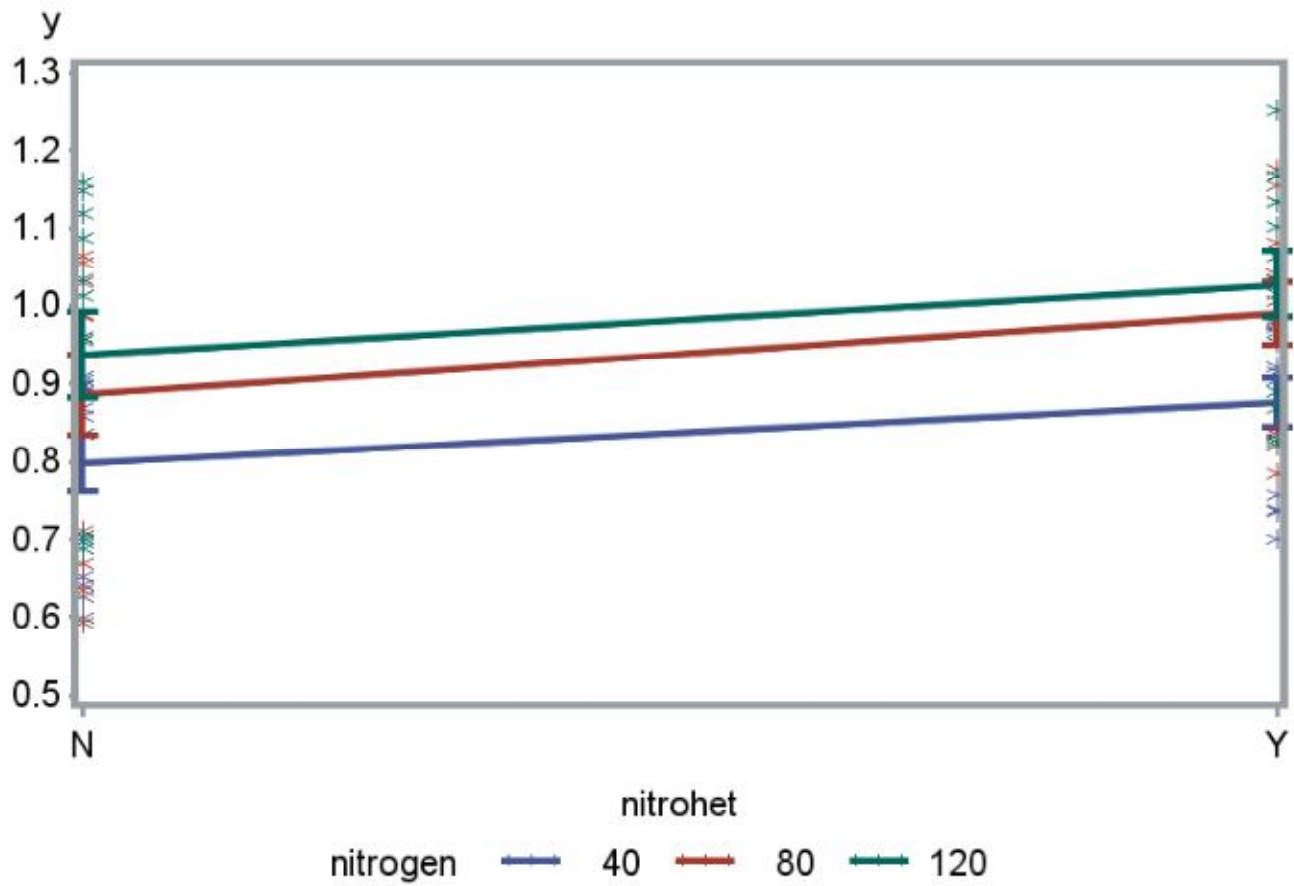


Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)

