

**ELEMANTARY
AGRICULTURE WITH
PRACTICAL ARITHMETIC**

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Elementary agriculture with practical arithmetic by K. L. Hatch & J. A. Haselwood

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PRACTICAL ARITHMETIC

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The tables used in this book are taken from the published reports of the United States Department of Agriculture, and adapted to the needs of this publication. Only averages and approximate values are given. Conditions vary so widely that accuracy is impossible. The value of the tables lies in familiarity with their *use* rather than in the numerical results obtained from them. We extend our thanks to L. Lewellin & Sons, Percheron Breeders, Waterloo, and J. W. Martin, Red Polled Breeder, Richland Center, Wis. Grateful acknowledgment is also made to the University of Wisconsin for material used in illustration, and to the friends who have given us valuable assistance and suggestions.

H. & H.

CONTENTS.

CHAPTER.	PAGE.
I. THE GROWTH OF PLANTS.....	9
II. THE PLANT AND THE WATER.....	18
III. PLANT FOODS	23
IV. SOIL	30
V. THE SOIL AND THE CROP.....	38
VI. WEARING OUT THE SOIL.....	44
VII. LEGUMES	49
VIII. TILLING THE SOIL	55
IX. DRAINING THE SOIL	63
X. THE CROP	69
XI. INSECTS AND DISEASES THAT INJURE THE CROPS	76
XII. THE DESTRUCTION OF WEEDS	86
XIII. THE STOCK ON THE FARM.....	90
XIV. FEEDING THE STOCK.....	98
XV. THE THREE C'S—COWS, CORN AND CLOVER..	112
XVI. THE DAIRY	118
XVII. POULTRY	129
XVIII. SPECIAL CROPS	135
XIX. FARM BUILDINGS	146
XX. FARM ACCOUNTS	154
XXI. FORESTRY	161
XXII. HOME AND SCHOOL GROUNDS	168
XXIII. SCHOOL GARDENING	173
XXIV. HOME GARDENING	177
XXV. BARN PLAN AND VENTILATION	181

PREFACE

As the population of our country increases, it is fast becoming evident that two things must be done: poorer soil must be cultivated, and what is already under cultivation must be made to produce more. In either case more thoughtful methods in agriculture are absolutely essential. The farmer of to-morrow, who is to-day the farmer's boy, must know how to farm better than his father does. In order to do this, he must acquire a more or less complete knowledge of the sciences on which agriculture is based.

The farmer of the future must be able to read farm papers understandingly, or better still, he should be trained for his life work in some agricultural school as doctors, lawyers and teachers are now trained. It is the purpose of this book to give to the farmer's child, who studies it, a start in such necessary knowledge. The language used is plain and simple, and may be readily understood by any bright boy or girl of twelve years of age. All scientific terms are defined in a simple way whenever it has been necessary to introduce them.

Each chapter is followed by a set of practical farm problems to be used as exercises for the arithmetic class. These problems have a definite relation to the

subject matter which they follow, as well as a close relation to farm life. Wherever appropriate at the close of a chapter some experimental studies are added. It is believed that the working out of these exercises will enable the farmer's children to solve ordinary practical problems arising on the farm, and prepare for the more complex ones of experimental agriculture.

It is hoped that the careful study of this book will lead to a deeper interest in farm life, and to a more careful and systematic study of the soils, crops, feeds, fertilizers, and the like, by the children in the rural schools and perhaps, incidentally, by the farmers themselves.

It is a wholesome indication of the trend of educational thought, that the legislatures of several states have made compulsory the study of agriculture in the district schools.

We trust that this little book, by combining the subjects of arithmetic and agriculture, will be of material assistance to teachers in their efforts to do effective work in both branches.

H. & H.



ELEMENTARY AGRICULTURE

CHAPTER I

THE GROWTH OF PLANTS

What Makes Plants Grow.—If you were asked, "What makes a pig grow?" you would reply, "Milk, grass, corn, etc.," but if you were asked, "What makes a plant grow?" would you answer so readily, "The food which it consumes?" But this is precisely what you should reply. Plants, like animals, must have food and drink, and like animals, they perish without them. At some later time, we shall tell you what these foods are, in such a way that you will readily recognize them at sight. For the present, however, we shall observe the way in which plants grow and find out, if possible, the source from which they get their first food.

The little pig, or lamb, or calf lives and grows upon the milk of its mother until it is large enough to search for its own food. It then begins to use the same food as the larger animals of its kind. Now, from what source does the little plant get its first food?