EcoWise Certified Handbook

for

Structural IPM Certification

Branch 2 Licensees

Version 7, Revised August 24, 2010

A Project of the Association of Bay Area Governments
Funded by the State Water Resources Control Board

Application Forms

EcoWise Certified IPM Certification
for Structural Pest Control Board Branch 2 Licensees
A Project of the Bio-Integral Resource Center
P.O. Box 7414, Berkeley, CA 94707
(510) 524-2567 birc@igc.org

Practitioner Application

for EcoWise Certified IPM Practitioner

Date _____

All information on this application will remain **confidential** and will be used to register applicants with the EcoWise Certified Program, provide information updates to the program, and evaluate the impact and usefulness of the program.

PERSONAL INFORMATION:

Name_____

Home Mailing Address_____

City_____ State_____ Zip Code_____

PROFESSIONAL INFORMATION (minimum requirement is field rep or operator license for 1 yrs.):

Structural Pest Control License Type: ☐ OPR ☐ FR License #_____

Expires_____ How long have you held this license?_____ years

Check branch(es): ☐ Branch 1 ☐ Branch 2 ☐ Branch 3

How long have you: worked in pest management? _____ years practiced IPM? _____ years

PEST MANAGEMENT EMPLOYMENT HISTORY FOR THE LAST 2 YEARS

Current Employer

Business, Organization, Agency _____

Address_____

City_____ State_____ Zip Code _____

Phone_____ Cell Phone_____

Fax _____ email _____

Your Title or Position _____ Dates of Employment from _____to _____

Your Duties and Responsibilities _____

_____

Supervisor _____ Title _____

Continued on reverse

Previous Employer(s) over the past 2 years:

Business, Organization, Agency: _____

Address_____

City_____ State_____ Zip Code _____

Phone_____ Your Title or Position _____

Supervisor_____ Title _____

Dates of Employment: From_____ To _____

Duties and Responsibilities _____

_____

Business, Organization, Agency: _____

Address_____

City_____ State_____ Zip Code _____

Phone_____ Your Title or Position _____

Supervisor_____ Title _____

Dates of Employment: From_____ To _____

Duties and Responsibilities _____

_____

REQUIRED ATTACHMENT:

☐ Please attach a signed copy of the EcoWise "IPM Guiding Principles"

I certify that the information contained in this application form is true. I understand that falsification on the application is grounds for denial or revocation of certification. I authorize the EcoWise Certified Program Manager to contact employers named in this application for verification of information presented here.

_____ _____

Date Signature

_____

Name (please print)

Email this application to: William Quarles, EcoWise Certified Program Manager
birc@igc.org
or send by mail c/o BIRC
P.O. Box 7414
Berkeley, CA 94707

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for Structural Pest Control Board Branch 2 Licensees
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Business Application

to provide EcoWise Certified IPM Services

Date _____

All information on this application will remain **confidential** and will be used to register applicants with the EcoWise Certified Program, provide information updates to the program, and evaluate the impact and usefulness of the program.

APPLICANT INFORMATION

Note: Each branch office must submit a separate application and be certified separately.

Owner or Branch Manager _____

Operator License # _____ License Branch: ___ 1 ___ 2 ___ 3 Expiration Date _____

Phone _____ Cell Phone _____

email _____

Attended EcoWise Certified Orientation on _____(month) _____(day) _____ (year)

COMPANY INFORMATION

Company Name _____ Branch Office _____

Location Address _____
Street City Zip Code

Main Phone _____ Fax _____

Website _____

Number of employees in company/branch office? _____Licensed personnel _____Other staff

Person responsible for maintaining compliance with EcoWise Certified standards (if different from above):

Name _____ Phone _____

Cell Phone _____ Pager _____

The operation will offer: ☐ Only EcoWise Certified IPM services ☐ EcoWise Certified *and* Non-Certified Services

In which counties is the company/branch office registered to perform pest control? ☐ Alameda ☐ Contra Costa ☐ Marin ☐ Napa ☐ Sacramento ☐ San Francisco ☐ San Joaquin ☐ San Mateo ☐ Santa Clara ☐ Solano ☐ Sonoma ☐ Stanislaus ☐ Yolo

In which counties will the company/branch office offer EcoWise Certified services? ☐ Alameda ☐ Contra Costa ☐ Marin ☐ Napa ☐ Sacramento ☐ San Francisco ☐ San Joaquin ☐ San Mateo ☐ Santa Clara ☐ Solano ☐ Sonoma ☐ Stanislaus ☐ Yolo

Do you have a copy of the *EcoWise Certified Standards for IPM Certification in Structural Pest Management*? ☐ Yes ☐ No

