

JMP Output for the REML Analysis of an RCBD with a Split-split Plot Arrangement

Model Specification

Select Columns: 5 Columns (A, B, C, Rep, Yield)

Pick Role Variables: Y: Yield (optional), Weight: optional numeric, Freq: optional numeric, Validation: optional, By: optional

Construct Model Effects: Add, Cross, Nest, Macros, Degree: 2, Attributes: , Transform: , No Intercept:

Personality: Standard Least Squares
Emphasis: Minimal Report
Method: REML (Recommended)
 Unbounded Variance Components
 Estimate Only Variance Components

Buttons: Help, Run, Recall, Keep dialog open (checked), Remove

Response Yield Effect Summary

Source	LogWorth	PValue
C	14.882	0.00000
B	5.073	0.00001
B*C	4.413	0.00004
A	2.089	0.00815
A*B*C	1.140	0.07250
A*B	0.817	0.15224
A*C	0.224	0.59689

Summary of Fit

RSquare	0.92974
RSquare Adj	0.907622
Root Mean Square Error	2.163448
Mean of Response	30.93611
Observations (or Sum Wgts)	72

$$\begin{aligned}
 CV &= (RSME/Mean)*100 \\
 &= (2.1634/30.93611)*100 \\
 &= 6.99\%
 \end{aligned}$$

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Parameter Estimates

Term	Estimate	Std Error	DFDen	t Ratio	Prob> t
Intercept	30.936111	0.814953	3	37.96	<.0001*
A[0]	1.4180556	0.719304	6	1.97	0.0962
A[1]	2.0722222	0.719304	6	2.88	0.0280*
B[0]	-3.133333	0.347705	9	-9.01	<.0001*
A[0]*B[0]	-1.0625	0.491729	9	-2.16	0.0590
A[1]*B[0]	0.5	0.491729	9	1.02	0.3358
C[0]	-4.515278	0.360575	36	-12.52	<.0001*
C[1]	0.0763889	0.360575	36	0.21	0.8334
A[0]*C[0]	-0.551389	0.50993	36	-1.08	0.2868
A[0]*C[1]	0.1444444	0.50993	36	0.28	0.7786
A[1]*C[0]	0.7569444	0.50993	36	1.48	0.1464
A[1]*C[1]	-0.084722	0.50993	36	-0.17	0.8690
B[0]*C[0]	0.9958333	0.360575	36	2.76	0.0090*
B[0]*C[1]	0.8875	0.360575	36	2.46	0.0188*
A[0]*B[0]*C[0]	0.1375	0.50993	36	0.27	0.7890
A[0]*B[0]*C[1]	-0.166667	0.50993	36	-0.33	0.7457
A[1]*B[0]*C[0]	-1.4125	0.50993	36	-2.77	0.0088*
A[1]*B[0]*C[1]	0.6958333	0.50993	36	1.36	0.1809

REML Variance Component Estimates

Random Effect	Var Ratio	Var Component	Std Error	95% Lower	95% Upper	Wald p-Value	Pct of Total
Rep	0.3465003	1.6217978	2.2498737	-2.787874	6.0314692	0.4710	17.444
A*Rep	0.3532956	1.6536034	1.9183698	-2.106332	5.4135392	0.3887	17.786
B*Rep[A]	0.2865937	1.3414043	1.4163854	-1.43466	4.1174687	0.3436	14.428
Residual		4.6805093	1.1032066	3.0952739	7.897416		50.343
Total		9.2973148	2.6723367	5.6790925	17.933566		100.000

-2 LogLikelihood = 321.229156

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

Total including negative estimates = 9.2973148

Error (c) MS

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Fixed Effect Tests

Source	Nparm	DF	DFDen	F Ratio	Prob > F
A	2	2	6	11.9102	0.0081*
B	1	1	9	81.2065	<.0001*
A*B	2	2	9	2.3371	0.1522
C	2	2	36	102.8024	<.0001*
A*C	4	4	36	0.7002	0.5969
B*C	2	2	36	13.6557	<.0001*
A*B*C	4	4	36	2.3512	0.0725

Correct results of F -tests on fixed effects using the proper denominators

Effect Details

A

Least Squares Means Table

Level	Least Sq Mean	Std Error
0	32.354167	1.0869899
1	33.008333	1.0869899
2	27.445833	1.0869899

LSMeans Differences Student's t

$\alpha=0.050$

LSMean[i] By LSMean[j]

Mean[i]-Mean[j]	0	1	2
Std Err Dif			
Lower CL Dif			
Upper CL Dif			
0	0	-0.6542	4.90833
	0	1.24587	1.24587
	0	-3.7027	1.8598
	0	2.39437	7.95687
1	0.65417	0	5.5625
	1.24587	0	1.24587
	-2.3944	0	2.51396
	3.7027	0	8.61104
2	-4.9083	-5.5625	0
	1.24587	1.24587	0
	-7.9569	-8.611	0
	-1.8598	-2.514	0

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of the A main effect (e.g. a_0 vs. a_1).

