

INSECTS INJURIOUS TO VEGETABLES

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Insects injurious to vegetables by F. H. Chittenden

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F. H. CHITTENDEN

**INSECTS INJURIOUS
TO VEGETABLES**



The Colorado Potato Beetle

Insects Injurious to Vegetables

By

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United States Department of Agriculture

ILLUSTRATED

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PREFACE

AMONG the hordes of insect foes with which the American farmer has to deal, those affecting vegetable crops are in many respects most troublesome. Vegetable plants are exceptionally perishable, and the control of their insect enemies entails a very considerable expenditure of money and time. The annual losses due to insect attack on vegetable crops is estimated at 20 per cent., or double that of the average farm crop. The injurious vegetable-feeding forms outnumber in species the insect enemies of any other single class of crops, excepting possibly deciduous fruits, and this nearly endless variety of pests necessitates information in regard to each. Many are intermittent in attack, hence the grower should be forewarned in order to guard against injury or to check it before irreparable damage has been accomplished. The progressive vegetable grower should be as amply equipped with knowledge as the fruit grower, and if he would be entirely successful in avoiding losses from insect ravages he should be provided with a complete outfit for spraying operations and should keep on hand or know where to obtain at short notice a good supply of necessary insecticides. The more general observance of certain farming methods with a view to the prevention of insect injury will greatly lessen the losses from this source. Until within recent years few farmers in planning the management of the farm for the season considered the effect which any given method of tillage would have upon injurious insects. Too frequently they fail to look far ahead, and as a rule rotation of crops where practiced is more for the sake of soil improvement than for the avoidance of insect injury, and yet crop rotation is the best and sometimes the only remedy for

certain species of insects. Among other general methods of farming strict cleanliness, including the destruction of weeds and burning over fields after harvest, fall plowing, crop rotation, the use of fertilizers, and the selection of the proper place and time for planting, must be considered. A knowledge of the classification of insects sufficient to enable the farmer to distinguish friends from foes is valuable, and finally comes a knowledge of what insecticides and repellents to use and the best means of preparing and applying them.

Accounts of most of our noxious species of insects have been published. These accounts, however, are distributed through government and state publications, reports of agricultural societies, magazines, and periodical publications of entomological societies, and even the daily press. As an example of the number of such publications on American economic entomology, the Bureau of Entomology, United States Department of Agriculture, has cited no less than 12,645 titles that had appeared to January 1, 1905, and the number of references to noxious insects is about 72,000. The average farmer has neither time nor opportunity to consult a title of these 12,000 odd works, and it is therefore the object of the following pages to collate concise accounts of the principal insects which affect one class of crops—vegetables. The order which will be followed is, as far as practicable, alphabetical, beginning with the insect enemies of asparagus, and ending with those which affect sweet potato, and finally miscellaneous or unclassified crops.

The insect enemies of vegetables have not hitherto been considered as a special topic in comprehensive form. Separate accounts, however, on the economic entomology of certain vegetables have been published, for example, of beets and of sweet potato.

In presenting this work to the public its author does not claim originality for its contents. It is, however, largely com-

piled from his own writings, although it has been found necessary to draw also from the works of others, and is based on an experience of about ten years with the subject with which it deals. The illustrations are in large part the same, or adaptations of, figures previously used in the Bureau of Entomology, United States Department of Agriculture, and are so credited.

F. H. CHITTENDEN.

*United States Department of Agriculture,
September, 1907.*

CONTENTS

	PAGE
PREFACE	v-vii
INTRODUCTION	x-xiv
CHAPTER I	
VALUE OF A KNOWLEDGE OF ENTOMOLOGY	1-15
General considerations—Classification of insects—Orders of insects—Natural elements in the control of insects.	
CHAPTER II	
PREVENTION BY FARMING METHODS	16-25
Selection of place and time for planting—The maintenance of vigorous growth—Burning over fields and waste lands—Crop rotation—Diversified agriculture—Fall plowing and cultivating—Clean farming methods—Farm inspection—Cooperation in the control of insects.	
CHAPTER III	
MECHANICAL METHODS OF DESTROYING INSECTS OR PREVENTING INJURY	26-29
CHAPTER IV	
INSECTICIDES AND THEIR USES	30-48
Stomach poisons, arsenicals, etc.—Contact poisons—Insecticides which kill by suffocation—Proprietary insecticides—Insecticide apparatus—Remarks on applying insecticides.	
CHAPTER V	
GENERAL CROP PESTS	49-91
Cutworms and related insects—Miscellaneous caterpillars—Leaf-beetles—Flea-beetles—Blister beetles—Grasshoppers and related insects—White grubs—Wireworms—Aphides, plant-bugs and related insects—The red spider.	
CHAPTER VI	
INSECTS INJURIOUS TO ASPARAGUS	93-98