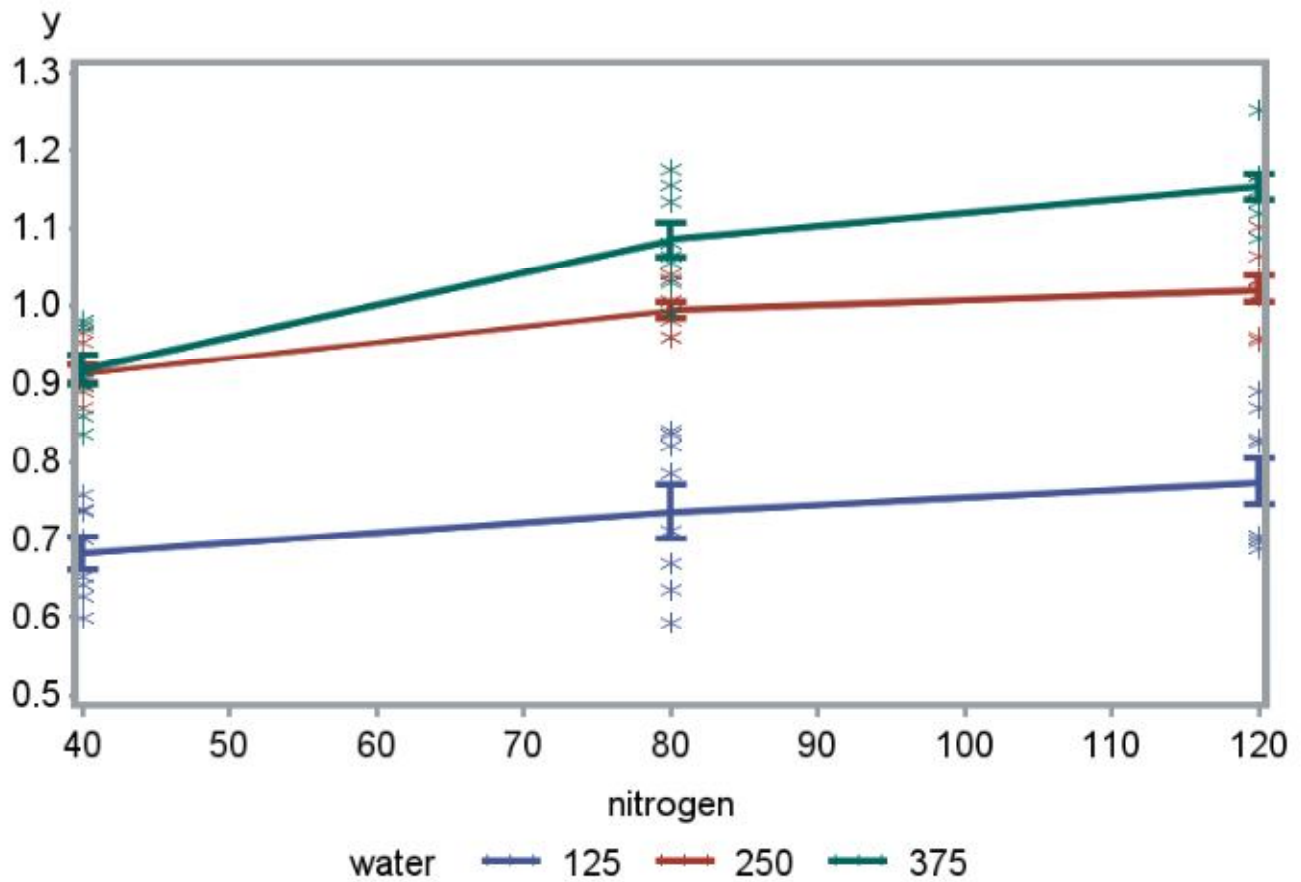
Obs	nitrohet	nitrogen	water	biomass	y
1	N	40	125	4.372	0.64068
2	N	40	125	4.482	0.65147
3	N	40	125	4.221	0.62542
4	N	40	125	3.977	0.59956
5	N	40	250	7.400	0.86923
6	N	40	250	8.027	0.90455
7	N	40	250	7.883	0.89669
8	N	40	250	7.769	0.89037
9	N	40	375	7.226	0.85890
10	N	40	375	8.126	0.90988
11	N	40	375	6.840	0.83506
12	N	40	375	7.901	0.89768
13	N	80	125	5.140	0.71096
14	N	80	125	3.913	0.59251
15	N	80	125	4.669	0.66922
16	N	80	125	4.306	0.63407
17	N	80	250	9.099	0.95899
18	N	80	250	9.711	0.98726
19	N	80	250	9.123	0.96014
20	N	80	250	9.709	0.98717
21	N	80	375	10.701	1.02942
22	N	80	375	11.552	1.06266
23	N	80	375	11.356	1.05523
24	N	80	375	9.759	0.98941
25	N	120	125	5.021	0.70079
26	N	120	125	4.970	0.69636
27	N	120	125	5.055	0.70372
28	N	120	125	4.862	0.68681
29	N	120	250	9.029	0.95564
30	N	120	250	10.791	1.03306
31	N	120	250	9.115	0.95976
32	N	120	250	10.319	1.01364
33	N	120	375	12.189	1.08597
34	N	120	375	14.381	1.15779
35	N	120	375	13.153	1.11902
36	N	120	375	14.066	1.14817
37	Y	40	125	5.458	0.73703
38	Y	40	125	5.017	0.70044
39	Y	40	125	5.479	0.73870

