Use pesticides **only** according to directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on crops that are not listed on the label.

The pesticide rates in this publication are recommended only if they are registered with the Environmental Protection Agency or Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your local Extension agent for the latest information.

Trade names, indicated in the crops sections by all capital letters, are used only to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

### Abbreviations

- A. ........................................ acre(s)
- a.i. ........................ active ingredient
- AS ............................. aqueous suspension
- bu. ................................ bushel(s)
- cu. ft. ....................... cubic foot (feet)
- cwt ........................... hundredweight
- DF .............................. dry flowable
- E .............................. emulsifiable
- EC ............................. emulsifiable concentrate
- F .............................. flowable
- F. .............................. Fahrenheit
- fl. oz. ....................... fluid ounce(s)
- ft. .............................. foot (feet)
- G .............................. granule
- gal. .......................... gallon(s)
- kg .............................. kilogram(s)
- L ............................... liquid
- lb. ............................ pound(s)
- LC ............................. liquid concentrate
- LD ............................. lethal dose
- mg ........................... milligram(s)
- min. .......................... minute(s)
- ml .............................. milliliter(s)
- oz. ........................... ounce(s)
- AS ............................. aqueous suspension
- A .............................. acre(s)
- PDS ........................ postemergence directed spray
- POST ........................ postemergence
- POT ........................ postemergence over-the-top
- ppm ........................ parts per million
- PRE ........................ preemergence
- psi .......................... pounds per square inch
- pt. .............................. pint(s)
- qt. .............................. quart(s)
- RWA ........................ rope wick applicator
- S .............................. sprayable
- LC ............................. liquid concentrate
- LD ............................. lethal dose
- mg ........................... milligram(s)
- min. .......................... minute(s)
- ml .............................. milliliter(s)
- oz. ........................... ounce(s)
- tsp ........................... teaspoon(s)
- T. .............................. tablespoon(s)
- W .............................. wetable
- WP ............................. wettable powder
- WDG ........................ water dispersible granules
- \(<\) .......................... less than
- \(>\) .......................... more than
- ppm ........................ parts per million

### Alabama Poison Control Centers

<table>
<thead>
<tr>
<th>City</th>
<th>Name and Address</th>
<th>Phone</th>
</tr>
</thead>
</table>
| Birmingham   | Regional Poison Control Center of The Children’s Hospital of Alabama*  
               1600 7th Avenue South, 35233                            | 1-800-292-6678** |
| Tuscaloosa   | Alabama Poison Center*  
               2503 Phoenix Drive, 35405                                 | 1-800-462-0800** |

*Designated as Poison Control Center by State Committee of Public Health

**Toll-free from anywhere in Alabama
Table of Contents

Introduction
   Directory of Contributors

Safety
   Safety Contact Information
   Worker Protection Standard
   Safe Use, Handling, and Storage of Pesticides

Submitting Samples

General Pesticide Information
   Federal Restricted Use Pesticides
   Alabama 24(C) Labels
   Maintaining Water Quality

Noncropland

Agronomic Crops
   Alfalfa: Insect and Weed Control
   Corn: Insect, Disease, Nematode, and Weed Control
   Cotton: Insect, Disease, Nematode, and Weed Control
   Grain Sorghum: Insect, Disease, and Weed Control
   Pastures and Forage Crops: Insect and Weed Control
   Peanut: Insect, Disease, Nematode, and Weed Control
   Small Grains: Insect, Disease, and Weed Control
   Soybean: Insect, Disease, Nematode, and Weed Control
   Stored Grains: Insect Control

Commercial Turf and Lawns
   Insect Control
   Disease and Nematode Control
   Chemical Weed Control

