

3rd November 1933.

Buchanan Smith Esq.,  
Institute of Animal Genetics,  
King's Buildings,  
West Mains Road,  
Edinburgh.

Dear Buchanan Smith,

It is odd that the bulls giving the highest milk-yielders, should also give the greatest variability among them, but I think the point you make in your fourth paragraph that the S.D. measured in gallons, may not be comparable at all yields should be cleared up before you can feel very sure about drawing any inference respecting dominance. It is difficult to find any good criterion for making an allowance, but in your experience I suppose you now have a number of herds with somewhat different mean yields, and the variance between whole sisters in these herds. One could test if the regression of S.D. on yield was higher among your tested bulls than it is between different herds. Alternatively, using your bull data, you could test if the coefficient of variance also increased with mean yields. This, I should guess almost certainly would be an over correction, so that if any significant positive effect remained it would be all the more convincing.

A complete recessive greatly increasing the milk-yield would be an unexpected find, as one would expect the habit of breeding from high yielding cows to drive out the dominant rather rapidly.

Yours sincerely,