

APENDICE A. ANÁLISIS ESTADÍSTICO DE XANTOFILAS

Luteína

The ANOVA Procedure

Dependent Variable: Y (Concentración de luteína)

Source	DF	Sum of Squares	Mean Square	F Value	Pr >F
Model	24	1394.208545	58.092023	76.58	<.0001
Error	75	56.892272	0.758564		
Corrected Total	99	1451.100817			

R-Square	Coeff Var	Root MSE	Y Mean
0.960794	19.50906	0.870956	4.464364

Source	DF	Anova SS	Mean Square	F Value	Pr >F
VAR	24	1394.208545	58.092023	76.58	<.0001

Un valor de Pr inferior a 0.05 indica que hay diferencias significativas entre las variedades.

Tukey's Studentized Range (HSD) Test for Y			
Minimum	Significant	Difference	2.3394
Tukey Grouping	Mean	N	VAR
A	10.8720	4	5
A			
B A	10.6604	4	14
B A			
B A C	9.8010	4	3
B A C			
B A C	9.6173	4	4
B A C			
B A C	9.1485	4	1
B C			
B C	8.4395	4	2
B C			
D C	7.7195	4	17
D			
E D	5.7703	4	12
E D			
E D	5.5998	4	18
E D			
E D	5.5488	4	7
E			
E	5.2629	4	10
E			
E	4.6427	4	9
E			
E	4.4146	4	6
E			
E	4.2097	4	8
E			
E	4.0326	4	13
E			
E	3.5959	4	11
F			
F	0.5406	4	20
F			
F	0.4117	4	21

F	0.3966	4	24
F			
F	0.2878	4	25
F			
F	0.2042	4	23
F			
F	0.1853	4	22
F			
F	0.1570	4	19
F			
F	0.0906	4	15
F			
F	0.0000	4	16

Las muestras con letras iguales no tienen diferencias significativas entre si.

The GLM Procedure

Dependent Variable: Y (conteido de luteína)

Source	DF	Sum of Squares	Mean Square	F Value	Pr >F
Model	2	997.800512	498.900256	106.76	<.0001
Error	97	453.300305	4.673199		
Corrected Total	99	1451.100817			

R-Square	Coeff Var	Root MSE	Y Mean
0.687616	48.42254	2.161758	4.464364

Source	DF	Type I SS	Mean Square	F Value	Pr >F
COL	2	997.8005125	498.9002562	106.76	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr >F
COL	2	997.8005125	498.9002562	106.76	<.0001

Hay diferencias significativas en cuanto al color de las muestras

The GLM Procedure

Tukey's Studentized Range (HSD) Test for Y

NOTE: This test controls the Type I experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	97
Error Mean Square	4.673199
Critical Value of Studentized Range	3.36617

Comparisons significant at the 0.05 level are indicated by ***.

COL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits
1 - 3	6.5802	5.3486 7.8118 ***
1 - 2	6.5822	4.9635 8.2008 ***
3 - 1	-6.5802	-7.8118 -5.3486 ***
3 - 2	0.0020	-1.8172 1.8212
2 - 1	-6.5822	-8.2008 -4.9635 ***
2 - 3	-0.0020	-1.8212 1.8172

1= amarillas; 2= negras; 3= rojas

The GLM Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr >F
Model	1	1.080577	1.080577	0.07	0.7875
Error	98	1450.020240	14.796125		
Corrected Total	99	1451.100817			

R-Square	Coeff Var	Root MSE	Y Mean
0.000745	86.16173	3.846573	4.464364

Source	DF	Type I SS	Mean Square	F Value	Pr >F
AN	1	1.08057722	1.08057722	0.07	0.7875

Source	DF	Type III SS	Mean Square	F Value	Pr >F
AN	1	1.08057722	1.08057722	0.07	0.7875

The GLM Procedure

Tukey's Studentized Range (HSD) Test for Y

NOTE: This test controls the Type I experimentwise error rate, but it generally has a higher Type II error rate than REGWQ.

Alpha	0.05
Error Degrees of Freedom	98
Error Mean Square	14.79612
Critical Value of Studentized Range	2.80646
Minimum Significant Difference	1.7873
Harmonic Mean of Cell Sizes	36.48

NOTE: Cell sizes are not equal.