40	Y	40	125	5.714	0.75694
41	Y	40	250	8.972	0.95289
42	Y	40	250	9.234	0.96539
43	Y	40	250	8.032	0.90482
44	Y	40	250	8.372	0.92283
45	Y	40	375	9.464	0.97607
46	Y	40	375	9.563	0.98059
47	Y	40	375	9.385	0.97243
48	Y	40	375	8.226	0.91519
49	Y	80	125	6.616	0.82060
50	Y	80	125	6.909	0.83942
51	Y	80	125	6.851	0.83575
52	Y	80	125	6.098	0.78519
53	Y	80	250	10.792	1.03310
54	Y	80	250	10.164	1.00706
55	Y	80	250	10.947	1.03930
56	Y	80	250	9.582	0.98146
57	Y	80	375	14.936	1.17423
58	Y	80	375	13.607	1.13376
59	Y	80	375	14.231	1.15324
60	Y	80	375	12.038	1.08055
61	Y	120	125	7.389	0.86859
62	Y	120	125	6.683	0.82497
63	Y	120	125	7.759	0.88981
64	Y	120	125	6.752	0.82943
65	Y	120	250	10.731	1.03064
66	Y	120	250	12.640	1.10175
67	Y	120	250	10.350	1.01494
68	Y	120	250	11.550	1.06258
69	Y	120	375	14.697	1.16723
70	Y	120	375	17.826	1.25105
71	Y	120	375	14.711	1.16764
72	Y	120	375	13.614	1.13399

