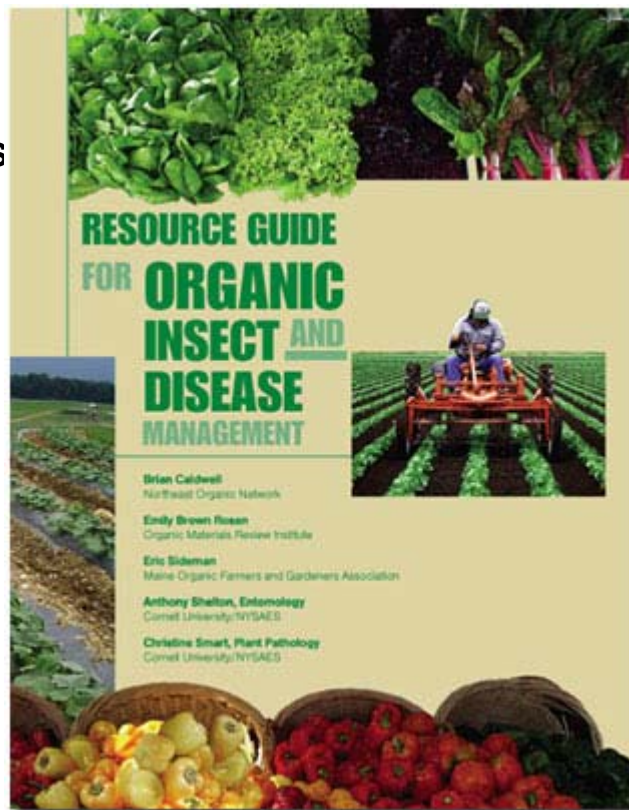


INTRODUCTION

ABOUT THE AUTHORS

Brian Caldwell is the Farm Education Coordinator for the Northeast Organic Farming Association of New York. He participated in this project as part of the Northeast Organic Network (NEON). He also is an organic apple grower and



former extension educator in central New York.

Emily Brown Rosen is a consultant and the former Policy Director for the Organic Materials Review Institute, a non-profit organization that provides technical services to certification agencies and reviews products for compliance with organic regulations. She has been an active participant in the development of national organic standards and serves as an advisor to several organic certification agencies.

Dr. Eric Sideman has been the Director of Technical Services, Maine Organic Farmers and Gardeners Association since 1986. Dr. Sideman provides technical support for farmers and gardeners, serves as staff scientist for MOFGA, plans and produces educational events for MOFGA and Cooperative Extension, and serves on various agricultural committees for the Maine Department of Agriculture.

Dr. Anthony M. Shelton has been a Professor of Entomology at Cornell since 1979. His work focuses on insect ecology and management of insect pests of vegetables. He has published over 300 articles on pest management.

[More on Dr. Anthony M. Shelton](#)

Dr. Christine D. Smart has been an Assistant Professor of Plant Pathology at Cornell since 2003. She studies induced resistance in plants against pathogens, and the biology and control of vegetable diseases.

[More on Dr. Christine D. Smart](#)

WHY THIS GUIDE?

The number of farmers and the acreage dedicated to organic farming has been increasing steadily in the past ten years, as organic food sales have increased approximately 20% annually. The USDA's Economic Research Service found that the northeastern United States has a large percentage of organic vegetable growers compared to other regions, with six northeast states ranking in the top 20 for percentage of organic vegetable acreage in 2001.

Organic farmers rely primarily on preventive, cultural and integrated methods of pest and disease management. However, there are a number of materials available for use that can complement and support organic management.

This guide was developed to provide a useful and scientifically accurate reference for organic farmers and agricultural professionals searching for information on best practices, available materials and perhaps most importantly, the efficacy of materials that are permitted for use in organic systems. Many products available to organic farmers have not been tested extensively, and current research has not been summarized or made widely available to the general producer. A major objective of this guide has been to review recent literature for published trials on material efficacy in order to provide reliable information that can be used by farmers to effectively manage pests. Additionally, a goal was to identify what materials have shown promise but need more research.

