

**ARTIFICIAL MANURES,
HOW TO MAKE, BUY,
VALUE, AND USE**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649463763

Artificial Manures, How to Make, Buy, Value, and Use by Alfred Sibson

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

ALFRED SIBSON

**ARTIFICIAL MANURES,
HOW TO MAKE, BUY,
VALUE, AND USE**

ARTIFICIAL MANURES,

HOW TO

MAKE, BUY, VALUE, AND USE.

GIVING THE COMPOSITION OF THE VARIOUS MANURES AT PRESENT
IN USE, AND THE MATERIALS USED IN THE PREPARATION
OF THOSE MANUFACTURED, WITH RECIPES FOR THEIR
ADMIXTURE, ETC., WITH HINTS FOR THEIR EFFECTIVE
AND ECONOMICAL EMPLOYMENT IN
THE FIELD.

BY

ALFRED SIBSON, F.C.S.,

Author of "Agricultural Chemistry," "Every-day Chemistry," "Food, Feeding, and Manure," "A Lecture on Superphosphate," &c. Late (for eight years) Assistant Professor of Chemistry in the Royal Agricultural College, Cirencester, and First Assistant in Dr. Voelcker's Private Laboratory. Formerly Student of the Royal College of Chemistry and the Birkbeck Laboratory of University College.

NEW EDITION, GREATLY EXTENDED.



LONDON:

WILLIAM RIDGWAY, 169, PICCADILLY. W.

1878.

191. 1/2. 168.

LONDON :
G. NORMAN AND SON, PRINTERS, MAIDEN LANE,
COVENT GARDEN.

CONTENTS.

CHAPTER I.

MAKING.

Original Idea of the Process—Vitriolized Bones—Origin of Phosphates—Making on large scale—Grinding—Sketch of Acid Manufacture—Specific Gravity of Acid—Twaddle's Scale—Loss of Nitrate in Acid Making—Rule for finding Relation between Twaddle's Scale and Specific Gravity—Mixing process—Diverse Arrangement of Works—Making on Small Scale—Recipes for mixing Phosphates, Bones, &c. with Acid—Experiment for rendering soluble Phosphate visible.	1
--	---

CHAPTER II.

RAW MATERIALS USED IN MAKING.

Phosphatic Materials—Composition of—Various Coprolites—Spanish, Portuguese, Navassa, German, Canadian, Bordeaux, Sombrero, Mexillones—South Carolina—Curacao—Bone Ash and Black—Nitrogenous Materials—Nitrogen from Bones—Ammoniacal Salts—Shoddy—Wool Dust—Blood—Refuse Materials—Rape Dust—Damaged Cotton Cake—Results of Mixing Process—Extent of Loss—Proportions of Phosphates, &c. to be expected.	16
--	----

CHAPTER III.

BUYING.

Whether to make or buy—What to buy—Mineral Superphosphates—Bone Manures—Precipitated Phosphate	
--	--

Composition of Bone Manures, &c.—Explanation of Analysis and Various Constituents of Manures—Why Decimals are used — Nitro-Phosphates — Nightsoil Phosphates, &c.—Value of Urine as Manure. . . 40

CHAPTER IV.

BONE DUST, GUANO, NITRATE OF SODA, &c.

Manures which must needs be bought—Bone Dust—Steamed Bones — Bone Meal — Animal Guanos — Peruvian Guano—Dissolved Peruvian Guano—Concentrated Prepared Manures — Various Guanos — Nitrate of Soda—Damaged and Adulterated Nitrates —Kainit—Adulterated Mannres. 65

CHAPTER V.

VALUING.

Different Values of Constituents when from different Sources — Circumstances of Sale should be stated with Valuations—Scale of Values per Unit—Examples—Dissolved Bone and Superphosphate—Modification to suit best Bone Manures—Means of identifying Same—Example with Peruvian Guano—Later Remarks on Valuation—Old Mode of Valuing—Sampling. 84

CHAPTER VI.

USING.

No Strict Classification of Manures to Crops—Character of Soil—Clay Soils—Sandy Soils—Manures suitable for each—Green Manuring—Composition of Light and Heavy Soils—Value of Cultivation on Strong Soils—Compound or Special Manures—Recipes for Same for all Crops—Value of Care in Application—Conclusion. 101

INTRODUCTORY REMARKS.

As the use of artificial manures is still extending, and as chemical analysis is correctly looked upon as the chief means of arriving at their value, a plain and reliable guide is often called for to enable practical men to understand analysis when put before them, and to enable them to obtain the full benefit which a knowledge of the materials at their command is capable of conferring.

To this end the following pages have been written, and which it is hoped will supply in a condensed form much of the information likely to be useful in connection with the subjects referred to, and in the treatment of which I have had in view the questions constantly put to me by buyers and sellers of manures, and the raw materials used in their preparation. Of the latter, only those in actual use or of particular interest, have been spoken of, so as to avoid needless amplification. I have also embodied some of the remarks and hints which have appeared in my annual reports, which I

have reason to know have been valued by a large circle of clients, though never before published.

I may add that the various recipes given are the same for which I have hitherto charged my usual fees, and are not inferior to others for which much larger sums have been paid; but as the present is the age of publicity, I now offer them free of cost to those interested, hoping to receive compensation in the same manner.

This pamphlet, although founded on the one bearing nearly the same title which I issued a few years since, has been greatly extended, and for the greater part re-written.

11, EATON TERRACE,
ST. JOHN'S WOOD, LONDON.

ARTIFICIAL MANURES.

CHAPTER I.

MAKING MANURES.

BEING frequently applied to by intending manufacturers and farmers for directions for making superphosphate and other artificial manures, the following pages contain in a concise form the substance of my replies, with such remarks and extensions as have occurred to me as I proceeded. To persons also who are already well able to make manures satisfactorily, it is hoped they may not be without interest although some of the matter will necessarily be to them familiar.

In thus treating publicly of the preparation of superphosphate and other manures, I am betraying no trade secrets since the materials of which they are composed are now perfectly well known, and may be bought in large or small quantities; and as the process of manufacture is simple, any one may now make