# A POPULAR TREATISE ON AGRICULTURAL CHEMISTRY: INTENDED FOR THE USE OF THE PRACTICAL FARMER

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A Popular Treatise on Agricultural Chemistry: Intended for the Use of the Practical Farmer by Charles Squarey



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Trieste

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BY

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CHEMIST.

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1842.

# PREFACE.

THE reasons which have induced me to publish the following treatise are, a desire to supply a want extensively present amongst Agriculturists, for such general knowledge connected with chemistry as may assist them in their various operations, and also the belief that no work of the kind at present exists, in which the subject chosen is either so fully explained or so well adapted for general perusal.

Until a very recent period, great doubt has existed amongst all writers on Agricultural Chemistry, as to the manner in which plants assimilate the matter composing their structure, not to mention the source from which these matters are derived. In the following pages I have endeavoured to explain these hitherto mysterious operations of nature, in such a way as to be of easy comprehension to all who will take the trouble to investigate the subject.

I must, however, disclaim all merit to myself for any discoveries on the subject, all the knowledge I possess has been derived from the works of Davy, Liebig, Daubeny and Johnson; and to all those who may wish to pursue

this science farther the above works are confidently recommended, especially Liebig's profound work "On Organic Chemistry, as applied to Agriculture," which contains all that is at present known on the subject, and in which the important discoveries announced are only equalled by the happy manner in which they are illustrated.

It must be permitted to me again to notice that my object in compiling the following pages, has been a desire to convey such information to the Agriculturist as may be found on trial to assist him in his pursuits, and to explain the rationale of some of the processes nature employs in the Vegetable Kingdom—with what success, it is for the reader to determine. With this intention, and this only, have I thrown together the following matter; and the little merit, if any, to which I may be entitled, must arise from the circumstance of my having in some measure simplified a subject, which, in its usual form, is too abstruse for the general reader.

*Salisbury,*
*November*, 1841.

# AGRICULTURAL CHEMISTRY.

## CHAPTER I.

### INTRODUCTION.

The subject of the following treatise, is an endeavour to explain, in a familiar manner, the processes nature carries on in the assimilation of the various substances employed in the growth and nutrition of plants.

Until a very recent period the consideration of this subject has been too generally deemed, if not altogether beyond the range of the agriculturist, at all events, as so distantly connected with him, as to be of little direct importance. And although at various periods men, eminent for their talents, and for the successful application of those talents to agriculture, have called the attention of the public to this subject; their endeavours have too often been of little avail, and the application of science to agriculture has been almost entirely neglected.

Now, however, we date from a new era. A variety of circumstances have of late combined, to compel a greater attention on the part of all

classes to this important study. And the result is, that agriculture as a science has advanced with rapid strides, from darkness to comparative light; and from being the occupation of the lowest class in society, to one that is regarded, and justly so, as affording a field for the employment of the highest intellect; and happily also one in which the greatest exertions may be the most beneficially employed.

The impetus that this science has received may be safely committed, for its farther improvement, to the energy that now pervades the agricultural classes, in the full assurance that no exertions will be spared to carry it out to the fullest extent. The only thing necessary is to convey such information to the agriculturist, as shall tend to elucidate the operations of nature, and thus direct his energies in the right path.

It has hitherto, unfortunately, been too much the habit to consider a knowledge of chemistry necessary, only to those connected in some way or other with the practice of medicine. That such an opinion is founded in error few, in the present day, will be disposed to deny—but when we reflect that no change of any kind in any substance whatever, organized or unorganized, can take place, without such change being governed by chemical laws,—it will be at once admitted, that the study of chemistry is absolutely essential to enable us to understand either the bodies themselves, or the changes they may undergo.

Chemistry, is indeed the universal science;

it concerns every one, and every one ought to study its principles. To every branch of the manufactures of this country, this knowledge has been of the most essential importance: overcoming difficulties hitherto deemed insurmountable; opening new sources of employment, where none had previously existed; improving others to such an extent, that the different productions would scarcely be recognised as belonging to the same class, and lastly, doing all these things so much better and so much cheaper than by the old processes, that the national wealth has thereby been immensely increased, and comforts and even luxuries have been brought within the means of all classes.

It can hardly be necessary to cite examples in which chemistry has produced these results. We have only to look at the various manufactures of iron, glass, porcelain, the powers of steam, and galvanism—destined to surpass steam in its effects, the discovery of the Davy lamp, &c. to be convinced of the benefits chemistry has conferred on mankind, and of its importance as a general study.

And if this knowledge is beneficial to the generality of persons, of what paramount importance must it be to the agriculturist, whose every act entails a chemical operation, and who, unless he is enabled in some measure to understand the cause and effect of these changes, will be pursuing his avocation almost by chance, or at least without the means of availing himself of many advantages that may