Level		Least Sq Mean
1	A	33.008333
0	A	32.354167
2	B	27.445833

Levels not connected by same letter are significantly different.

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B

Least Squares Means Table

Level	Least Sq Mean	Std Error
0	27.802778	0.88602911
1	34.069444	0.88602911

LSMeans Differences Student's t

$\alpha=0.050$

LSMean[i] By LSMean[j]

Mean[i]-Mean[j]	0	1
Std Err Dif		
Lower CL Dif		
Upper CL Dif		
0	0	-6.2667
	0	0.69541
	0	-7.8398
	0	-4.6935
1	6.26667	0
	0.69541	0
	4.69354	0
	7.83979	0

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of the B main effect (e.g. b_0 vs. b_1).

Level		Least Sq Mean
1	A	34.069444
0	B	27.802778

Levels not connected by same letter are significantly different.

JMP Output for the REML Analysis of an RCBD with a Split-split Plot Arrangement

A*B

Least Squares Means Table

Level	Least Sq Mean	Std Error
0,0	28.158333	1.2426761
0,1	36.550000	1.2426761
1,0	30.375000	1.2426761
1,1	35.641667	1.2426761
2,0	24.875000	1.2426761
2,1	30.016667	1.2426761

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different subplots within the same whole plot (e.g. a_0b_0 vs. a_0b_1).

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different whole plot levels for the same or different subplots (e.g. a_0b_0 vs. a_1b_0 or a_0b_0 vs. a_1b_1).

LSMeans Differences Student's t

$\alpha=0.050$

LSMean[i] By LSMean[j]

Mean[i]-Mean[j] Std Err Dif Lower CL Dif Upper CL Dif	0,0	0,1	1,0	1,1	2,0	2,1
0,0	0	-8.39167 1.20449	-2.2167 1.50917	-7.4833 1.50917	3.28333 1.50917	-1.8583 1.50917
		-11.116 -5.6669	-5.5284 1.09508	-10.795 -4.1716	-0.0284 6.59508	-5.1701 1.45341
0,1	8.39167 1.20449 5.66693 11.1164	0	6.175 1.50917 2.86325 9.48675	0.90833 1.50917 -2.4034 4.22008	11.675 1.50917 8.36325 14.9867	6.53333 1.50917 3.22159 9.84508
1,0	2.21667 1.50917 -1.0951 5.52841	-6.175 1.50917 -9.4867 -2.8633	0	-5.2667 1.20449 -7.9914 -2.5419	5.5 1.50917 2.18825 8.81175	0.35833 1.50917 -2.9534 3.67008
1,1	7.48333 1.50917 4.17159 10.7951	-0.9083 1.50917 -4.2201 2.40341	5.26667 1.20449 2.54193 7.9914	0	10.7667 1.50917 7.45492 14.0784	5.625 1.50917 2.31325 8.93675
2,0	-3.2833 1.50917 -6.5951 0.02841	-11.675 1.50917 -14.987 -8.3633	-5.5 1.50917 -8.8117 -2.1883	-10.767 1.50917 -14.078 -7.4549	0	-5.1417 1.20449 -7.8664 -2.4169
2,1	1.85833 1.50917 -1.4534 5.17008	-6.5333 1.50917 -9.8451 -3.2216	-0.3583 1.50917 -3.6701 2.95341	-5.625 1.50917 -8.9367 -2.3133	5.14167 1.20449 2.41693 7.8664	0

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Level		Least Sq Mean
0,1	A	36.550000
1,1	A	35.641667
1,0	B	30.375000
2,1	B	30.016667
0,0	B C	28.158333
2,0	C	24.875000

Levels not connected by same letter are significantly different.

C

Least Squares Means Table

Level	Least Sq Mean	Std Error
0	26.420833	0.89115813
1	31.012500	0.89115813
2	35.375000	0.89115813

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of the C main effect (e.g. c_0 vs. c_1).

