Statistical Analysis Step-by-Step Using Statistical Calculator for Heritability

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Methodology

We follow the steps described below to get the data analyzed and finding its outputs:

Step 1: Type www.psbvb.in in any browser that will open the following web page:

Step 2: Then click on Statistical Analysis which will open the page given below:

Step 3: There are number of items on the statistical calculator. You can click on any one of them according to your need, for example, click on Heritability.

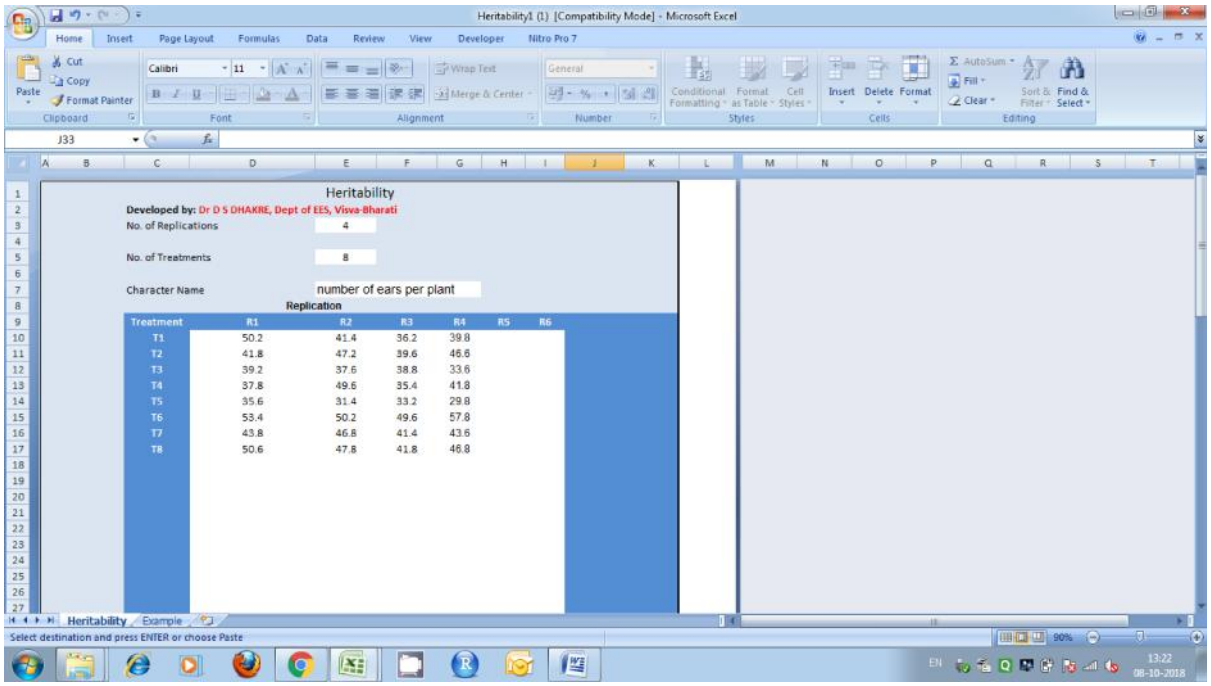
Step 4: Then click on Statistical Calculator and then that will download the statistical calculator of Heritability within a second. You can keep it in your computer or laptop forever. Next, you click on the downloaded file which is an excel file, a data

spreadsheet will open up. Here you can analyse upto 23 number of treatments with upto 6 number of replications. Now you can enter your data directly in the given spreadsheet or copy from other sheet and paste it here.

Example 3.4: In a replicated trial (r=4), eight verities of barley were tested (Chaudhary, 1973) and the observations were recorded on number of ears per plant. Carry out the Heritability and genetic advance for data.

Varieties	Replications			
1	50.2	41.4	36.2	39.8
2	41.8	47.2	39.6	46.6
3	39.2	37.6	38.8	33.6
4	37.8	49.6	35.4	41.8
5	35.6	31.4	33.2	29.8
6	53.4	50.2	49.6	57.8
7	43.8	46.8	41.4	43.6
8	50.6	47.8	41.8	46.8

Step 5: Put Number of Replications =4, Number of Tretments =8 and Name of the Variable = number of ears per plant in the following page.



Step 6: Now you click on the print command, then that command will start analysis and produces the results in a printable format. If a printer is attached to computer

then you can take a print out of the results. Otherwise, you can see your result in a print preview mode. See the page below:

Output

ANOVA for number of ears per plant

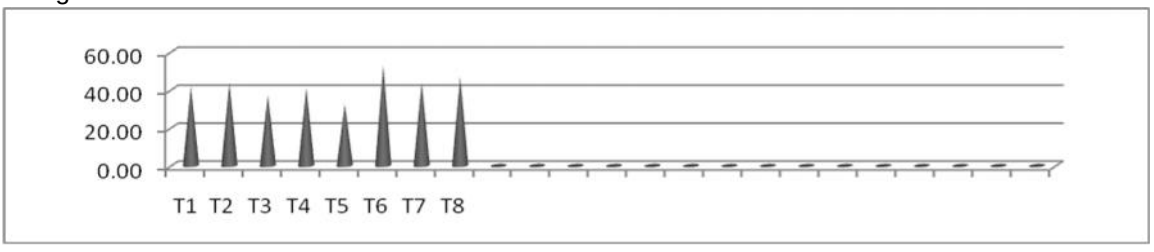
Source of variation	DF	SS	MS	F- value	p-value
Treatments	7	1023.99	146.28	10.60	0.000**
Replications	3	109.22	36.41	2.64	0.076
Error	21	289.75	13.80		

** Significant at the 0.01 level

Grand total	1360.20	Root MSE	3.71
SE(m)	1.86	Grand Mean	42.51
SE(d)	2.63	Coefficient Variation	8.74%
Critical Difference	5.46	R Square	0.80

Environment variance	13.80
Genotypic varience	33.12
Phenotypic varience	46.92
Phenotypic Coefficient of Variation (PCV)	16.11%
Genotypic Coefficient of Variation (GCV)	13.54%
Heritability (h^2)=	70.59%
Genetic Advance (GA) at 1%	12.8
Genetic Advance (GA) at 5%	10.0
Genetic Advance (GA) at 10%	8.5
Genatic Advance as percentage over Mean (GAM) 1%	30.03%
Genatic Advance as percentage over Mean (GAM) 5%	23.43%
Genatic Advance as percentage over Mean (GAM) 10%	20.02%
Max	29.80
Min	57.80
Range	28.00

Treatment	Mean
T1	41.90
T2	43.80
T3	37.30
T4	41.15
T5	32.50
T6	52.75
T7	43.90
T8	46.75



References

1. Microsoft Excel-Microsoft Corporations, One Microsoft Way Redmond, WA 98052-6399
2. A Hand Book of Agricultural Statistics, S. R. S. Chandel, Achal Prakashan Mandir, Kanpur.
3. Biometrical Methods in Quantitative Genetic Analysis, R.K. Singh and B. D. Chaudhary, Kalyani Publishers.