Experiment No. 4

Observing Bee Behaviour

Question: Do bees choose flowers randomly, irrespective of their colour? (Given density and size are the same for all colours)

- The flower patch that we observed was the big flower patch at the T-junction.
- The flowers that we observed were of three different colours: Yellow, Cream and White.
- The flowers were all of the same size and roughly the same density.
- The method we used to test our hypothesis was the Focal Animal method i.e; we followed a bee and noted down the amount of time it spent on each flower it visited.
- We followed 11 bees, for a total time of 29mins and 19 seconds.

Data Collected:

YELLOW	WHITE	CREAM
10	1	6
2	4	6
14	19	11
3	5	3
7	7	6
4	16	4
4	5	3
17	12	4
7	7	8
7	19	
12	26	
35	3	**AVG= 5.1s**
25	4	
14	7	
8	9	
19	4	
30	98	
3	3	
4	12	
12	28	
4	11	
	15	
	35	
AVG= 11.48s	21	
	37	
	19	
	3	
	5	
	9	
	6	
	35	
	29	
	11	
	AVG= 15.91s	

Analysis of the data:

- Null Hypothesis 1: Bees choose between yellow and white flowers randomly.

TTEST: The t-test value given below was calculated using the TTEST() function of LibreOffice Writer.
The t-test performed was a two-tailed, heteroscedastic test (unequal variance).

Ttest value: 0.240458675
Table value (df=50, α=0.05): 1.676

Conclusion: Since the table value> calculated value, the null hypothesis holds.

- Null Hypothesis 2: Bees choose between yellow and cream flowers randomly.

TTEST: The t-test value given below was calculated using the TTEST() function of LibreOffice Writer.
The t-test performed was a two-tailed, heteroscedastic test (unequal variance).

Ttest value: 0.013708603
Table value (df=28, α=0.05): 1.701

Conclusion: Since the table value> calculated value, the null hypothesis holds.

- Null Hypothesis 3: Bees choose between cream and white flowers randomly.

TTEST: The t-test value given below was calculated using the TTEST() function of LibreOffice Writer.
The t-test performed was a two-tailed, heteroscedastic test (unequal variance).

Ttest value: 0.003304413
Table value (df=40, α=0.05): 1.684

Conclusion: Since the table value> calculated value, the null hypothesis holds.