Have you read and understood the *Standards*? ☐ Yes ☐ No

Continued on reverse

SERVICES OFFERED BY YOUR COMPANY:

What percent of your company's customers are: Residential _____% Commercial _____%

Which pests are managed by your operation? (check all that apply)

☐ Ants	☐ Centipedes	☐ Fungus gnats	☐ Paper wasps	☐ Stored product/pantry pests
☐ Bed bugs	☐ Cockroaches	☐ Gophers	☐ Raccoons	☐ Yellowjackets
☐ Bees	☐ Clothes moths	☐ Ground squirrels	☐ Rats	☐ Other _____
☐ Birds	☐ Drain flies	☐ House mice	☐ Skunks	☐ Other _____
☐ Carpet beetles	☐ Fleas	☐ Millipedes	☐ Spiders	☐ Other _____

STAFF TRAINING:

Do you provide in-house pest management training for your PMP staff? ☐ Yes ☐ No ☐ No PMP staff

Do you provide any pest management training for your clerical/phone staff? ☐ Yes ☐ No ☐ No clerical staff

CERTIFIED IPM PRACTITIONER:

Name of at least 1 person who intends to be your EcoWise Certified IPM Practitioner:

Name _____Date attended Orientation_____

Name _____Date attended Orientation_____

Name(s) of any EcoWise Certified IPM Practitioner(s) already employed in your company/branch office:

Name _____

Certification # _____ Expires on _____

Name _____

Certification # _____ Expires on _____

EXISTING COMPANY IPM SERVICE:

When was your IPM service started? (month and year) _____

Why is being EcoWise Certified important to your company? _____

_____

REQUIRED ATTACHMENTS:

Please attach the following 3 documents to this application:

☐ One (1) Sample IPM Protocol form (filled out) ☐ Signed copy of the EcoWise Certified "IPM Guiding Principles"
☐ A list of IPM equipment, devices, products, and pesticides in the company's "IPM Toolbox"

AUTHORIZED SIGNATURE

I certify that the information given on this form is true and correct, and that my company/branch office is in good standing with the Agricultural Commissioners in counties in which we do business.

Date_____

Signature_____

Title_____

RETURN APPLICATION TO:

William Quarles, Program Manager

EcoWise Certified
c/o BIRC
P.O. Box 7414
Berkeley, CA 94707

birc@igc.org

EcoWise Certified IPM Guiding Principles

Knowledge. IPM practitioners understand IPM principles and practices. They can identify important pests and describe life cycles, habits, and conditions that affect populations of those pests.

Communication and outreach. IPM practitioners communicate the IPM approach to their customers and others. Because they recognize that customer cooperation is essential for long-term pest management, IPM practitioners form a partnership with their customers to solve pest problems.

Monitoring and inspection. IPM practitioners use monitoring and inspection to stay fully informed about pest populations and conditions that can lead to pest problems.

Documented performance. IPM practitioners record monitoring and inspection results. They document their performance to justify pest management decisions.

Least-hazardous, effective options. IPM practitioners address issues of pest prevention, sanitation, and pest access, as appropriate, for the first line of defense against pests. IPM practitioners evaluate all pest management options for short- and long-term effectiveness, and for risks to health, the environment, and beneficial or other non-target organisms.

Pesticide applications are made according to need and not by calendar schedule.

Evaluation of performance. IPM practitioners evaluate treatment activities for effectiveness and customer satisfaction.

Continuous improvement. IPM practitioners prepare for changes in pests and pest management techniques, recognizing that improvement involves staying abreast of new technologies and concepts.

Adapted from *Green Shield Evaluation for Structural Pest Management Service Providers and Services*, IPM Institute of North America, Inc., January 2005.

I agree to abide by the above principles.

_____ _____

Signature Date

Introduction and Contents

Program Definition of IPM

IPM is a science-based strategy and decision-making process that provides effective, long-term pest control while emphasizing pest prevention and the use of non-chemical pest management practices. At its core, IPM includes the following activities:

- Inspection, monitoring and record-keeping are used to determine if thresholds for acceptable pest levels have been exceeded and to select the location, timing, and type of management strategies needed to successfully manage pests.
- A partnership is formed with the customer to facilitate management of pests.
- Appropriate and site-specific treatments are selected from educational, cultural, manual, mechanical, physical, biological, and chemical strategies. They are used within an integrated program to achieve long-term solutions that minimize hazards to human health and the environment.
- Reduced-risk chemical controls are included in the treatment program when non-chemical methods are insufficient to solve the pest problem in an effective and affordable manner.

EcoWise Certified Contact Information:

William Quarles, Program Manager
EcoWise Certified, c/o BIRC
P.O. Box 7414
Berkeley, CA 94707

Phone: 510-524-2567 Email: birc@igc.org

IPM Guiding Principles

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Adapted from *IPM Star Evaluation for Structural Pest Management Service Providers and Services*, IPM Institute of North America, Inc., January 2005.