LSMeans Differences Student's t

$\alpha=0.050$

LSMean[i] By LSMean[j]

Mean[i]-Mean[j]	0	1	2
Std Err Dif			
Lower CL Dif			
Upper CL Dif			
0	0	-4.5917	8.9542
	0	0.62453	0.62453
	0	-5.8583	-10.221
	0	-3.3251	-7.6876
1	4.59167	0	-4.3625
	0.62453	0	0.62453
	3.32505	0	-5.6291
	5.85828	0	-3.0959
2	8.95417	4.3625	0
	0.62453	0.62453	0
	7.68755	3.09589	0
	10.2208	5.62911	0

Level		Least Sq Mean
2	A	35.375000
1	B	31.012500
0	C	26.420833

Levels not connected by same letter are significantly different.

JMP Output for the REML Analysis of an RCBD with a Split-split Plot Arrangement

A*C

Least Squares Means Table

Level	Least Sq Mean	Std Error
0,0	27.287500	1.2536305
0,1	32.575000	1.2536305
0,2	37.200000	1.2536305
1,0	29.250000	1.2536305
1,1	33.000000	1.2536305
1,2	36.775000	1.2536305
2,0	22.725000	1.2536305
2,1	27.462500	1.2536305
2,2	32.150000	1.2536305

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different sub-subplots within the same whole plot (e.g. a_0c_0 vs. a_0c_1).

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different whole plot levels for the same or different sub-subplots (e.g. a_0c_0 vs. a_1c_0 or a_0c_0 vs. a_1c_1).

LSMeans Differences Student's t
 $\alpha=0.050$
 LSMean[i] By LSMean[j]

Mean[i]-Mean[j]	0,0	0,1	0,2	1,0	1,1	1,2	2,0	2,1	2,2
Std Err Dif									
Lower CL Dif									
Upper CL Dif									
0,0	0	-5.2875 1.08172	-9.9125 1.08172	-1.9625 1.52718	-5.7125 1.52718	-9.4875 1.52718	4.5625 1.52718	-0.175 1.52718	-4.8625 1.52718
0,1	5.2875 1.08172 3.09366 7.48134	0	-4.625 1.08172 -6.8188 -2.4312	3.325 1.52718 0.0257 6.6243	-0.425 1.52718 -3.7243 2.8743	-4.2 1.52718 -7.4993 -0.9007	9.85 1.52718 6.5507 13.1493	5.1125 1.52718 1.8132 8.4118	0.425 1.52718 -2.8743 3.7243
0,2	9.9125 1.08172 7.71866 12.1063	4.625 1.08172 2.43116 6.81884	0	7.95 1.52718 4.6507 11.2493	4.2 1.52718 0.9007 7.4993	0.425 1.52718 -2.8743 3.7243	14.475 1.52718 11.1757 17.7743	9.7375 1.52718 6.4382 13.0368	5.05 1.52718 1.7507 8.3493
1,0	1.9625 1.52718 -1.3368 5.2618	-3.325 1.52718 -6.6243 -0.0257	-7.95 1.52718 -11.249 -4.6507	0	-3.75 1.08172 -5.9438 -1.5562	-7.525 1.08172 -9.7188 -5.3312	6.525 1.52718 3.2257 9.8243	1.7875 1.52718 -1.5118 5.0868	-2.9 1.52718 -6.1993 0.3993
1,1	5.7125 1.52718 2.4132 9.0118	0.425 1.52718 -2.8743 3.7243	-4.2 1.52718 -7.4993 -0.9007	3.75 1.08172 1.55616 5.94384	0	-3.775 1.08172 -5.9688 -1.5812	10.275 1.52718 6.9757 13.5743	5.5375 1.52718 2.2382 8.8368	0.85 1.52718 -2.4493 4.1493
1,2	9.4875 1.52718 6.1882 12.7868	4.2 1.52718 0.9007 7.4993	-0.425 1.52718 -3.7243 2.8743	7.525 1.08172 5.33116 9.71884	3.775 1.08172 1.58116 5.96884	0	14.05 1.52718 10.7507 17.3493	9.3125 1.52718 6.0132 12.6118	4.625 1.52718 1.3257 7.9243
2,0	-4.5625 1.52718 -7.8618	-9.85 1.52718 -13.149	-14.475 1.52718 -17.774	-6.525 1.52718 -9.8243	-10.275 1.52718 -13.574	-14.05 1.52718 -17.349	0	-4.7375 1.08172 -6.9313	-9.425 1.08172 -11.619

