Batch	Agent1	Agent2
1	7.7	8.5
2	9.2	9.6
3	6.8	6.4
4	9.5	9.8
5	8.7	9.3
6	6.9	7.6
7	7.5	8.2
8	7.1	7.7
9	8.7	9.4
10	9.4	8.9
11	9.4	9.7
12	8.1	9.1

t-Test: Paired Two Sample for Means

	Agent1	*Agent2*
Mean	8.25	8.683333333
Variance	1.059090909	1.077878788
Observations	12	12
Pearson Correlation	0.901055812	
Hypothesized Mean Difference	0	
df	11	
t Stat	-3.263938591	
P(T<=t) one-tail	0.003772997	
t Critical one-tail	1.795884819	
P(T<=t) two-tail	0.007545995	
t Critical two-tail	2.20098516	

Difference in Means	-0.433333333

Findings

The sample mean numbers of filtration for agent 1 and 2 were, respectively 8.25 and 8.68. The data therefore constitute significant evidence that the underlying mean number of impurity was fewer for Agent 1, by an estimated 8.25 - 8.68 = -0.43 per batch. The results suggest that Agent 1 should be preferred.

we would have found the difference in sample means to be consistent with the null hypothesis that the population mean impurity for agent 2 was no greater than that for agent 1. We would thus have declared the result to be not significant without even bothering to inspect the p-value.