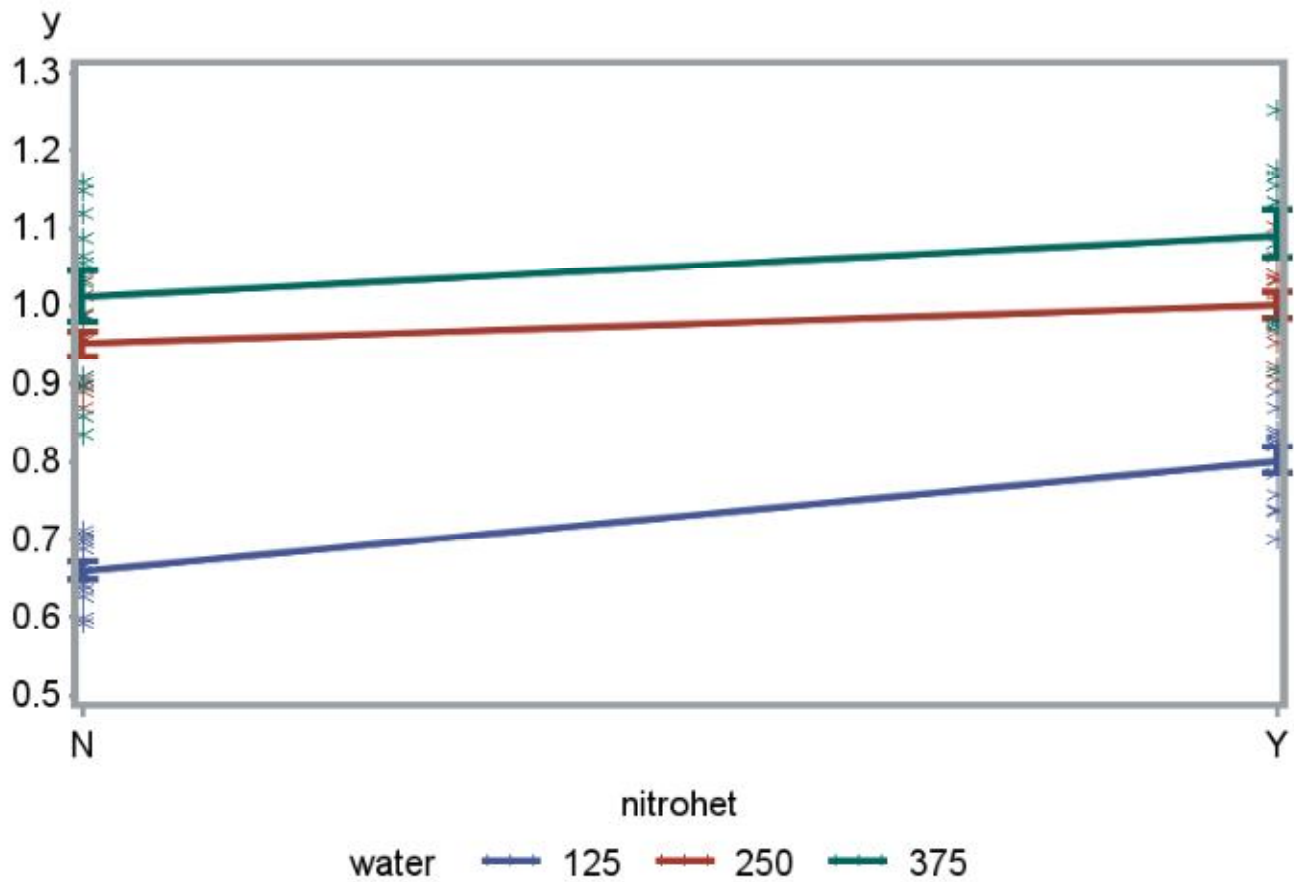
Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)



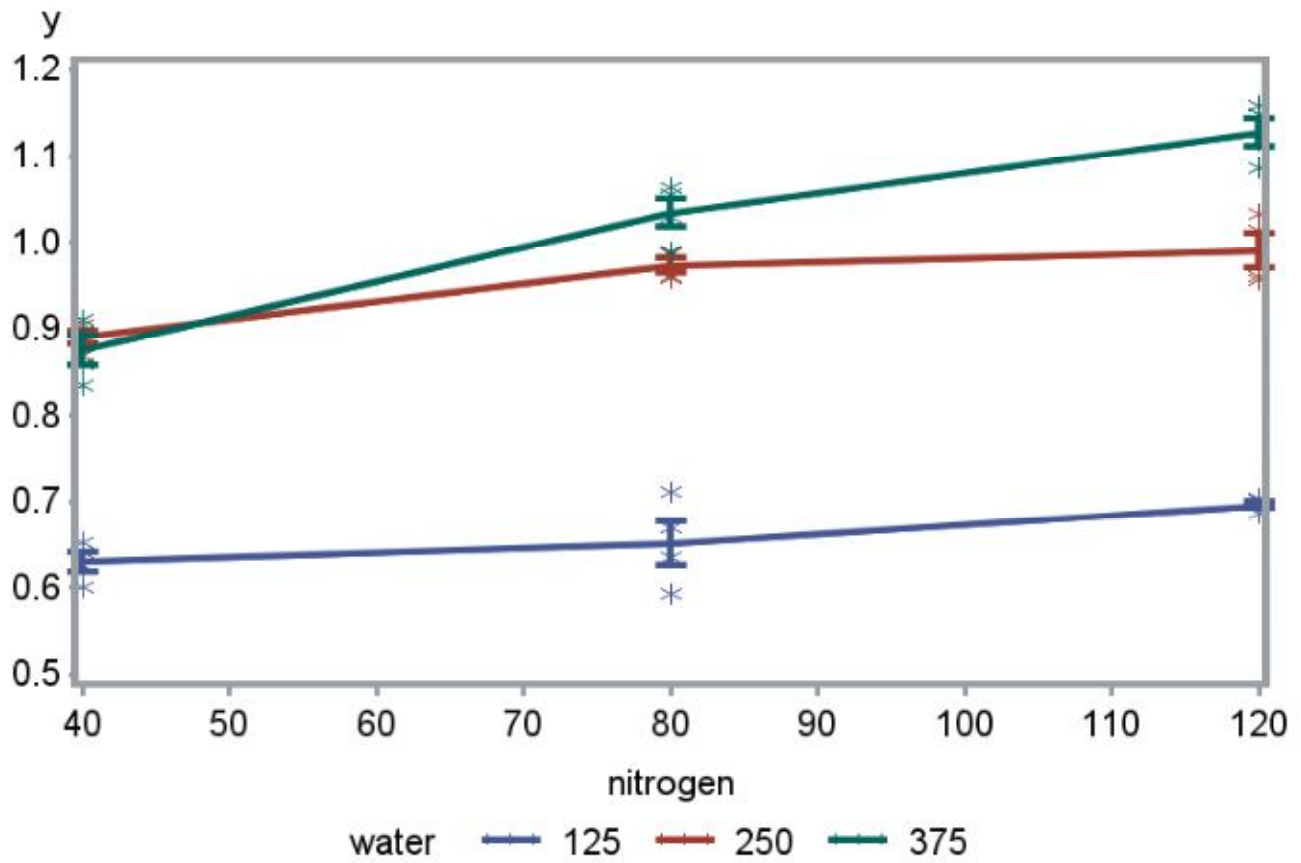
Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)