WHO SHOULD USE THIS GUIDE?

Organic farmers and farmers in transition to organic production, extension professionals, and farm advisors who want accurate information based on published research.

HOW TO USE THIS GUIDE:

The Guide is divided into three sections. The first section provides cultural information and management practices for a number of important vegetable crop groups. For each family, key pests and disease problems are described.

Cultural methods and management practices that will help control the problem are listed, as well as materials that may be recommended for use.

The second section is a set of generic fact sheets about specific materials that can be used in organic systems. The fact sheets provide background information about the type of material, how it is made, how it works, and the types of pests it will control. They also provide application guidelines for use, and a description of the effects it has on the environment and human health. Efficacy is described in a summary account and by means of a graph based on data from trials reported in *Arthropod Management Tests* (Entomology Society of America), *Fungicide and Nematicide Tests* (American Phytopathological Society) and other sources. This rating groups the materials in three categories of effectiveness: good, fair, and poor control. Replicated field trials on crops grown in the northeast are included. Results of studies in which a material was used in combination or alternating with another could not be classified and are not included, even though in practice such a strategy may be effective. A complete bibliography of all efficacy data is available by contacting Brian Caldwell at bac11@cornell.edu.

The last section contains appendices with useful information about additional practices such as plant resistance, trap cropping, habitats for beneficial insects, the concepts of induced or systemic acquired resistance, materials exempt from pesticide regulation, and additional resources.

WHAT ARE THE RULES FOR USE OF ORGANIC MATERIALS?

Organic growers must use products that meet the requirements of USDA's National Organic Program (NOP) as established at 7CFR Part 205. Ingredients found in farm input products for crop or livestock production must either be a natural substance, or a synthetic substance that is included on the National List (included in the regulations at 7CFR 205.600 - 205.607). A few natural substances are also specifically prohibited. Inert ingredients used in pesticides (ingredients other than pesticides) must be considered by the U.S. EPA to be inerts of minimal risk (EPA List 4A or 4B).

Certification agencies are charged with the responsibility of verifying that products used by farmers meet the requirements of the National List. They must review both the active and non-active (inert) ingredients for compliance. Many certifiers use the services of the Organic Materials Review Institute (OMRI), a non-profit established to provide this service of product review. Those that use OMRI services also often provide some in-house review of products as well, but in all cases a certified farmer must be sure that any products used on the farm are approved by his/her certification agency for use in organic production. References to OMRI listed products in this Guide are based on the June 2004 edition of the OMRI Brand Name List. Please consult later editions or www.omri.org for more up to date listings.

The US Environmental Protection Agency (EPA) also has a voluntary label review program for registered pesticides. A product that meets the USDA-NOP requirements may use the specific wording "For Organic Production" **with a three leaf logo** (See Appendix F). If a product is not listed by OMRI, EPA, or directly by the certifier, the farmer will generally need to be able to provide enough information to the certifier to assure that the product is in compliance with the NOP rules. Use of a prohibited material on an organic farm could result in loss of certification for 36 months.

Materials used for disease and insect control are also subject to further restriction by NOP rules which require that preventive, cultural, and physical methods, including introduction of beneficial insects must be the first choice for pest and disease control. If those methods are not effective, a botanical, biological or synthetic substance on the National List may be used, if the conditions for this use are documented in the organic farm plan. This requirement reflects an historic organic practice that relies primarily on the use of biological and cultural practices such as crop rotation; diversification; habitat management; beneficial organism releases; sanitation; and timing before resorting to a limited use of permitted pest control substances.

Finally, all pesticides must be used according to their label as required by EPA and state regulations. Label instructions include directions for use and rate of application as well as permitted crops and designated target species. It is important to use products only on labeled crops, because otherwise use of the product may result in an illegal residue on the food crop.

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HOW TO ORDER

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