

## Response Root weight kg/ha by 15 cm

## Effect Summary

Source	Logworth	PValue
Depth	3.874	0.00013
Year	1.294	0.05087
Rotation*Depth	1.154	0.07022
Year*Rotation	0.828	0.14865
Year*Rotation*Depth	0.121	0.75643
Rotation	0.061	0.86916 ^
Year*Depth	0.034	0.92489 ^

## Summary of Fit

RSquare	0.480727
RSquare Adj	0.307636
Root Mean Square Error	159.5889
Mean of Response	275.9054
Observations (or Sum Wgts)	61

## Parameter Estimates

Term	Estimate	Std Error	DFDen	t Ratio	Prob> t
Intercept	271.57848	20.77971	6.006	13.07	<.0001*
Year[2019]	50.570089	20.77971	6.006	2.43	0.0509
Rotation[C2]	-3.277576	18.87876	4.866	-0.17	0.8692
Year[2019]*Rotation[C2]	-32.37418	18.87876	4.866	-1.71	0.1486
Depth[0-15cm]	142.21078	35.02129	34.46	4.06	0.0003*
Depth[15-30cm]	56.550808	35.85948	33.55	1.58	0.1242
Depth[30-45cm]	-60.01881	35.85948	33.55	-1.67	0.1035
Year[2019]*Depth[0-15cm]	0.1298016	35.02129	34.46	0.00	0.9971
Year[2019]*Depth[15-30cm]	-21.76741	35.85948	33.55	-0.61	0.5479
Year[2019]*Depth[30-45cm]	17.913629	35.85948	33.55	0.50	0.6207
Rotation[C2]*Depth[0-15cm]	95.500461	35.02129	34.46	2.73	0.0100*
Rotation[C2]*Depth[15-30cm]	-48.16332	35.85948	33.55	-1.34	0.1883
Rotation[C2]*Depth[30-45cm]	-16.92898	35.85948	33.55	-0.47	0.6399
Year[2019]*Rotation[C2]*Depth[0-15cm]	15.934703	35.02129	34.46	0.46	0.6520
Year[2019]*Rotation[C2]*Depth[15-30cm]	27.33275	35.85948	33.55	0.76	0.4513
Year[2019]*Rotation[C2]*Depth[30-45cm]	-28.5312	35.85948	33.55	-0.80	0.4318

## REML Variance Component Estimates

Random Effect	Var Ratio	Var Component	Std Error	95% Lower	95% Upper	Wald p-Value	Pct of Total
Block[Year]	0.0236804	603.10865	2691.146	-4671.441	5877.6579	0.8227	2.313
Block[Year,Rotation]	-0.046607	-1187.008	3866.0265	-8764.281	6390.2645	0.7588	0.000
Residual		25468.633	6227.9619	16611.599	43942.278		97.687
Total		26071.741	6924.0123	16461.516	47479.864		100.000

-2 LogLikelihood = 637.68888172

Note: Total is the sum of the positive variance components.

Total including negative estimates = 24884.733

## Fixed Effect Tests

Source	Nparm	DF	DFDen	F Ratio	Prob > F
Year	1	1	6.006	5.9225	0.0509
Rotation	1	1	4.866	0.0301	0.8692
Year*Rotation	1	1	4.866	2.9407	0.1486
Depth	3	3	33.78	9.2287	0.0001*
Year*Depth	3	3	33.78	0.1563	0.9249
Rotation*Depth	3	3	33.78	2.5736	0.0702
Year*Rotation*Depth	3	3	33.78	0.3964	0.7564

## Effect Details

## Year

## Least Squares Means Table

Level	Sq Mean	Std Error
2019	322.14857	28.254131
2020	221.00839	30.477683

**Response Root weight kg/ha by 15 cm****Effect Details****Rotation****Least Squares Means Table**

Level	Least	
	Sq Mean	Std Error
C2	268.30090	26.886936
C4	274.85605	29.214732

**Year\*Rotation****Least Squares Means Table**

Level	Least	
	Sq Mean	Std Error
2019,C2	286.49681	38.023869
2019,C4	357.80032	38.023869
2020,C2	250.10499	38.023869
2020,C4	191.91179	44.364260

**Depth****Least Squares Means Table**

Level	Least	
	Sq Mean	Std Error
0-15cm	413.78926	39.912280
15-30cm	328.12929	41.706885
30-45cm	211.55966	41.706885
45-60cm	132.83570	41.706885

**Year\*Depth****Least Squares Means Table**

Level	Least	
	Sq Mean	Std Error
2019,0-15cm	464.48915	56.444488
2019,15-30cm	356.93197	56.444488
2019,30-45cm	280.04338	56.444488
2019,45-60cm	187.12976	56.444488
2020,0-15cm	363.08937	56.444488
2020,15-30cm	299.32660	61.415609
2020,30-45cm	143.07595	61.415609
2020,45-60cm	78.54164	61.415609

**Rotation\*Depth****Least Squares Means Table**

Level	Least	
	Sq Mean	Std Error
C2,0-15cm	506.01215	55.772678
C2,15-30cm	276.68839	55.772678
C2,30-45cm	191.35311	55.772678
C2,45-60cm	99.14996	55.772678
C4,0-15cm	321.56638	55.772678
C4,15-30cm	379.57018	60.798753
C4,30-45cm	231.76622	60.798753
C4,45-60cm	166.52144	60.798753

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Effect Details

Rotation\*Depth

Slice Rotation=C2

NumDF	DenDF	F Ratio	Prob > F
3	33.45	9.5396	0.0001*

Slice Rotation=C4

NumDF	DenDF	F Ratio	Prob > F
3	34.09	2.4275	0.0823

Slice Depth=0-15cm

NumDF	DenDF	F Ratio	Prob > F
1	36.72	5.6043	0.0233*

Slice Depth=15-30cm

NumDF	DenDF	F Ratio	Prob > F
1	37.64	1.5902	0.2151

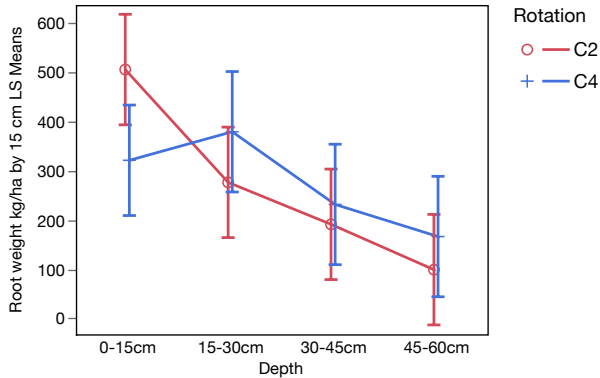
Slice Depth=30-45cm

NumDF	DenDF	F Ratio	Prob > F
1	37.64	0.2454	0.6232

Slice Depth=45-60cm

NumDF	DenDF	F Ratio	Prob > F
1	37.64	0.6819	0.4141

Least Squares Means Plot



Year\*Rotation\*Depth

Block[Year]

Least Squares Means Table

Level	Sq Mean	Std Error
[2019]1	305.56317	31.849908
[2019]2	332.71409	31.849908
[2019]3	319.52629	31.849908
[2019]4	330.79072	31.849908
[2020]1	225.88894	32.783454
[2020]2	226.75601	35.206534
[2020]3	210.09936	32.783454
[2020]4	221.28924	32.783454

Block[Year,Rotation]