T test and Wilcoxon

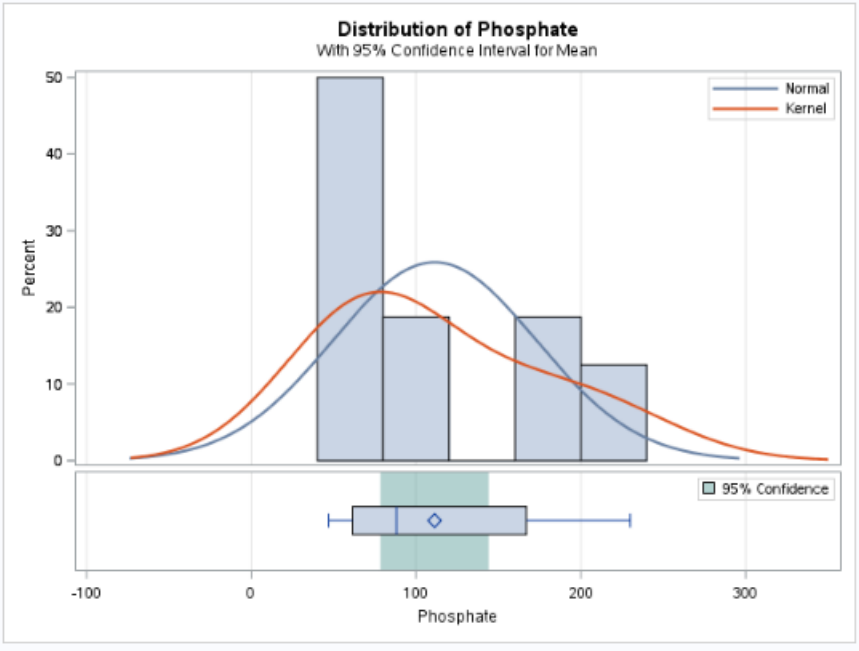
```
DATA LIST;
INPUT Breed $ Calicium @@ Phosphate@@ ;
Datalines;
ChesterWhite 116 47 ChesterWhite 112 48 ChesterWhite 82 57 ChesterWhite 63 75 ChesterWhite 117 65 ChesterWhite 69 99 ChesterWhite 79 97 ChesterWhite 87 110
Hamphire 62 230 Hamphire 59 182 Hamphire 80 162 Hamphire 105 78 Hamphire 60 220 Hamphire 71 172 Hamphire 103 79 Hamphire 100 58
;

PROC TTEST DATA = List alpha = 0.05;
VAR Phosphate;
RUN;

PROC NPAR1WAY DATA=LIST WILCOXON alpha=0.05;
CLASS Breed;
VAR Phosphate;
EXACT WILCOXON;
RUN;
```