Appendix
   Table 1. Preharvest Intervals (PhI) for Postemergence Herbicide Applications on Field Corn, Grain Sorghum, and Wheat.
   Table 2. Preharvest Intervals (PhI) for Postemergence Herbicide Applications on Cotton, Peanuts, and Soybeans.
   Table 3. Rainfree Requirements Following Postemergence Herbicide Applications on Field Corn, Grain Sorghum, and Wheat.
   Table 4. Rainfree Requirements Following Postemergence Herbicide Applications on Cotton, Peanuts, and Soybeans.
   Table 5. Forage, Feed, and Grazing Restrictions for Herbicide-Treated Field Corn, Grain Sorghum, and Wheat.
   Table 6. Forage, Feed, and Grazing Restrictions for Herbicide-Treated Cotton and Peanuts.
   Table 7. Forage, Feed, and Grazing Restrictions for Herbicide-Treated Soybeans.
   Table 8. Guidelines for Crop Rotation in Fields Previously Treated with Herbicides.
   Table 9. Grazing Restrictions on Commonly Used Herbicides.
   Table 10. Rotation Restrictions on Commonly Used Herbicides.
   Table 11. Names, Classification, and Toxicity of Pesticides
The Alabama Pest Management Handbook—Volume 1 contains recommendations for major row crops; small and stored grains; pastures and forage crops; commercial turfgrass; and noncropland. It was compiled by both current and former Extension entomologists, plant pathologists, weed scientists, and a pesticide education specialist and provides the most recent information possible on the selection, rates, application, and safe and proper use of pesticides. A directory of the specialists who authored sections in this notebook is included.

Since the status of pesticides is constantly changing, some that are currently listed in this volume of the Alabama Pest Management Handbook may no longer be legal. Also, some recently labeled pesticides may not yet be included in this volume. For these reasons, anyone preparing to use a pesticide should always consult the current pesticide label on the container before application.

Chemicals are listed both by common names (lowercase letters) and by trade names (all capital letters). Some chemicals are available only under trade names and, therefore, their common names may be omitted because of space restrictions. The presence or absence of any particular trade name in no way indicates endorsement or discrimination on the part of the Alabama Cooperative Extension System.

Recommended uses of pesticides are based on research, field trials, demonstrations, and experience. Because of variations in environmental conditions and methods of application, these recommendations do not assure that your results will always be the same as those obtained in research.

The label on every pesticide container presents information that is essential to safe and proper use, handling, and storage of the pesticide. Users are responsible for adhering to label information and should always review it thoroughly before applying the pesticide. Applying rates that exceed the recommendations or shortening the waiting period from application to harvest or grazing can cause excessive residues that are illegal according to state and federal regulations.
DIRECTORY OF CONTRIBUTORS

The main contributors for each section of the handbook are listed below. If you have any comments or questions about any section, please contact the specialists responsible for that section.

**Safety**
Sonja Brannon Thomas  
114 Extension Hall  
Auburn University, AL 36849  
334-844-8832

**Submitting Samples**
**DISEASE AND NEMATODE**
Charles Ray  
961 Donahue Drive  
Auburn University, AL 36849-5624  
334-844-3836

**WEED**
John W. Everest (Professor Emeritus)  
107 Extension Hall  
Auburn University, AL 36849-5633  
334-844-5493

**WATER**
Sonja Brannon Thomas  
114 Extension Hall  
Auburn University, AL 36849  
334-844-8832

**General Pesticide Information**
Sonja Brannon Thomas  
114 Extension Hall  
Auburn University, AL 36849  
334-844-8832

**Noncropland**
**INSECT**
Kathy L. Flanders  
208A Extension Hall  
Auburn University, AL 36849-5629  
334-844-6393

**WEED**
Stephen F. Enloe  
119 Extension Hall  
Auburn University, AL 36849-5633  
334-844-8928

John W. Everest (Professor Emeritus)  
107 Extension Hall  
Auburn University, AL 36849-5633  
334-844-5493

