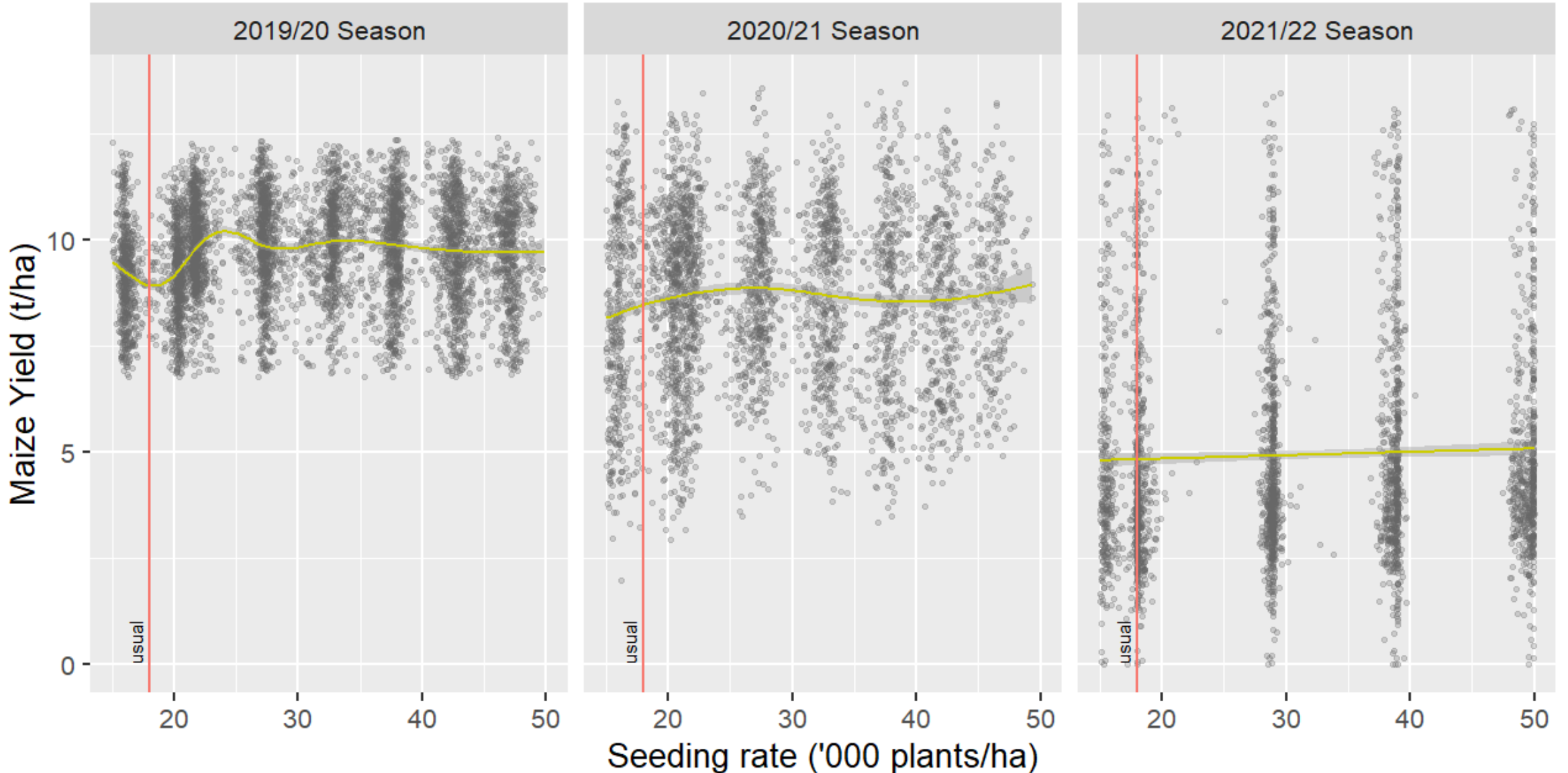
As Planted 3



57 ha, 420 plots, 6 applications, 70 repetitions
2 variable product

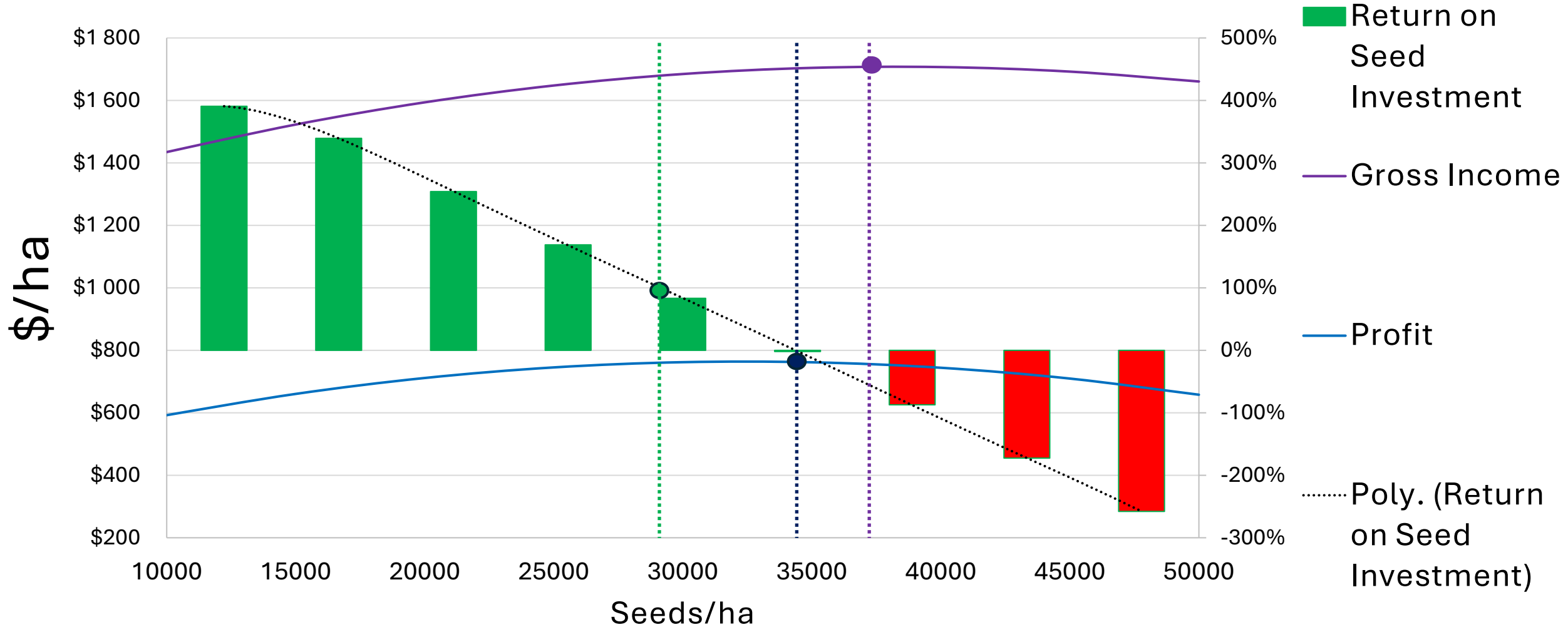
3 Consecutive Maize Seasons – Seeding Rate

Yield vs Seeding rate for Uitsny, Free State



Maximum Income (Yield), Maximum Profit and Risk premiums

Gross Income, Profit and ROI



Variability of recommendations

Seeding rate (seeds/ha)

Maximum Profit		Maize Price (R/ton)		
(Seeds per Hectare)		R 2200	R3100	R4000
Seed Price (R / 80k bag)	R3500	32000	33200	34500
	R4400	30500	32000	33600
	R5300	29000	30800	32700
	R6200	27500	29600	31700
	R7100	26000	28400	30800