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	-1.2632	-6.5507	-11.176	-3.2257	-6.9757	-10.751	0	-2.5437	-7.2312
2,1	0.175	-5.1125	-9.7375	-1.7875	-5.5375	-9.3125	4.7375	0	-4.6875
	1.52718	1.52718	1.52718	1.52718	1.52718	1.52718	1.08172	0	1.08172
	-3.1243	-8.4118	-13.037	-5.0868	-8.8368	-12.612	2.54366	0	-6.8813
	3.4743	-1.8132	-6.4382	1.5118	-2.2382	-6.0132	6.93134	0	-2.4937
2,2	4.8625	-0.425	-5.05	2.9	-0.85	-4.625	9.425	4.6875	0
	1.52718	1.52718	1.52718	1.52718	1.52718	1.52718	1.08172	1.08172	0
	1.5632	-3.7243	-8.3493	-0.3993	-4.1493	-7.9243	7.23116	2.49366	0
	8.1618	2.8743	-1.7507	6.1993	2.4493	-1.3257	11.6188	6.88134	0

Level		Least Sq Mean
0,2	A	37.200000
1,2	A	36.775000
1,1	B	33.000000
0,1	B	32.575000
2,2	B C	32.150000
1,0	C D	29.250000
2,1	D	27.462500
0,0	D	27.287500
2,0	E	22.725000

Levels not connected by same letter are significantly different.

JMP Output for the REML Analysis of an RCBD with a Split-split Plot Arrangement

B*C Least Squares Means Table

Level	Least Sq Mean	Std Error
0,0	24.283333	1.0222895
0,1	28.766667	1.0222895
0,2	30.358333	1.0222895
1,0	28.558333	1.0222895
1,1	33.258333	1.0222895
1,2	40.391667	1.0222895

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different sub-subplots within the same subplot (e.g. b_{0c_0} vs. b_{0c_1}).

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different subplot levels for the same or different sub-subplots (e.g. b_{0c_0} vs. b_{1c_0} or b_{0c_0} vs. b_{1c_1}).

LSMeans Differences Student's t $\alpha=0.050$ LSMean[i] By LSMean[j]

Mean[i]-Mean[j] Std Err Dif Lower CL Dif Upper CL Dif	0,0	0,1	0,2	1,0	1,1	1,2
0,0	0	-4.4833 0.88322	-6.075 0.88322	-4.275 1.00182	-8.975 1.00182	-16.108 1.00182
		-6.2746 -2.6921	-7.8663 -4.2837	-6.3208 -2.2292	-11.021 -6.9292	-18.154 -14.063
0,1	4.48333 0.88322 2.69207 6.27459	0	-1.5917 0.88322 -3.3829 0.19959	0.20833 1.00182 -1.8375 2.25413	-4.4917 1.00182 -6.5375 -2.4459	-11.625 1.00182 -13.671 -9.5792
0,2	6.075 0.88322 4.28374 7.86626	1.59167 0.88322 -0.1996 3.38293	0	1.8 1.00182 -0.2458 3.8458	-2.9 1.00182 -4.9458 -0.8542	-10.033 1.00182 -12.079 -7.9875
1,0	4.275 1.00182 2.2292 6.3208	-0.2083 1.00182 -2.2541 1.83746	-1.8 1.00182 -3.8458 0.2458	0	-4.7 0.88322 -6.4913 -2.9087	-11.833 0.88322 -13.625 -10.042
1,1	8.975 1.00182 6.9292 11.0208	4.49167 1.00182 2.44587 6.53746	2.9 1.00182 0.8542 4.9458	4.7 0.88322 2.90874 6.49126	0	-7.1333 0.88322 -8.9246 -5.3421
1,2	16.1083 1.00182 14.0625 18.1541	11.625 1.00182 9.5792 13.6708	10.0333 1.00182 7.98754 12.0791	11.8333 0.88322 10.0421 13.6246	7.13333 0.88322 5.34207 8.92459	0

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Level		Least Sq Mean
1,2	A	40.391667
1,1	B	33.258333
0,2	C	30.358333
0,1	C	28.766667
1,0	C	28.558333
0,0	D	24.283333

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different sub-subplots within the same whole plot and subplot (e.g. aoboc₀ vs. aoboc₁).

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different subplots within the same whole plot and sub-subplot (e.g. aoboc₀ vs. aob₁c₀).