Contents of the Handbook

The EcoWise Certified program certifies companies and individuals in structural IPM. The information in this handbook will help you through the certification process and will be a useful resource for your certified IPM service.

Steps to Becoming

EcoWise Certified

in

IPM Service

Revised 2/5/11

Table of Contents

A Quick Summary of the Steps to Becoming EcoWise Certified

Please see the pages that follow for more complete details.

Step 1: *Determine Eligibility*

To be eligible for certification your business must be:

1. Licensed for Branch 2 work by the Structural Pest Control Board
2. Registered with the County Agricultural Commissioner in the counties in which your business intends to offer certified IPM services and in good standing with each Agricultural Commissioner
3. Willing to adhere to the "EcoWise Certified IPM Guiding Principles"
4. Willing and able to certify at least one employee as an EcoWise Certified IPM Practitioner in the company or branch office seeking certification; an EcoWise Certified IPM Practitioner must implement or directly supervise the Certified IPM service

   NOTE: Businesses with multiple offices must employ at least one EcoWise Certified IPM Practitioner at each branch office seeking certification.
5. Willing to provide IPM services following the *EcoWise Certified Standards for IPM Certification in Structural Pest Management*
6. Willing to maintain separate records pertaining to certification and the EcoWise Certified IPM service and hold those records for at least 3 years
7. Willing to permit on-site visits to your place of business to review records of EcoWise Certified services
8. Willing to permit a field audit of your EcoWise Certified IPM service at one or more agreed-upon customer sites and permit interviews with customers

If you are eligible, proceed:

Step 2: *Complete an Orientation Session*

Company representatives complete an EcoWise Certified Orientation on line or in person.

At minimum, the following must complete the Orientation:

a. Either the business owner or branch manager *and*
b. The field representative(s) and/or operator(s) wishing to become EcoWise Certified Practitioners

Step 3: *Fill out the Business Application*

Attach the following to the application:

☐ a. IPM Protocol for 1 pest your company manages (use "EcoWise IPM Protocol Form")
☐ b. Signed copy of the "EcoWise Certified IPM Guiding Principles"
☐ c. A list of IPM equipment, devices, products, and pesticides in the company's "IPM Toolbox"

Step 4: *Send in the Business Application for Review*

Email (or mail) to: William Quarles, Program Manager
birc@igc.org
EcoWise Certified, c/o BIRC
P.O. Box 7414, Berkeley, CA 94707
Phone: 510-524-2567

Step 5: Have an EcoWise Certified IPM Practitioner on Staff

Each business applying to become EcoWise Certified must have at least 1 staff member that is an EcoWise Certified IPM Practitioner. The IPM Practitioner must be associated with an EcoWise Certified business, and:

☐ 1. Be licensed at the level of Field Rep or Operator in Branch 2 for at least 1 year.

☐ 2. Be willing to adhere to the "EcoWise Certified IPM Guiding Principles"

☐ 3. Be willing to provide IPM service following the *EcoWise Certified Standards for IPM Certification in Structural Pest Management*

☐ 4. Attend an EcoWise Certified Orientation session

☐ 5. Fill out an application

☐ 6. Demonstrate IPM knowledge in **<u>one</u>** of the following ways:

- Pass a written exam
- Complete Purdue University's "Intermediate Level Industrial and Urban IPM" correspondence course, or similar approved course
- Hold certification as a Board Certified Entomologist (BCE) *or* an Associate Certified Entomologist (ACE) from the Entomological Society of America
- Hold a Bachelor of Science, Master of Science, *or* Doctoral degree in pest management, applied entomology, urban entomology, or similar approved course of study from an accredited college or university

Step 6: *Document 10 IPM Service Visits for 3 Different Customer Sites following the EcoWise Certified Standards*

The service visits must be from the 2 years preceding and/or the year following the date of application. Service visits must follow the EcoWise Certified *Standards* and be recorded on an "EcoWise Certified IPM Site Plan and Treatment Record Form".

NOTE: Green Shield certification will be accepted in lieu of this documentation.

Step 7: *Schedule an Office Visit and Field Evaluation for your Business*

Within 1 year of your application, contact the Program Manager to schedule an office visit and field evaluation for your business; the documents listed below must be submitted during the office visit:

☐ Examples of the forms the company will be using for the EcoWise Certified IPM Service including: 1) IPM service inspection form(s), 2) An IPM site plan form, and 3) A treatment record form

☐ The Quality Control form that details how you will ensure the quality of your Certified service.