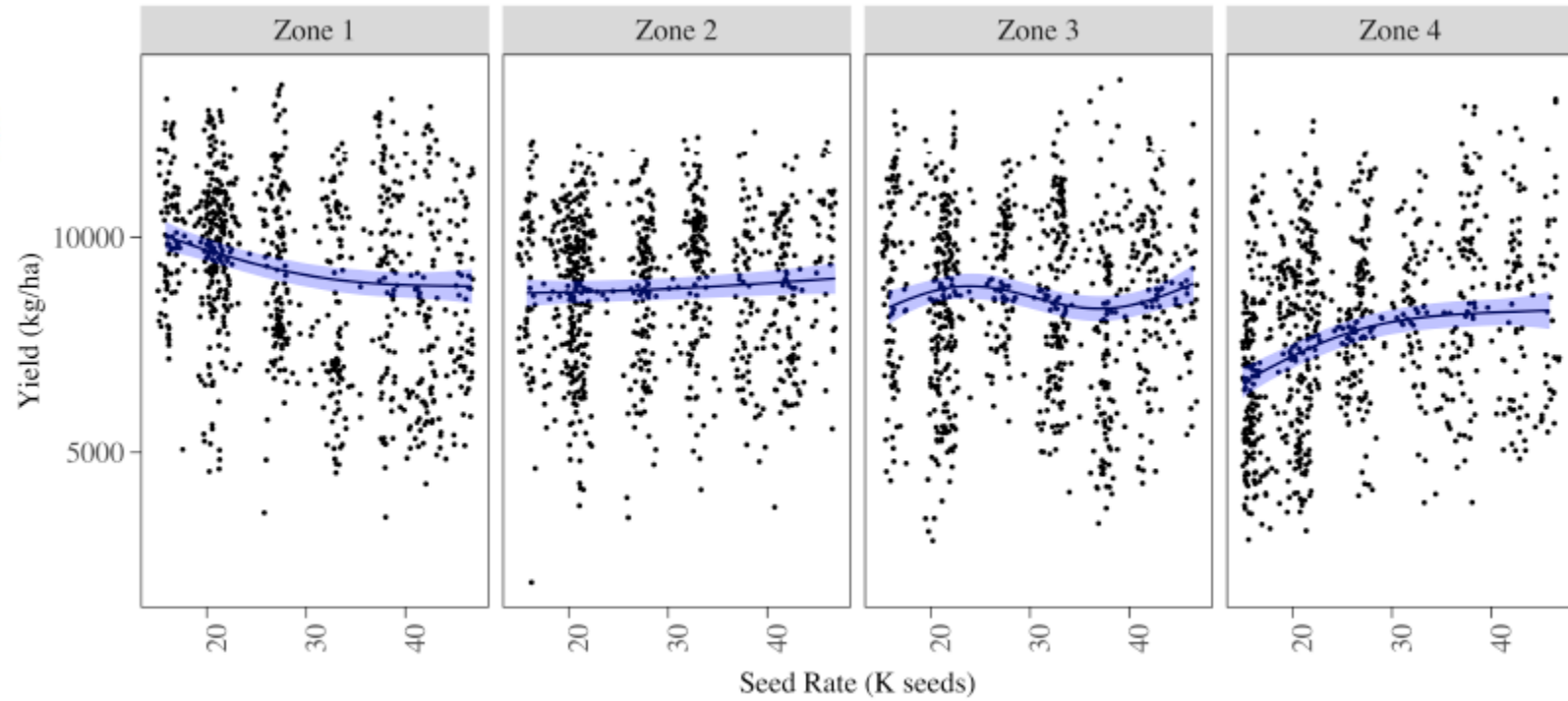
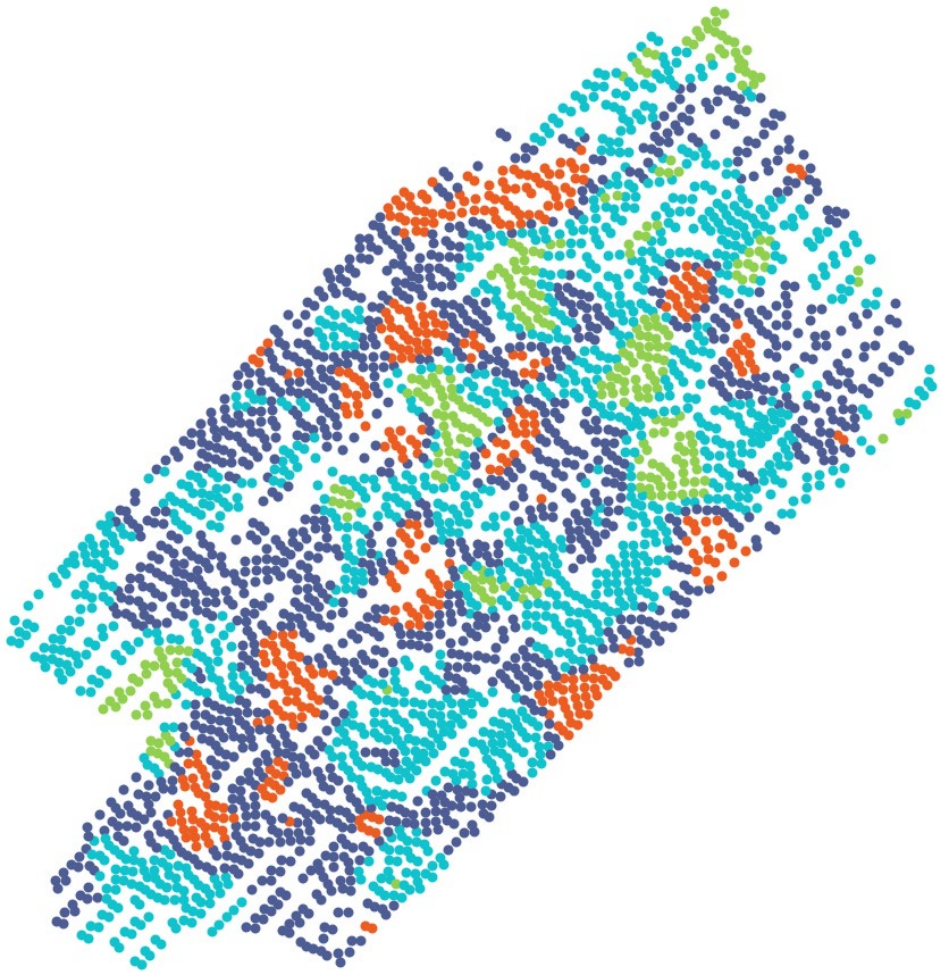
Urea (46) rate (kg/ha)