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	AN
A	4.6493	24	2
A	4.4059	76	3

2= cultivadas en 2002
3= cultivadas en 2003

No hay diferencias significativas en cuanto al año de cultivo

The GLM Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr >F
Model	1	368.264903	368.264903	33.33	<.0001
Error	98	1082.835914	11.049346		
Corrected Total	99	1451.100817			

R-Square	Coeff Var	Root MSE	Y Mean
0.253783	74.45754	3.324056	4.464364

Source	DF	Type I SS	Mean Square	F Value	Pr >F
HUM	1	368.2649032	368.2649032	33.33	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr >F
HUM	1	368.2649032	368.2649032	33.33	<.0001

Hay diferencias significativas dependiendo de la modalidad de riego

The GLM Procedure

Tukey's Studentized Range (HSD) Test for Y

NOTE: This test controls the Type I experimentwise error rate, but it generally has a higher

Type II error rate than REGWQ.

Alpha	0.05
Error Degrees of Freedom	98
Error Mean Square	11.04935
Critical Value of Studentized Range	2.80646
Minimum Significant Difference	1.3465
Harmonic Mean of Cell Sizes	48

NOTE: Cell sizes are not equal.

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	HUM
A	6.8147	40	1
B	2.8975	60	2

1= riego
2= temporal

Zeaxantina

Como el análisis de zeaxantina se hizo de la misma manera que el de luteína, solo se presentan los datos mas significativos.

The ANOVA Procedure

R-Square	Coeff Var	Root MSE	Y Mean
0.982876	19.60739	0.433937	2.213128

Source	DF	Anova SS	Mean Square	F Value	Pr >F
VAR	24	810.6063467	33.7752644	179.37	<.0001

Tukey's Studentized Range (HSD) Test for Y
Minimum Significant Difference 1.1655

Tukey Grouping	Mean	N	VAR
A	9.2878	4	4
A	9.1949	4	11
B	7.4333	4	1
B	6.5082	4	2
C	4.1605	4	7
C	3.9328	4	12

	D		2.5726	4	5
	D				
E	D		2.5275	4	10
E	D				
E	D	F	1.9575	4	3
E		F			
E	G	F	1.3697	4	14
	G	F			
H	G	F	1.0238	4	18
H	G	F			
H	G	F	1.0188	4	17
H	G	F			
H	G	F	0.9896	4	6
H	G	F			
H	G	F	0.9254	4	8
H	G	F			
H	G	F	0.8268	4	13
H	G				
H	G		0.6290	4	9
H	G				
H	G		0.3523	4	20
H					
H			0.1237	4	22
H					
H			0.1198	4	19
H					
H			0.1025	4	24
H					
H			0.1009	4	23
H					
H			0.0897	4	15
H					
H			0.0813	4	25
H					
H			0.0000	4	16
H					
H			0.0000	4	21

The GLM Procedure

R-Square	Coeff Var	Root MSE	Y Mean
0.302328	110.0497	2.435542	2.213128

Source	DF	Type I SS	Mean Square	F Value	Pr >F
COL	2	249.3382338	124.6691169	21.02	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr >F
COL	2	249.3382338	124.6691169	21.02	<.0001

COL Comparison	Difference Between Means	Simultaneous Confidence Limits	95% Confidence Limits
1 - 3	3.2763	1.8887	4.6639 ***
1 - 2	3.3162	1.4926	5.1399 ***
3 - 1	-3.2763	-4.6639	-1.8887 ***
3 - 2	0.0399	-2.0097	2.0896
2 - 1	-3.3162	-5.1399	-1.4926 ***
2 - 3	-0.0399	-2.0896	2.0097

The GLM Procedure

R-Square	Coeff Var	Root MSE	Y Mean
0.025750	129.3812	2.863372	2.213128

Source	DF	Type I SS	Mean Square	F Value	Pr >F
AN	1	21.23676580	21.23676580	2.59	0.1107
Source	DF	Type III SS	Mean Square	F Value	Pr >F
AN	1	21.23676580	21.23676580	2.59	0.1107

Tukey's Studentized Range (HSD) Test for Y

Minimum Significant Difference 1.3305

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	AN
A	3.0332	24	2
A	1.9542	76	3

The GLM Procedure

R-Square Coeff Var Root MSE Y Mean
0.527004 90.14981 1.995131 2.213128

Source	DF	Type I SS	Mean Square	F Value	Pr >F
HUM	1	434.6353224	434.6353224	109.19	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr >F
HUM	1	434.6353224	434.6353224	109.19	<.0001

Tukey's Studentized Range (HSD) Test for Y

Minimum Significant Difference 0.8082

Means with the same letter are not significantly different.

Tukey Grouping	Mean	N	HUM
A	4.7665	40	1
B	0.5109	60	2