```sas
DATA CRUZADO;
INPUT
CULTIVAR$   ADUBO$      REP   RESP;
CARDS;
A     X     1     100
A     Y     1     120
A     Z     1     140
B     X     1     70
B     Y     1     80
B     Z     1     90
C     X     1     140
C     Y     1     150
C     Z     1     160
D     X     1     120
D     Y     1     130
D     Z     1     140
A     X     2     105
A     Y     2     110
A     Z     2     120
B     X     2     80
B     Y     2     90
B     Z     2     95
C     X     2     145
C     Y     2     160
C     Z     2     170
D     X     2     130
D     Y     2     135
D     Z     2     150

;
PROC GLM;
CLASS CULTIVAR ADUBO;
MODEL RESP = CULTIVAR ADUBO CULTIVAR*ADUBO;
MEANS CULTIVAR ADUBO/ T LINES;
LSMEANS CULTIVAR*ADUBO/SLICE= CULTIVAR;
LSMEANS CULTIVAR*ADUBO/ADJUST=T LINES;
RUN;
```

Class	Levels	Values
CULTIVAR	4	A B C D
ADUBO	3	X Y Z

Number of Observations Read   24
Number of Observations Used   24

```
                       Dependent Variable: RESP

                              Sum oF
Source                 DF     Squares    Mean Square    F Value    Pr > F

Model                  11   17895.83333    1626.89394     32.54    <.0001

 Error                 12     600.00000      50.00000

 Corrected Total       23   18495.83333


                 R-Square    Coeff Var    Root MSE    RESP Mean

                 0.967560     5.792001    7.071068     122.0833

    Source             DF     Type I SS    Mean Square    F Value    Pr > F

CULTIVAR               3   15912.50000    5304.16667     106.08    <.0001
ADUBO                  2    1914.58333     957.29167      19.15    0.0002
CULTIVAR*ADUBO         6      68.75000      11.45833       0.23    0.9591


    Source             DF    Type III SS   Mean Square    F Value    Pr > F

 CULTIVAR              3   15912.50000    5304.16667     106.08    <.0001
 ADUBO                 2    1914.58333     957.29167      19.15    0.0002
 CULTIVAR*ADUBO        6      68.75000      11.45833       0.23    0.9591

                                  The SAS System        12:47 Sunday,
February 21, 2016  24
                            t Tests (LSD) for RESP
```

  NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise
error rate.

```
                        Alpha                        0.05
                        Error Degrees of Freedom       12
                        Error Mean Square              50
                        Critical Value of t       2.17881
                        Least Significant Difference  8.895
```

     Means with the same letter are not significantly different.

```
              t Grouping        Mean     N    CULTIVAR

                     A        154.167     6    C

                     B        134.167     6    D

                     C        115.833     6    A

                     D         84.167     6    B
```

```
                           t Tests (LSD) for RESP


     NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise
     error rate.



                         Alpha                        0.05
                         Error Degrees of Freedom       12
                         Error Mean Square              50
                         Critical Value of t       2.17881
                         Least Significant Difference  7.7033



                 Means with the same letter are not significantly different.


              t Grouping            Mean       N     ADUBO


                      A           133.125      8     Z


                      B           121.875      8     Y


                      C           111.250      8     X



                  CULTIVAR     ADUBO     RESP LSMEAN

                     A           X       102.500000
                     A           Y       115.000000
                     A           Z       130.000000
                     B           X        75.000000
                     B           Y        85.000000
                     B           Z        92.500000
                     C           X       142.500000
                     C           Y       155.000000
                     C           Z       165.000000
                     D           X       125.000000
                     D           Y       132.500000

                  CULTIVAR*ADUBO Effect Sliced by CULTIVAR for RESP


                               Sum of
          CULTIVAR      DF      Squares     Mean Square    F Value    Pr > F

          A             2     758.333333    379.166667       7.58     0.0074
          B             2     308.333333    154.166667       3.08     0.0831
          C             2     508.333333    254.166667       5.08     0.0252
          D             2     408.333333    204.166667       4.08     0.0444
```

T Comparison Lines for Least Squares Means of CULTIVAR*ADUBO

LS-means with the same letter are not significantly different.

			RESP LSMEAN	CULTIVAR	ADUBO	LSMEAN Number
	A		165.0	C	Z	9
	A					
B	A		155.0	C	Y	8
B						
B	C		145.0	D	Z	12
B	C					
B	C		142.5	C	X	7
	C					
D	C		132.5	D	Y	11
D	C					
D	C	E	130.0	A	Z	3
D		E				
D		E	125.0	D	X	10
		E				
	F	E	115.0	A	Y	2
	F					
G	F		102.5	A	X	1
G						
G	H		92.5	B	Z	6
	H					
I	H		85.0	B	Y	5
I						
I			75.0	B	X	4

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.