

Dec 1944

### Phenothiazine Experiment

Winches Farm  $\frac{1}{4}$  lb weights, eliminating first weight and prior egg counts

	d.f.	SS.	M.S.
Error	13	3904.68	300.36
Dosage	6	5112.50	852.08
T.v.D	6	4978.94	829.82

It appears that the estimate of error is too small, and the high significance of treatment effects partly fictitious.

(1) Adjusted average weight by treatment

Treatment g.	Treated 4 sheep lb per sheep in $\frac{1}{4}$ lb.		Excesses over controls
0	1010.16	63.135	-
5	1024.14	64.009	.874
10	1076.08	67.255	4.220
20	1196.06	74.754	11.619
30	1058.91	66.182	3.047
40	1134.93	70.933	7.798
50	1010.74	63.171	.036

The standard error estimated from 13 d.f. for the mean of 4 sheep is only 2.166 lb. The variation in response, e.g., between 20 g. and 30 g. must be due to other causes not adequately represented in the estimate of error. The fact that the control sheep are in fact the worst, and that those having 10 to 40 g. all stand high in the series, strongly suggests a *response* curve with a maximum about 25 g.

(ii) The contrast Tablets v. Drench is also associated with large variation in weight after allowance has been made for both initial weight and initial infestation. The six available <sup>trials</sup> ~~constants~~ are

Treatment	Drench - Tablets	Lb per sheep
5	-70.45	-8.806
10	+18.37	+2.296
20	-42.06	-5.258
30	+46.97	+5.871
40	+54.04	+6.755
50	+12.05	+1.506

These values are too irregular to be compatible with a standard error of only 3 lb. In addition they show no correspondence with the apparent effects of dosage, so that the main component of the contrast Drench v. Tablets is entirely insignificant. All these differences are apparently of random origin, and their magnitude should make us cautious in attaching significance to the apparent effects of dosage.