Standard error of the difference $s_{\bar{y}_1 - \bar{y}_2}$ for calculating the LSD for comparison of different whole plots with the same subplot and sub-subplot levels (e.g. aoboc₀ vs. a₁boc₀).

Levels not connected by same letter are significantly different.

A*B*C

LSMeans Differences Student's t

$\alpha=0.050$

LSMean[i] By LSMean[j]

Mean[i]-Mean[j] Std Err Dif Lower CL Dif Upper CL Dif	0,0,0	0,0,1	0,0,2	0,1,0	0,1,1	0,1,2	1,0,0	1,0,1	1,0,2	1,1,0	1,1,1	1,1,2	2,0,0	2,0,1	2,0,2	2,1,0	2,1,1	2,1,2
0,0,0	0 0 0 0	-4.875 1.52979 -7.9776 -1.7724	-6.925 1.52979 -10.028 -3.8224	-6.125 1.73521 -9.6684 -2.5816	-11.825 1.73521 -15.368 -8.2816	-19.025 1.73521 -22.568 -15.482	-1.925 1.95902 -5.9884 2.03843	-7.725 1.95902 -11.738 -3.7116	-8.75 1.95902 -12.763 -4.7366	-8.075 1.95902 -12.088 -4.0616	-9.825 1.95902 -13.838 -5.8116	-16.35 1.95902 -20.363 -12.337	1.8 1.95902 -2.2134 5.81343	-1.025 1.95902 -5.0384 2.98843	-2.725 1.95902 -6.7384 1.28843	1.2 1.95902 -2.8134 5.21343	-5.45 1.95902 -9.4634 -1.4366	-13.125 1.95902 -17.138 -9.1116
0,0,1	4.875 1.52979 1.77244 7.97756	0 1.52979 0 0	-2.05 1.52979 -5.1526 1.05256	-1.25 1.73521 -4.7934 2.29342	-6.95 1.73521 -10.493 -3.4066	-14.15 1.73521 -17.693 -10.607	2.9 1.95902 -1.1134 6.91343	-2.85 1.95902 -6.8634 1.16343	-3.875 1.95902 -7.8884 0.13843	-3.2 1.95902 -7.2134 0.81343	-4.95 1.95902 -8.9634 -0.9366	-11.475 1.95902 -15.488 -7.4616	6.675 1.95902 2.66157 10.6884	3.85 1.95902 -0.1634 7.86343	2.15 1.95902 -1.8634 6.16343	6.075 1.95902 2.06157 10.0884	-0.575 1.95902 -4.5884 3.43843	-8.25 1.95902 -12.263 -4.2366
0,0,2	6.925 1.52979 3.82244 10.0276	2.05 1.52979 -1.0526 5.15256	0 0 -2.7434 0	0.8 1.73521 -8.4434 4.34342	-4.9 1.73521 -8.4434 -1.3566	-12.1 1.73521 -15.643 -8.5566	4.95 1.95902 0.93657 8.96343	-0.8 1.95902 -4.8134 3.21343	-1.825 1.95902 -5.8384 2.18843	-1.15 1.95902 -5.1634 2.86343	-2.9 1.95902 -6.9134 1.11343	-9.425 1.95902 -13.438 -5.4116	8.725 1.95902 4.71157 12.7384	5.9 1.95902 1.88657 9.91343	4.2 1.95902 0.18657 8.21343	8.125 1.95902 4.11157 12.1384	1.475 1.95902 -2.5384 5.48843	-6.2 1.95902 -10.213 -2.1866
0,1,0	6.125 1.73521 2.58158 9.66842	1.25 1.73521 -2.2934 4.79342	-0.8 1.73521 -4.3434 2.74342	0 0 0 0	-5.7 1.52979 -8.8026 -2.5974	-12.9 1.52979 -16.003 -9.7974	4.15 1.95902 0.13657 8.16343	-1.6 1.95902 -5.6134 2.41343	-2.625 1.95902 -6.6384 1.38843	-1.95 1.95902 -5.9634 2.06343	-3.7 1.95902 -7.7134 0.31343	-10.225 1.95902 -14.238 -6.2116	7.925 1.95902 3.91157 11.9384	5.1 1.95902 1.08657 9.11343	3.4 1.95902 -0.6134 7.41343	7.325 1.95902 3.31157 11.3384	0.675 1.95902 -3.3384 4.68843	-7 1.95902 -11.013 -2.9866
0,1,1	11.825 1.73521 8.28158 15.3684	6.95 1.73521 3.40658 10.4934	4.9 1.73521 1.35658 8.44342	5.7 1.52979 2.59744 8.80256	0 0 0 0	-7.2 1.52979 -10.303 -4.0974	9.85 1.95902 5.83657 13.8634	4.1 1.95902 0.08657 8.11343	3.075 1.95902 -0.9384 7.08843	3.75 1.95902 -0.2634 7.76343	2 1.95902 -2.0134 6.01343	-4.525 1.95902 -8.5384 -0.5116	13.625 1.95902 9.61157 17.6384	10.8 1.95902 6.78657 14.8134	9.1 1.95902 5.08657 13.1134	13.025 1.95902 9.01157 17.0384	6.375 1.95902 2.36157 10.3884	-1.3 1.95902 -5.3134 2.71343

