

AGRICULTURE

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649040520

Agriculture by Charles C. James

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

CHARLES C. JAMES

AGRICULTURE



A corner in the orchard. A Lombard plum tree. Is it carrying too much fruit?
What should be done? (See page 106.)

AGRICULTURE

BY

CHARLES C. JAMES, M.A.

DEPUTY MINISTER OF AGRICULTURE FOR ONTARIO

FORMERLY PROFESSOR OF CHEMISTRY AT THE
ONTARIO AGRICULTURAL COLLEGE

Authorized by the Education Department
for use in the
Public, Separate and High Schools
of Ontario,

PRICE, 30 CENTS

FOURTH EDITION

TORONTO
GEORGE N. MORANG & COMPANY, LIMITED

1901

V-7640

Ag 2489.10.4



Received by [illegible]

Entered, according to the Act of the Parliament of Canada, in the year one thousand eight hundred and ninety-eight, by GEORGE N. MORANG, Toronto, in the office of the Minister of Agriculture, at Ottawa.

PREFACE.

The purpose of this book is to aid the reader and student in acquiring a knowledge of the *science* of agriculture as distinct from the *art* of agriculture; that is, a knowledge of the "why," rather than a knowledge of the "how." The science of agriculture may be said to consist of a mingling of chemistry, geology, botany, entomology, physiology, bacteriology, and other sciences, in as far as they have a bearing upon agriculture. The aim has been to include but the first principles of these various sciences, and to show their application to the art of agriculture. In a field so wide, and with so limited a space at the author's disposal, this work claims to deal only with the simple first principles of agricultural science. It is hoped, however, that the beginning here made will lead to a further study of what is one of the most interesting and most profitable sciences—one that is at the present time making most wonderful advance.

From his experience of several years teaching at the Ontario Agricultural College the author believes that the rational teaching of agriculture in Public and High Schools is not only possible, but would be exceedingly profitable. An intelligent understanding of the science underlying the art of agriculture will add much interest to what is otherwise hard work, and, as a natural consequence, the pleasure of such work may be

greatly increased. The agriculturists of this country in the future will work at a serious disadvantage if they do not have some knowledge of the very interesting science that underlies their work. The residents of our towns and cities also will find that some knowledge of the science of agriculture may be of use to them, and may increase the respect and consideration for the calling that contributes so largely to the general wealth and welfare of this country.

To the many who have offered help and advice and to all who have in any way contributed to this work, sincere thanks are offered.

The First Principles of Agriculture, by Dr. James Mills and Prof. Shaw will be found useful for reference, as some of the subjects herein dealt with are enlarged upon in that work.

C. C. JAMES.

DEPARTMENT OF AGRICULTURE,
Toronto, August 1st, 1898.

CONTENTS.

PART I.—THE PLANT.

	PAGE
CHAPTER I.—The Seed	1
“ II.—The Young Plant	6
“ III.—The Plant and Water	12
“ IV.—The Plant and the Soil	16
“ V.—The Plant and the Air	20
“ VI.—Structure and Growth of the Plant	24
“ VII.—Naming and Classification of Plants	29

PART II.—THE SOIL.

CHAP. VIII.—Nature and Origin of the Soil	31
“ IX.—Tilling and Draining the Soil	37
“ X.—Improving the Soil	42

PART III.—THE CROPS OF THE FIELD.

CHAP. XI.—The Grasses	48
“ XII.—The Grain Crops or Cereals	52
“ XIII.—The Leguminous Plants	57
“ XIV.—Root Crops and Tubers	62
“ XV.—Various other Crops	67
“ XVI.—Weeds	71
“ XVII.—Insects of the Field	74
“ XVIII.—The Diseases of Plants	88
“ XIX.—Rotation of Crops	93

PART IV.—THE GARDEN, ORCHARD AND VINEYARD.

	PAGE
CHAP. XX.—The Garden	97
“ XXI.—The Apple Orchard	103
“ XXII.—Other Orchard Trees	107
“ XXIII.—Insects of the Orchard	110
“ XXIV.—Diseases of the Orchard	116
“ XXV.—The Vineyard	118

PART V.—LIVE STOCK AND DAIRYING.

CHAP. XXVI.—Horses	122
“ XXVII.—Cattle	127
“ XXVIII.—Sheep	133
“ XXIX.—Swine	136
“ XXX.—Poultry	139
“ XXXI.—Milk	143
“ XXXII.—The Products of Milk	147
“ XXXIII.—The Structure of Animals	155
“ XXXIV.—Foods of Animals	158
“ XXXV.—Digestion and Uses of Foods	162

PART VI.—OTHER SUBJECTS.

CHAP. XXXVI.—Bees	171
“ XXXVII.—Birds	176
“ XXXVIII.—Forestry	181
“ XXXIX.—Roads	187
“ XL.—The Rural Home	193

APPENDIX.

List of Trees	199
List of Weeds	201
Spraying Mixtures	203