

LABORATORY MANUAL OF HORTICULTURE

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Laboratory manual of horticulture by George W. Hood

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GEORGE W. HOOD

**LABORATORY
MANUAL OF
HORTICULTURE**

LABORATORY MANUAL OF HORTICULTURE

WITH ILLUSTRATIONS OF
METHODS, EQUIPMENT, AND APPARATUS

BY

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PREFACE

This manual contains the exercises that have been given in connection with the work in General Horticulture at the Ohio State University, Michigan Agricultural College, and University of Nebraska.

It is a modest attempt to fill a place that, for a long time, has seemed to be vacant. The aim is to give the student an outline by which he can better grasp some of the fundamental principles of horticulture, and an opportunity to learn by actual experimentation and observation the reasons for certain necessary operations in horticulture.

It is the object of this manual to give explicit directions for every detail of the work. In certain exercises it may be impossible for the student to do all the tasks outlined, but only such parts as are suited to the conditions under which the student is working should be attempted. This must be determined by the instructor, who, it is hoped, will select those exercises that are most practicable for his class.

The drawings asked for and the questions raised in the several exercises are designed to bring out fundamental principles and important points as well as to fix firmly in the mind of the student the necessity of careful and systematic work.

The author has made use of suggestions found in other works, and has endeavored to bring together the information that will be the most helpful to the student, and to present it in such a manner that it will be of value to the beginner. He makes no claim of completeness for this outline: only such exercises have been included as seem best adapted to a general course in horticulture. Most of these exercises can be done in the laboratory, but after the fundamental principles have been thoroughly mastered field practice should be given in pruning, spraying, etc.

The exercises are arranged in groups which naturally fall under a common head. It is not likely that the instructor can begin with the first exercise and continue uninterruptedly to the

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last; he will probably find it desirable to make the order in which the exercises are used conform to the work in hand. For instance, if the discussion is on buds and pruning, it will be advisable to turn to that section and work out those exercises. If the discussion is on seeds, then the laboratory exercises dealing with germination of seeds should be assigned, and so on through the book. Care should be taken, however, not to assign tasks based on preceding exercises that have not been already worked out or discussed.

The author wishes to express his appreciation to Professor Wendell Paddock of the Ohio State University, Professors R. A. Emerson and J. R. Cooper of the University of Nebraska, and others for valuable suggestions offered in connection with this work.

GEORGE W. HOOD

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EXERCISE I

COMPARATIVE STUDY OF SEED-TESTERS

Material. Dinner plates, blotters, canton flannel, germinating cups, tile germinator, Geneva seed-tester, germinating chamber.

Seed-testers are used for the purpose of testing the vitality of seeds. They differ greatly, and their efficiency varies with the kind. Study carefully four kinds.

1. The dinner-plate germinator consists of two large-sized dinner plates, one turned over the other, between which are two or three blotters covered with two pieces of canton flannel. Make a drawing showing the two plates and the inside material. The drawings should be at least three inches in diameter. Describe fully. Label all parts and describe the materials of which it is made. What can you say about the efficiency of this tester?

2. Germinating cups are small earthen cups three inches in diameter or three inches square and one and one-half inches deep, covered with a lid of the same size and shape as the top of the cup, in which are a number of small holes. Make a drawing, natural size, of a germinating cup and lid. Label, and give the dimensions on the drawings. Describe how the seeds can be germinated in this vessel. The cups must be placed in a shallow pan of water. Discuss the purpose of this procedure.

3. The tile germinator is a large tile twelve inches wide by fifteen inches long and two inches deep, in which have been molded pockets of varying sizes from one inch to three inches in diameter. This tester is placed in a shallow pan of water the same as the germinating cups. Make a drawing of the top view and a cross section, showing the number, size, and the depth of pockets. What advantage, if any, has this tester over the previous one? Give the exact dimensions on your drawing. Make the drawing two by three inches. How does the moisture get to the seeds? Discuss fully how you would germinate seeds in this tester. A pane of glass is usually placed over the top of the tester. What is the purpose of the glass? Give your opinion as to the value derived from its use.