JMP Output for the REML Analysis of an RCBD with a Split-split Plot Arrangement

0,1,2	19.025 1.73521 15.4816 22.5684	14.15 1.73521 10.6066 17.6934	12.1 1.73521 8.55658 15.6434	12.9 1.52979 9.79744 16.0026	7.2 1.52979 4.09744 10.3026	0 0 0 0	17.05 1.95902 13.0366 21.0634	11.3 1.95902 7.28657 15.3134	10.275 1.95902 6.26157 14.2884	10.95 1.95902 6.93657 14.9634	9.2 1.95902 5.18657 13.2134	2.675 1.95902 6.68843 -4.3066	20.825 1.95902 16.8116 24.8384	18 1.95902 13.9866 22.0134	16.3 1.95902 12.2866 20.3134	20.225 1.95902 16.2116 24.2384	13.575 1.95902 9.56157 17.5884	5.9 1.95902 1.88657 9.91343
1,0,0	1.975 1.95902 -2.0384 5.98843	-2.9 1.95902 -6.9134 1.11343	-4.95 1.95902 -8.9634 -0.9366	-4.15 1.95902 -8.1634 -0.1366	-9.85 1.95902 -13.863 -5.8366	-17.05 1.95902 -21.063 -13.037	0 0 0 0	-5.75 1.52979 -8.8526 -2.6474	-6.775 1.52979 -9.8776 -3.6724	-6.1 1.73521 -9.6434 -2.5566	-7.85 1.73521 -11.393 -4.3066	-14.375 1.73521 -17.918 7.78843	3.775 1.95902 -0.2384 4.96343	0.95 1.95902 -3.0634 3.26343	-0.75 1.95902 -4.7634 0.8384	3.175 1.95902 -0.8384 7.18843	-3.475 1.95902 -7.4884 0.53843	-11.15 1.95902 -15.163 -7.1366
1,0,1	7.725 1.95902 3.71157 11.7384	2.85 1.95902 -1.1634 6.86343	0.8 1.95902 -3.2134 4.81343	1.6 1.95902 -2.4134 5.61343	-4.1 1.95902 -8.1134 -0.0866	-11.3 1.95902 -15.313 -7.2866	5.75 1.52979 2.64744 8.85256	0 0 0 0	-1.025 1.52979 -4.1276 2.07756	-0.35 1.73521 -3.8934 3.19342	-2.1 1.73521 -5.6434 1.44342	-8.625 1.73521 -12.168 -5.0816	9.525 1.95902 2.68657 10.7134	6.7 1.95902 0.98657 9.01343	5 1.95902 4.91157 12.9384	8.925 1.95902 -1.7384 6.28843	2.275 1.95902 -9.4134 -1.3866	-5.4 1.95902 -9.4134 -1.3866
1,0,2	8.75 1.95902 4.73657 12.7634	3.875 1.95902 -0.1384 7.88843	1.825 1.95902 -2.1884 5.83843	2.625 1.95902 -1.3884 6.63843	-3.075 1.95902 -7.0884 0.93843	-10.275 1.95902 -14.288 -6.2616	6.775 1.52979 3.67244 9.87756	1.025 1.52979 -2.0776 4.12756	0 0 0 0	0.675 1.73521 -2.8684 4.21842	-1.075 1.73521 -4.6184 2.46842	-7.6 1.95902 -11.143 -4.0566	10.55 1.95902 6.53657 14.5634	7.725 1.95902 3.71157 11.7384	6.025 1.95902 2.01157 10.0384	9.95 1.95902 5.93657 13.9634	3.3 1.95902 -0.7134 7.31343	-4.375 1.95902 -8.3884 -0.3616
1,1,0	8.075 1.95902 4.06157 12.0884	3.2 1.95902 -0.8134 7.21343	1.15 1.95902 -2.8634 5.16343	1.95 1.95902 -2.0634 5.96343	-3.75 1.95902 -7.7634 0.26343	-10.95 1.95902 -14.963 -6.9366	6.1 1.73521 2.55658 9.64342	0.35 1.73521 -3.1934 3.89342	-0.675 0 0 0	0 1.52979 -4.8526 1.35256	-1.75 1.52979 -11.378 -5.1724	9.875 1.95902 5.86157 13.8884	7.05 1.95902 3.03657 11.0634	5.35 1.95902 1.33657 9.36343	9.275 1.95902 5.26157 13.2884	2.625 1.95902 -1.3884 6.63843	-5.05 1.95902 -9.0634 -1.0366	-5.05 1.95902 -9.0634 -1.0366