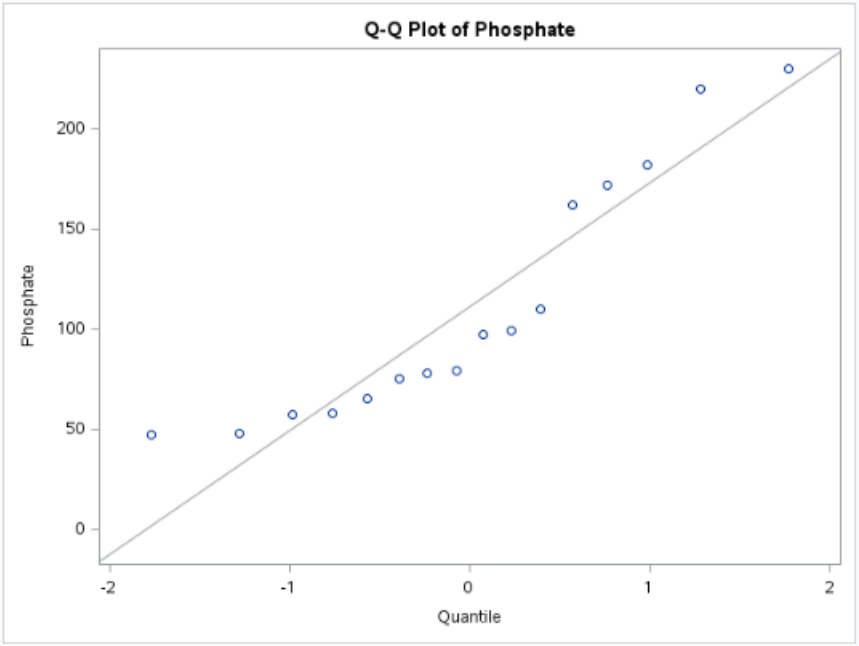
The TTEST Procedure
Variable: Phosphate

N	Mean	Std Dev	Std Err	Minimum	Maximum
16	111.2	61.6768	15.4192	47.0000	230.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
111.2	78.3222	144.1	61.6768	45.5610	95.4567

DF	t Value	Pr > |t|
15	7.21	<.0001



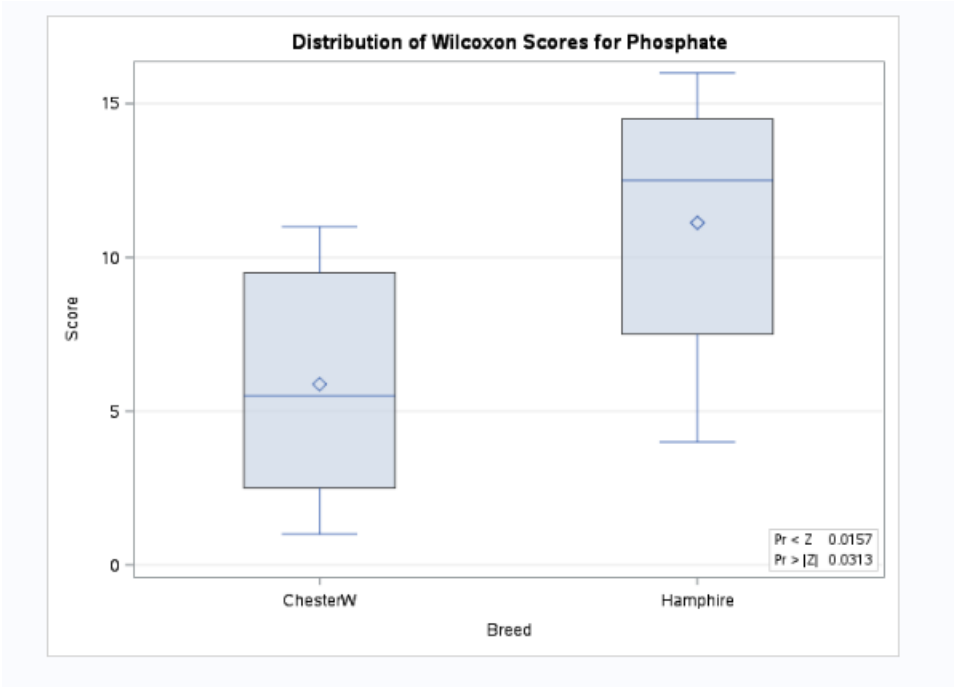


The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Phosphate Classified by Variable Breed					
Breed	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
ChesterW	8	47.0	68.0	9.521905	5.8750
Hamphire	8	89.0	68.0	9.521905	11.1250

Wilcoxon Two-Sample Test	
Statistic (S)	47.0000
Normal Approximation	
Z	-2.1529
One-Sided Pr < Z	0.0157
Two-Sided Pr > |Z|	0.0313
t Approximation	
One-Sided Pr < Z	0.0240
Two-Sided Pr > |Z|	0.0480
Exact Test	
One-Sided Pr <= S	0.0141
Two-Sided Pr >= |S - Mean|	0.0281
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	4.8640
DF	1
Pr > Chi-Square	0.0274



Null hypothesis H0 : no difference in the phosphate level between the two breeds

Alternative hypothesis Ha: difference in the phosphate level between the two breeds

reject to null hypothesis because I had a p value from the tests 0.0141 < alpha (0.05)