

# Gylling Data Management, Inc.

## Cochran and Cox, example chapter 3. Good for spatial covariates.

Trial ID: Cochran 3.1 Cluster	Location:	Trial Year:
Protocol ID:	Investigator: Peter Claussen	
Project ID:	Study Director:	
	Sponsor Contact:	

Pest Type	O Other		O Other		O Other		O Other		
Pest Code	DITYDE		DITYDE		DITYDE		DITYDE		
Pest Scientific Name	Ditylenchus de>		Ditylenchus de>		Ditylenchus de>		Ditylenchus de>		
Pest Name	Potato root ne>		Potato root ne>		Potato root ne>		Potato root ne>		
Crop Type, Code	C -		C -		C -		C -		
Description	First		Second		Pod I		Neg I		
Number of Subsamples	1		1		1		1		
Data Entry Date					Jan-13-2020		Jan-13-2020		
Trt No.	Treatment Name	1	StDev	2	StDev	3	StDev	4	StDev
	2 CK 2	194.500 a	85.051	280.500 b	108.890	125.750 abc	72.251	127.500 ab	89.802
	12 C4	151.250 ab	108.880	348.250 ab	104.340	157.250 ab	100.858	203.500 a	80.185
	10 C2	146.250 ab	76.317	532.250 a	187.080	130.000 abc	52.186	121.750 ab	68.975
	1 CK 1	142.500 ab	58.825	223.000 b	62.086	107.000 bc	92.804	58.500 b	27.779
	4 CM 2	142.000 ab	93.249	310.250 b	82.160	137.500 ab	90.974	157.000 ab	113.223
	8 CS 2	138.500 ab	108.930	219.250 b	154.016	112.500 abc	73.255	139.000 ab	106.886
	3 CM 1	128.250 ab	72.320	357.750 ab	124.329	147.750 ab	83.851	81.000 b	87.803
	11 C3	104.500 b	79.467	296.500 b	172.539	120.500 abc	65.077	156.500 ab	92.659
	7 CS 1	104.250 b	76.552	232.000 b	147.275	166.000 a	127.580	94.500 b	14.526
	5 CN 1	100.500 b	105.117	266.500 b	124.925	76.500 c	63.026	153.500 ab	98.740
	6 CN 2	97.250 b	86.195	316.250 b	191.841	104.000 bc	105.141	93.250 b	51.487
	9 C1	91.750 b	72.899	287.500 b	121.305	156.750 ab	101.703	155.500 ab	76.374
LSD P=.05 (% mean diff)		79.3850 (62%)		144.0695 (47%)		57.4589 (45%)		91.1857 (71%)	
Standard Deviation		55.3012		99.2992		39.9403		63.5218	
CV		43.05		32.47		31.09		49.45	
Grand Mean		128.4583		305.8334		128.4583		128.4583	
Levene's F		0.293		0.442		1.214		0.764	
Levene's Prob(F)		0.983		0.926		0.313		0.672	
Rank X2		.		.		.		.	
P(Rank X2)		.		.		.		.	
Skewness		0.2882		0.4512		0.2882		0.2882	
Kurtosis		-1.0652		0.1752		-1.0652		-1.0652	
Minimum Replicates (power = 80)		5		2		4		4	
Largest Mean Difference (% mean diff)		102.7500 (80%)		313.0000 (102%)		89.5000 (70%)		145.0000 (113%)	
Design AIC		RCB 539.9359		RCB 600.2127		NA		RCB 574.6617	
Spatial AIC		SPa 534.2854		SPb 594.0219		NA		SPa 547.5899	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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CRD + Nearest row and column neighbor (Papadakis) AOV For O Other DITYDE Ditylenchus destructor Potato root nematode C First 1 (Data Column 1)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	47	310167.916667			
Treatment	11	39768.416667	3615.310606	1.182	0.3341
Nearest Neighbors	1	172120.049520	172120.049520	56.281	0.0001
Error	35	107037.584441	3058.216698		

CRD + Cubic spatial trend AOV For O Other DITYDE Ditylenchus destructor Potato root nematode C Second 1 (Data Column 2)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	47	991564.666667			
Treatment	11	313234.166667	28475.833333	2.888	0.0121
Blk	1	2990.064286	2990.064286	0.303	0.5864
Col	1	169676.670635	169676.670635	17.208	0.0003
Blk^2	1	1533.072917	1533.072917	0.155	0.6965
Col^2	1	1298.349206	1298.349206	0.132	0.7195
Blk:Col	1	44530.395918	44530.395918	4.516	0.0429
Blk^3	1	46.584028	46.584028	0.005	0.9457
Col^3	1	179925.457071	179925.457071	18.247	0.0002
Blk:Col^2	1	708.247959	708.247959	0.072	0.7907
Blk^2:Col	1	7.120819	7.120819	0.001	0.9788
Error	27	266228.799439	9860.325905		

Randomized Complete Block (RCB) Least square estimation AOV For O Other DITYDE Ditylenchus destructor Potato root nematode C Pod I 1 Jan-13-2020 (Data Column 3)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	47	310167.916667			
Replicate	3	227210.416667	75736.805556	47.477	0.0001
Treatment	11	30314.916667	2755.901515	1.728	0.1103
Error	33	52642.583333	1595.229798		

CRD + Nearest row and column neighbor (Papadakis) AOV For O Other DITYDE Ditylenchus destructor Potato root nematode C Neg I 1 Jan-13-2020 (Data Column 4)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	47	310167.916667			
Treatment	11	73147.416667	6649.765152	1.648	0.1280
Nearest Neighbors	1	153571.110364	153571.110364	38.060	0.0001
Error	35	141225.432551	4035.012359		

Pest Type

O, Other = Other animal or nematode

Pest Code

DITYDE, Ditylenchus destructor, Potato root nematode = US

Crop Type Code

C = EPPO species (Bayer) codes

SPa = Nearest row and column neighbor (Papadakis)

SPb = Cubic spatial trend