

November 1, 1937 .

Dear Mr Lyle,

I have your letter of October 29th, and know a certain number of cases in which a difficulty analogous to yours has arisen.

One must remember that in each case one is making a comparison, e.g., if one made up an animal ration in the way you first suggest, one is comparing in respect of any one ingredient a lighter ration with less of that ingredient with a more bulky ration containing a lb more of this substance. Experimentally it would be perfectly ^{proper} to use this comparison, e.g., so much cotton cake against nothing, but the physiological interpretation of the results might be complicated by the consideration that the rations ~~applied~~ ^{differe}d, therefore, not only in respect of the total quantities of nutriment contained in the cotton cake, but also in the total bulk of the ration supplied.

Again, if you decided to eliminate the filling quality of the ration by keeping up to the total dry weight by the addition of hay, your ~~ana~~ comparison would be cotton cake y. hay, and the analysis outlined in my book would again be perfectly applicable on the understanding that

the results were interpreted as due to the substitution of one ingredient for another, and not ascribed as absolutely due to any one ingredient. I have only known the difficulty you mention become at all acute in the case of water culture formulae, where it is sometimes desirable to compare solutions containing different concentrations of nutrients but having the same osmotic pressure. Some ingenuity in the choice of chemical substitutes is required in this case.

Yours sincerely,