1,1,1	9.825 1.95902 5.81157 13.8384	4.95 1.95902 0.93657 8.96343	2.9 1.95902 -1.1134 6.91343	3.7 1.95902 -0.3134 7.71343	-2 1.95902 -6.0134 2.01343	-9.2 1.95902 -13.213 -5.1866	7.85 1.73521 4.30658 11.3934	2.1 1.73521 -1.4434 5.64342	1.075 1.52979 -2.4684 4.61842	1.75 0 -1.3526 4.85256	0 0 0 0	-6.525 1.52979 7.61157 -3.4224	11.625 1.95902 4.78657 15.6384	8.8 1.95902 4.78657 12.8134	7.1 1.95902 3.08657 11.1134	11.025 1.95902 7.01157 15.0384	4.375 1.95902 0.36157 8.88843	-3.3 1.95902 -7.3134 0.71343
1,1,2	16.35 1.95902 12.3366 20.3634	11.475 1.95902 7.46157 15.4884	9.425 1.95902 5.41157 13.4384	10.225 1.95902 6.21157 14.2384	4.525 1.95902 0.51157 8.53843	-2.675 1.95902 -6.6884 1.33843	14.375 1.73521 10.8316 17.9184	8.625 1.73521 5.08158 12.1684	7.6 1.73521 4.05658 11.1434	8.275 1.52979 5.17244 11.3776	0 1.52979 3.42244 9.62756	0 0 0 0	18.15 1.95902 14.1366 22.1634	15.325 1.95902 11.3116 19.3384	13.625 1.95902 9.61157 17.6384	17.55 1.95902 13.5366 21.5634	10.9 1.95902 6.88657 14.9134	3.225 1.95902 -0.7884 7.23843
2,0,0	-1.8 1.95902 -5.8134 2.21343	-6.675 1.95902 -10.688 -2.6616	-8.725 1.95902 -12.738 -4.7116	-7.925 1.95902 -11.938 -3.9116	-13.625 1.95902 -17.638 -9.6116	-20.825 1.95902 -24.838 -16.812	-3.775 1.95902 -7.7884 0.23843	-9.525 1.95902 -13.538 -5.5116	-10.55 1.95902 -14.563 -6.5366	-9.875 1.95902 -13.888 -5.8616	-11.625 1.95902 -15.638 -7.6116	-18.15 1.95902 -22.163 -14.137	0 0 0 0	-2.825 1.52979 -5.9276 0.27756	-4.525 1.52979 -7.6276 -1.4224	-0.6 1.73521 -4.1434 2.94342	-7.25 1.73521 -10.793 -3.7066	-14.925 1.73521 -18.468 -11.382
2,0,1	1.025 1.95902 -2.9884 5.03843	-3.85 1.95902 -7.8634 0.16343	-5.9 1.95902 -9.9134 -1.8866	-5.1 1.95902 -9.1134 -1.0866	-10.8 1.95902 -14.813 -6.7866	-18 1.95902 -22.013 -13.987	-0.95 1.95902 -4.9634 3.06343	-6.7 1.95902 -10.713 -2.6866	-7.725 1.95902 -11.738 -3.7116	-7.05 1.95902 -11.063 -3.0366	-8.8 1.95902 -12.813 -4.7866	-15.325 1.95902 -19.338 -11.312	2.825 1.52979 -0.2776 5.92756	0 0 0 0	-1.7 1.52979 -4.8026 1.40256	2.225 1.73521 -1.3184 5.76842	-4.425 1.73521 -7.9684 -0.8816	-12.1 1.73521 -15.643 -8.5566