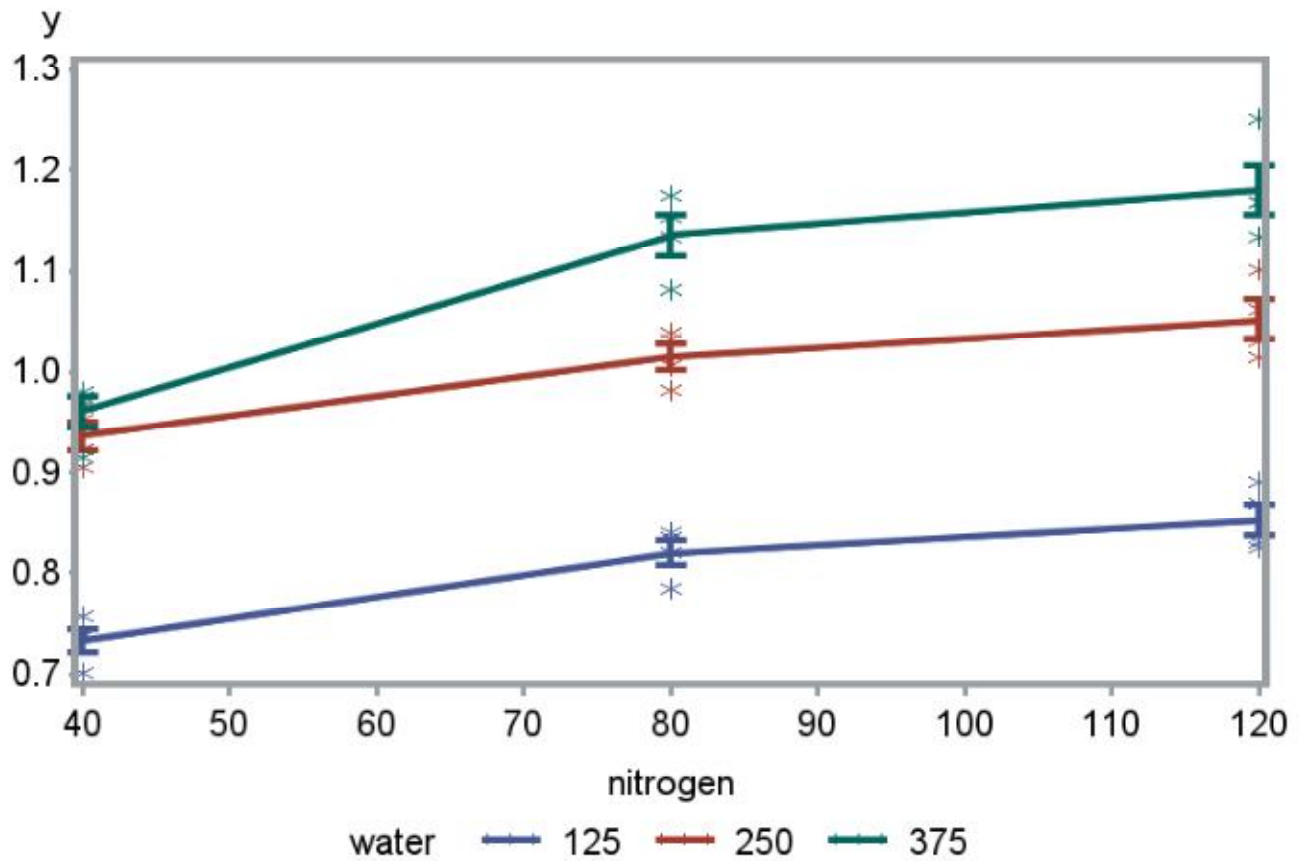
Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)



Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
nitrohet=N



Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
nitrohet=Y



**Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
MODEL WITH ALL FOUR INTERACTIONS**

The GLM Procedure

Class Level Information		
Class	Levels	Values
nitrohet	2	N Y
nitrogen	3	40 80 120
water	3	125 250 375

Number of Observations Read	72
Number of Observations Used	72

Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
MODEL WITH ALL FOUR INTERACTIONS

The GLM Procedure

Dependent Variable: y

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	17	1.86010971	0.10941822	106.05	<.0001
Error	54	0.05571723	0.00103180		
Corrected Total	71	1.91582694			

R-Square	Coeff Var	Root MSE	y Mean
0.970917	3.492176	0.032122	0.919818

Source	DF	Type II SS	Mean Square	F Value	Pr > F
nitrohet	1	0.14872636	0.14872636	144.14	<.0001
nitrogen	2	0.26766625	0.13383312	129.71	<.0001
nitrohet*nitrogen	2	0.00191433	0.00095717	0.93	0.4017
water	2	1.35577897	0.67788949	657.00	<.0001
nitrohet*water	2	0.02702407	0.01351204	13.10	<.0001
nitrogen*water	4	0.05325694	0.01331423	12.90	<.0001
nitroh*nitroge*water	4	0.00574279	0.00143570	1.39	0.2492

Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
MODEL WITH ONLY SIGNIFICANT INTERACTIONS

The GLM Procedure

Class Level Information		
Class	Levels	Values
nitrohet	2	N Y
nitrogen	3	40 80 120
water	3	125 250 375

Number of Observations Read	72
Number of Observations Used	72

Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
MODEL WITH ONLY SIGNIFICANT INTERACTIONS

The GLM Procedure

Dependent Variable: y

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	11	1.85245259	0.16840478	159.44	<.0001
Error	60	0.06337435	0.00105624		
Corrected Total	71	1.91582694			

R-Square	Coeff Var	Root MSE	y Mean
0.966921	3.533291	0.032500	0.919818

Source	DF	Type II SS	Mean Square	F Value	Pr > F
nitrohet	1	0.14872636	0.14872636	140.81	<.0001
nitrogen	2	0.26766625	0.13383312	126.71	<.0001
water	2	1.35577897	0.67788949	641.80	<.0001
nitrohet*water	2	0.02702407	0.01351204	12.79	<.0001
nitrogen*water	4	0.05325694	0.01331423	12.61	<.0001

Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
MODEL WITH ONLY SIGNIFICANT INTERACTIONS

The GLM Procedure
Least Squares Means

nitrohet	water	y LSMEAN
N	125	0.65929804
N	250	0.95137559
N	375	1.01243148
Y	125	0.80223888
Y	250	1.00139663
Y	375	1.09216574

Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
MODEL WITH ONLY SIGNIFICANT INTERACTIONS

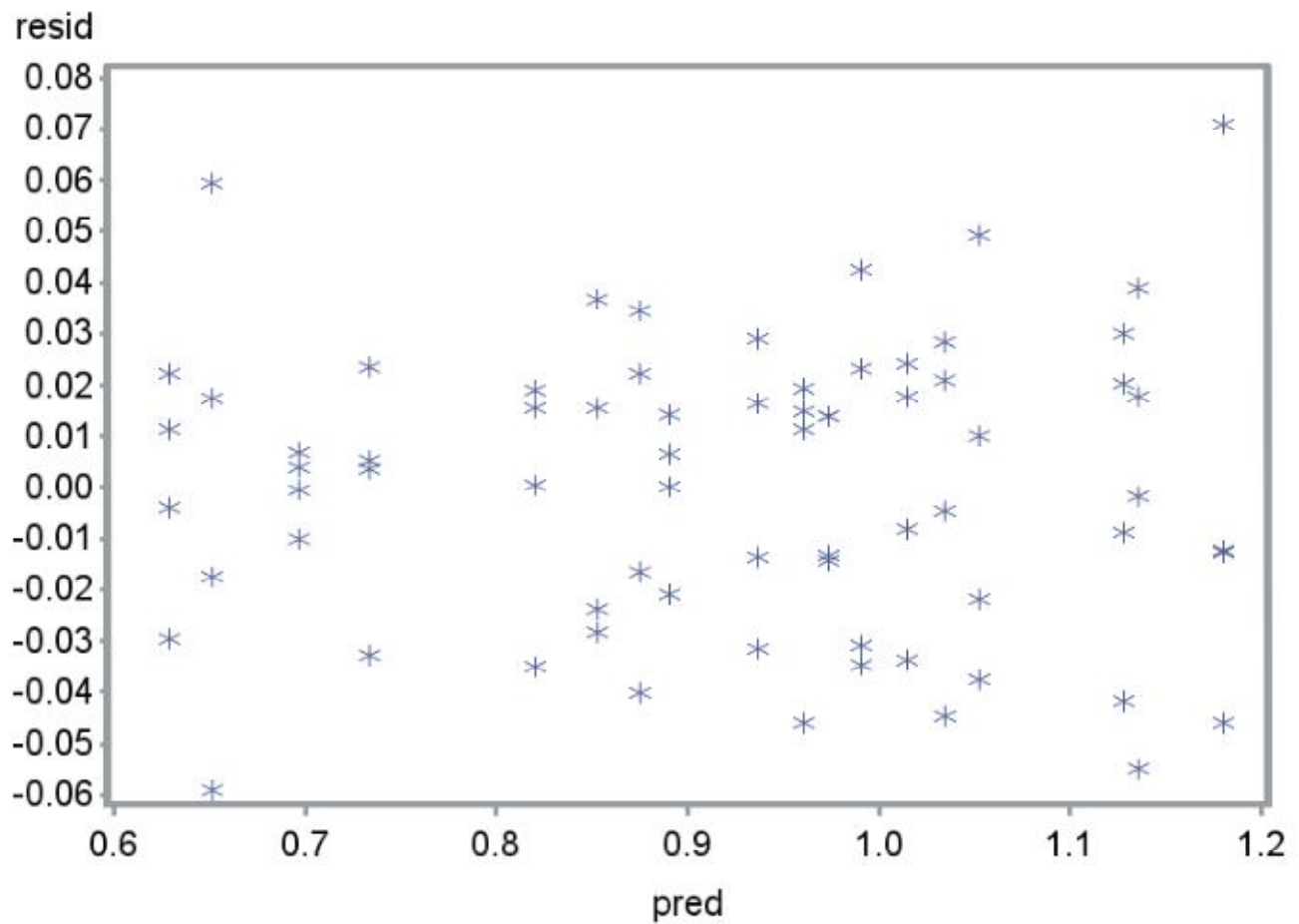
The GLM Procedure
Least Squares Means

nitrohet*water Effect Sliced by water for y					
water	DF	Sum of Squares	Mean Square	F Value	Pr > F
125	1	0.122592	0.122592	116.07	<.0001
250	1	0.015013	0.015013	14.21	0.0004
375	1	0.038145	0.038145	36.11	<.0001

Three-way ANOVA for biomass
Data from Maestre and Reynolds (2007)
MODEL WITH ONLY SIGNIFICANT INTERACTIONS

The GLM Procedure
Least Squares Means

nitrohet*water Effect Sliced by nitrohet for y					
nitrohet	DF	Sum of Squares	Mean Square	F Value	Pr > F
N	2	0.854961	0.427481	404.72	<.0001
Y	2	0.527842	0.263921	249.87	<.0001

Diagnostic plots to check anova assumptions

The UNIVARIATE Procedure

Diagnostic plots to check anova assumptions

