

**EXPERIMENTAL AGRICULTURE;
BEING THE RESULTS OF PAST,
AND SUGGESTIONS FOR FUTURE
EXPERIMENTS IN SCIENTIFIC AND
PRACTICAL AGRICULTURE**

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Experimental agriculture; being the results of past, and suggestions for future experiments in scientific and practical agriculture by James F. W. Johnston

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JAMES F. W. JOHNSTON

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Halyburton*

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THE RESULTS OF PAST, AND
SUGGESTIONS FOR FUTURE EXPERIMENTS

IN

SCIENTIFIC AND PRACTICAL AGRICULTURE

BY

JAMES F. W. JOHNSTON

F.R.S.S.L. & E., &c. &c.

"No man ought to be discouraged if the experiments he puts in practice answer not his expectations; for what succeeds pleases more, but what succeeds not, many times informs no less."—HACON.

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INTRODUCTION.

WHEN, about eight years ago, my attention was first closely directed to scientific agriculture, I was surprised to find in agricultural works so few rigorous experimental data on which to base safe opinions of my own, or by which to test the published opinions of others. With the view of gradually collecting a body of such data, therefore, I published several series of *Suggestions for experiments in practical agriculture*, both in a separate form and as an Appendix to the first edition of my published *Lectures on Agricultural Chemistry and Geology*. These suggestions attracted considerable attention on the part both of individuals and of societies. Many skilful practical men, among whom I ought to distinguish Mr Fleming, of Barochan, in Renfrewshire, undertook field experiments at their own cost and on their own land. The Royal Agricultural Society of England, also, and the Highland and Agricultural Society of Scotland, offered premiums for such experiments, and their example was followed by several local societies, such as that of Turiff in Aberdeenshire, of Strathmore in Forfarshire, and of Guildford in

Surrey. The consequence of this has been the publication from time to time, and especially in the *Transactions of the Highland and Agricultural Society of Scotland*, of the results of numerous experiments with saline and other substances applied to different crops, in soils of nearly all varieties, and upon many geological formations.

These experiments, however, are often contradictory in their results, often incorrectly or carelessly made, and occasionally exhibit, when criticised, evidences of total untrustworthiness. But they have never been criticised as a whole—the good separated from the bad, and the value of the experimental data they afford us candidly weighed.

This I propose to do in the following pages. And though my examination of what has hitherto been done in the way of field experiment, has led me to the conviction, that scarcely any of the results we have as yet obtained are to be relied upon as secure grounds for scientific opinions; yet they may be considered to have cleared the path to surer results, by pointing out sources of error previously unknown, and thus indicating the precautions which must be adopted in future trials.

In my previously published works, I have embodied, so far as I could, all that was known, with any degree of certainty, in regard to the applications, especially of chemical science, to practical agriculture. But there is a vast deal yet unknown altogether—scarcely half understood—or in regard to which we possess only the assertions or opinions of individual men. To these obscure parts of the subject, in so far as they appear capable of being im-

mediately elucidated by experiment, it is my intention to advert in the present work, by way of suggesting trials in the field or feeding-house, out of which we may hope to see light spring up.

To individuals anxious to enter upon such practical investigations—and there are many such—the suggestions I have ventured to offer will point out what they may respectively do for the advancement of scientific agriculture. To societies, I believe, they will be no less valuable in indicating what they may, by premiums and other forms of encouragement, stimulate their members beneficially to undertake.

It is only by means of conjoined experiments in the field, the feeding-house, and the laboratory—all made with equal care, conscientiousness, and precision—that scientific agriculture can hereafter be with certainty advanced. If we have been long in getting upon the right road, we ought to advance the more heartily now we have found it.

DURHAM, *August* 1849.