2,0,2	2.725 1.95902 -1.2884 6.73843	-2.15 1.95902 -6.1634 1.86343	-4.2 1.95902 -8.2134 -0.1866	-3.4 1.95902 -7.4134 0.61343	-9.1 1.95902 -13.113 -5.0866	-16.3 1.95902 -20.313 -12.287	0.75 1.95902 -3.2634 4.76343	-5 1.95902 -9.0134 -0.9866	-6.025 1.95902 -10.038 -2.0116	-5.35 1.95902 -9.3634 -1.3366	-7.1 1.95902 -11.113 -3.0866	-13.625 1.95902 -17.638 -9.6116	4.525 1.52979 1.42244 7.62756	1.7 1.52979 -1.4026 4.80256	0 0 0 0	3.925 1.73521 0.38158 7.46842	-2.725 1.73521 -6.2684 0.81842	-10.4 1.73521 -13.943 -6.8566
2,1,0	-1.2 1.95902 -5.2134 2.81343	-6.075 1.95902 -10.088 -2.0616	-8.125 1.95902 -12.138 -4.1116	-7.325 1.95902 -11.338 -3.3116	-13.025 1.95902 -17.038 -9.0116	-20.225 1.95902 -24.238 -16.212	-3.175 1.95902 -7.1884 0.83843	-8.925 1.95902 -12.938 -4.9116	-9.95 1.95902 -13.963 -5.9366	-9.275 1.95902 -13.288 -2.2616	-11.025 1.95902 -15.038 -7.0116	-17.55 1.95902 -21.563 -13.537	0.6 1.73521 -2.9434 4.14342	-2.225 1.73521 -5.7684 1.31842	-3.925 1.73521 -7.4684 -0.3816	0 0 0 0	-6.65 1.52979 -9.7526 -3.5474	-14.325 1.52979 -17.428 -11.222
2,1,1	5.45 1.95902 1.43657 9.46343	0.575 1.95902 -3.4384 4.58843	-1.475 1.95902 -5.4884 2.53843	-0.675 1.95902 -4.6884 3.33843	-6.375 1.95902 -10.388 -2.3616	-13.575 1.95902 -17.588 -9.5616	3.475 1.95902 -0.5384 7.48843	-2.275 1.95902 -6.2884 1.73843	-3.3 1.95902 -7.3134 0.71343	-2.625 1.95902 -6.6384 1.38843	-4.375 1.95902 -8.3884 -0.3616	-10.9 1.95902 -14.913 -6.8866	7.25 1.73521 3.70658 10.7934	4.425 1.73521 0.88158 9.79684	2.725 1.73521 -0.8184 6.26842	6.65 1.52979 3.54744 9.75256	0 0 0 0	-7.675 1.52979 -10.778 -4.5724
2,1,2	13.125 1.95902	8.25 1.95902	6.2 1.95902	7 1.95902	1.3 1.95902	-5.9 1.95902	11.15 1.95902	5.4 1.95902	4.375 1.95902	5.05 1.95902	3.3 1.95902	-3.225 1.95902	14.925 1.73521	12.1 1.73521	10.4 1.73521	14.325 1.52979	7.675 1.52979	0 0

JMP Output for the REML Analysis of an RCBD with a Split-split Plot Arrangement

	9.11157	4.23657	2.18657	2.98657	-2.7134	-9.9134	7.13657	1.38657	0.36157	1.03657	-0.7134	-7.2384	11.3816	8.55658	6.85658	11.2224	4.57244	0
	17.1384	12.2634	10.2134	11.0134	5.31343	-1.8866	15.1634	9.41343	8.38843	9.06343	7.31343	0.78843	18.4684	15.6434	13.9434	17.4276	10.7776	0

Level	Least Sq Mean
0,1,2 A	43.250000
1,1,2 A B	40.575000
2,1,2 B C	37.350000
0,1,1 C D	36.050000
1,1,1 C D E	34.050000
1,0,2 D E F	32.975000
1,1,0 D E F	32.300000
1,0,1 E F	31.950000
0,0,2 E F	31.150000
0,1,0 E F G	30.350000
2,1,1 F G H	29.675000
0,0,1 F G H I	29.100000
2,0,2 G H I J	26.950000
1,0,0 H I J K	26.200000
2,0,1 I J K	25.250000
0,0,0 J K	24.225000
2,1,0 K	23.025000
2,0,0 K	22.425000

Levels not connected by same letter are significantly different.