Maximum Profit		Maize Price (R/ton)		
(kg/ha)		R2200	R3100	R4000
Urea(46) Price (R / ton)	R5300	260	265	270
	R7000	252	259	266
	R8800	245	253	261
	R10600	237	246	256
	R12400	229	240	251

ROI 1:2		Maize Price (R/ton)		
(Seeds per Hectare)		R2200	R3100	R4000
Seed Price (R / 80k bag)	R3500	26000	28400	30900
	R4400	22900	26000	29000
	R5300	19800	23500	27100
	R6200	16700	21000	25200
	R7100	13600	18500	23400

ROI 1:2		Maize Price (\$/ton)		
(kg/ha)		R2200	R3100	R4000
Urea(46) Price (R / ton)	R5300	240	249	257
	R7000	224	236	248
	R8800	209	224	239
	R10600	193	211	230
	R12400	177	199	220

Statistical modeling and zoning

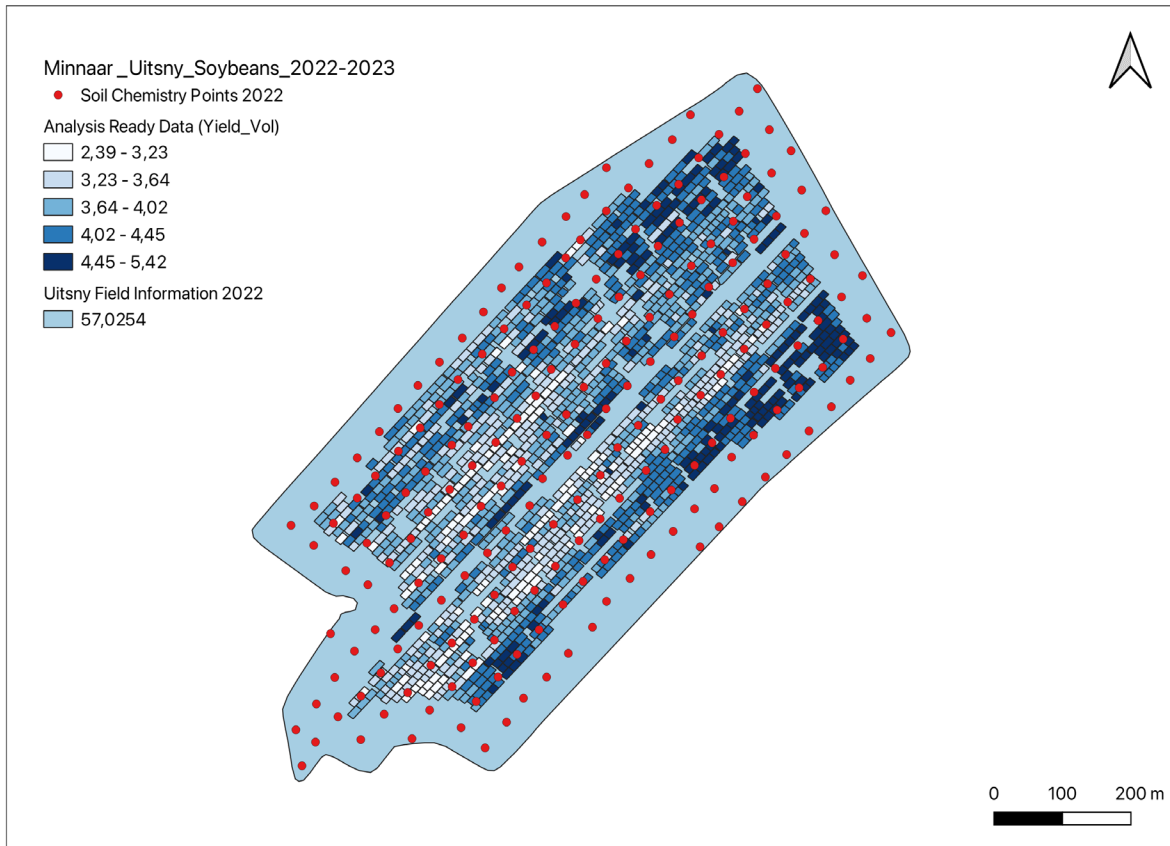


Profit-optimizing management zones and rates

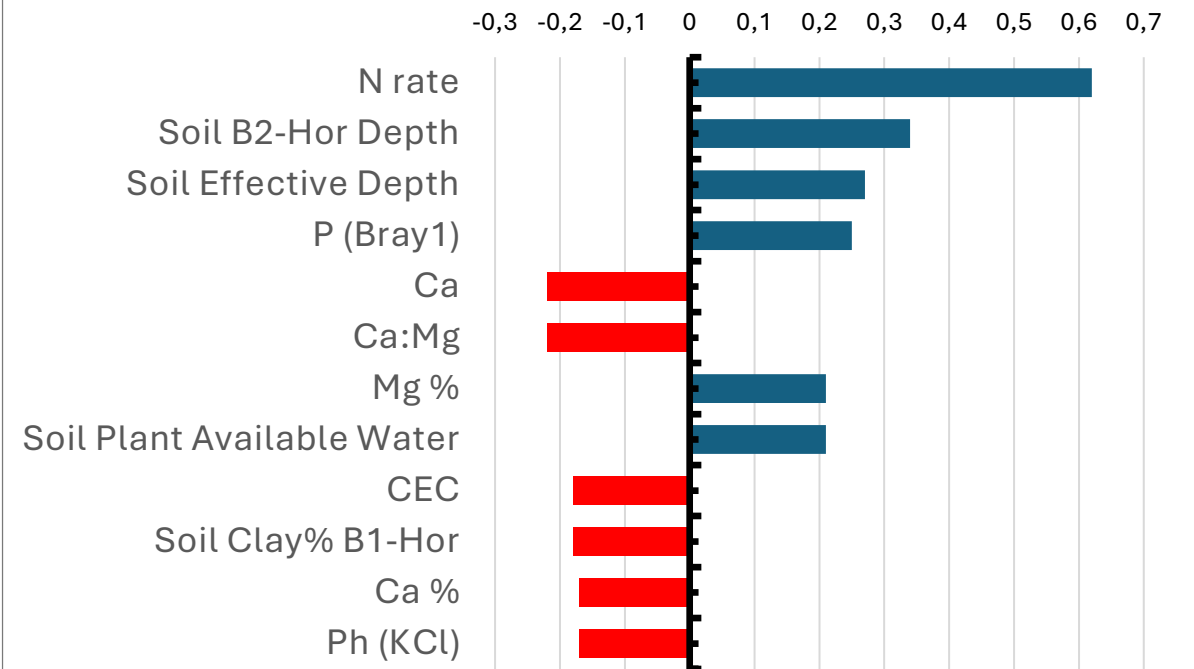
	Maize				Corn		
	% of field	Profit-optimizing seeding rate (plants/ha) (% of norm)	Profit-optimizing fertilizer (Nitrogen) rate (kg/ha) (% of norm)	Yield (t/ha) (% of norm)	Profit-optimizing seeding rate (plants/ac) (% of norm)	Profit-optimizing fertilizer (Nitrogen) rate (lb/ac) (% of norm)	Yield (bu/ac) (% of norm)
Zone 1	14%	31 424 (109%)	77 (50%) ¹	8.0 (97%)	12 717 (109%)	69 (50%) ¹	128 (97%)
Zone 2	45%	28 652 (99%)	170 (150%) ¹	9.0 (109%)	11 595 (99%)	152 (150%) ¹	143 (109%)
Zone 3	31%	27 928 (97%)	123 (100%)	8.7 (106%)	11 302 (97%)	110 (100%)	139 (106%)
Zone 4	10%	32 047 (111%)	125 (101%)	9.0 (109%)	12 969 (111%)	111 (101%)	143 (109%)

¹ input deviations were limited to 50% from norm/average applications.

Finding driving factors



Yield correlation to Soil Physical and chemical variables





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