**Other Contributions**

**Corn**
**INSECT**
Kathy L. Flanders  
208A Extension Hall  
Auburn University, AL 36849-5629  
334-844-6393

**DISEASE AND NEMATODE**
Austin K. Hagan  
961 Donahue Drive  
Auburn University, AL 36849-5624  
334-844-5503

**WEED**
John W. Everest (Professor Emeritus)  
107 Extension Hall  
Auburn University, AL 36849-5633  
334-844-5493

**Cotton**
**INSECT**
Tim Reed  
P.O. Box 159  
Belle Mina, AL 35615  
256-353-8702

Ronald H. Smith (Professor Emeritus)  
206A Extension Hall  
Auburn University, AL 36849-5629  
334-844-6394

**DISEASE AND NEMATODE**
Austin K. Hagan  
961 Donahue Drive  
Auburn University, AL 36849-5624  
334-844-5503

Edward J. Sikora  
961 Donahue Drive  
Auburn University, AL 36849-5624  
334-844-5502

**WEED**
Michael G. Patterson  
108 Extension Hall  
Auburn University, AL 36849-5633  
334-844-5492

**Grain Sorghum**
**INSECT**
Kathy L. Flanders  
208A Extension Hall  
Auburn University, AL 36849-5629  
334-844-6393

**DISEASE**
Austin K. Hagan  
961 Donahue Drive  
Auburn University, AL 36849-5624  
334-844-5503

**WEED**
John W. Everest (Professor Emeritus)  
107 Extension Hall  
Auburn University, AL 36849-5633  
334-844-5493
Pastures and Forage Crops
INSECT
Kathy L. Flanders
208A Extension Hall
Auburn University, AL 36849-5629
334-844-6393
WEED
Stephen F. Enloe
119 Extension Hall
Auburn University, AL 36849-5633
334-844-8928
John W. Everest (Professor Emeritus)
107 Extension Hall
Auburn University, AL 36849-5633
334-844-5493

Peanut
INSECT
Ayanava Majumdar
111A Duncan Hall
Auburn University, AL 36849-5629
334-844-5553
DISEASE AND NEMATODE
Austin Hagan
961 Donahue Drive
Auburn University, AL 36849-5624
334-844-5503
WEED
John W. Everest (Professor Emeritus)
107 Extension Hall
Auburn University, AL 36849-5633
334-844-5493

Small Grains
INSECT
Kathy L. Flanders
208A Extension Hall
Auburn University, AL 36849-5629
334-844-6393
DISEASE
Austin K. Hagan
961 Donahue Drive
Auburn University, AL 36849-5624
334-844-5503
WEED
Michael G. Patterson
108 Extension Hall
Auburn University, AL 36849-5633
334-844-5492
Brenda V. Ortiz
202 Funchess Hall
Auburn University, AL 36849
334-844-5534

Soybean
INSECT
Tim Reed
P.O. Box 159
Belle Mina, AL 35615
256-353-8702
Ronald H. Smith (Professor Emeritus)
206A Extension Hall
Auburn University, AL 36849-5629
334-844-6394
DISEASE AND NEMATODE
Edward J. Sikora
961 Donahue Drive
Auburn University, AL 36849-5624
334-844-5502
WEED
John W. Everest (Professor Emeritus)
107 Extension Hall
Auburn University, AL 36849-5633
334-844-5493
Dennis Delaney
106 Extension Hall
Auburn University, AL 36849-5633
334-844-4107

Stored Grains
INSECT
Kathy L. Flanders
208A Extension Hall
Auburn University, AL 36849-5629
334-844-6393

Commercial Turf and Lawns
INSECT
Tim Reed
P.O. Box 159
Belle Mina, AL 35615
256-353-8702
DISEASE AND NEMATODE
Austin Hagan
961 Donahue Drive
Auburn University, AL 36849-5624
334-844-5503
WEED
John W. Everest (Professor Emeritus)
107 Extension Hall
Auburn University, AL 36849-5633
334-844-5493

Appendix
John W. Everest (Professor Emeritus)
107 Extension Hall
Auburn University, AL 36849-5633
334-844-5493
Michael G. Patterson
108 Extension Hall
Auburn University, AL 36849-5633
334-844-5492