☐ Samples of advertising or marketing materials you plan to use in conjunction with your EcoWise Certified service (if any)

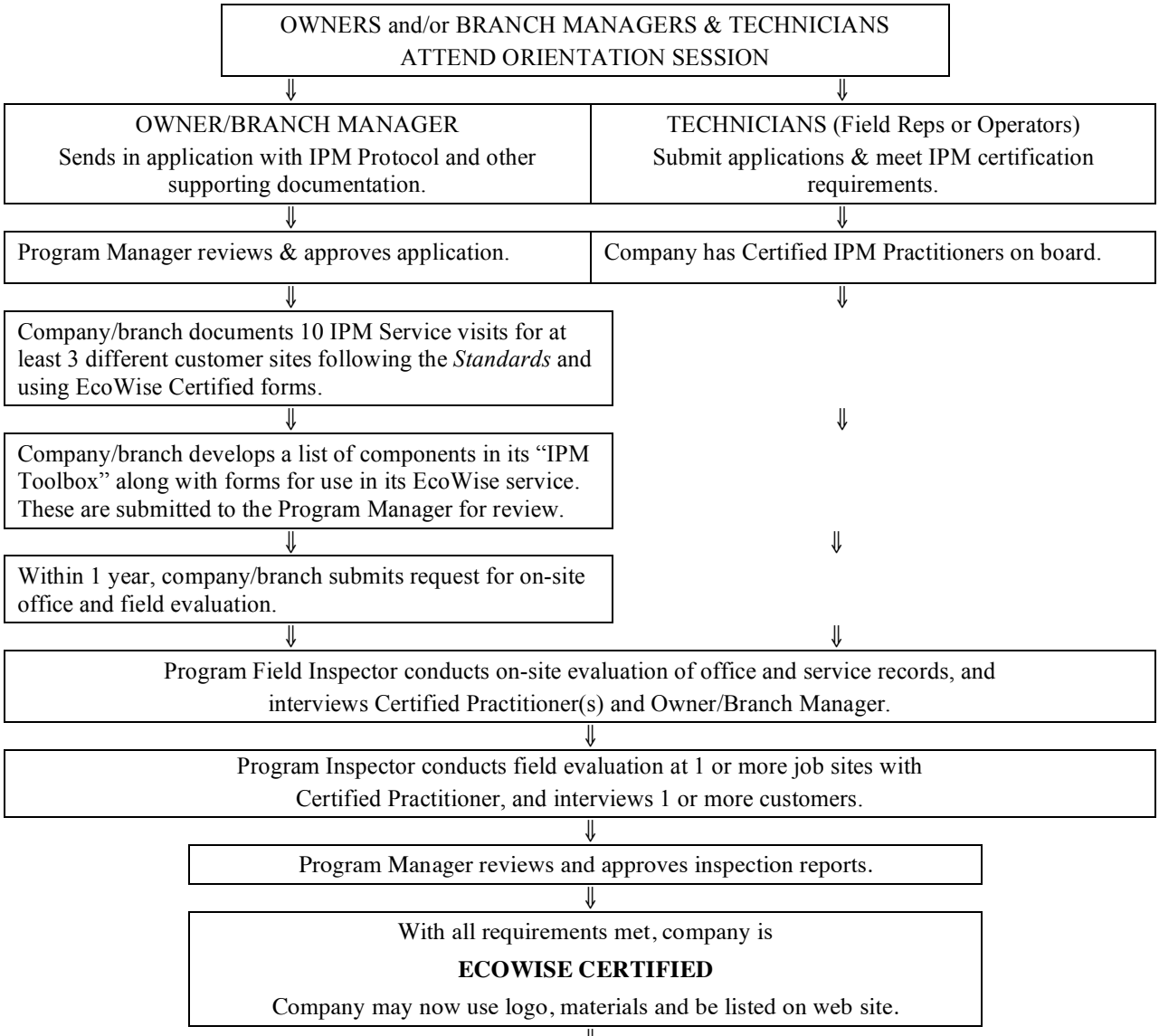
☐ Examples of fact sheets, door hangers and other customer education materials (if any)

NOTE: If you are Green Shield certified, you may forego the office visit and field evaluation, but you must submit the above mentioned documents (<u>except</u> documentation on the 10 IPM service visits), and a copy of your Green Shield certification.

Step 8: *Become Fully EcoWise Certified*

The Program Manager will review all documents submitted and make the final determination on your certification. If there are deficiencies in either your application or your evaluations, the Program Manager will work with you to try to rectify them.

OUTLINE OF ECOWISE STRUCTURAL IPM CERTIFICATION PROCESS



RENEW IN 3 YEARS:

OWNER/BRANCH MANAGER	TECHNICIANS (Field Reps or Operators)
Submits an IPM Protocol for one pest (a pest different from prior submissions. Program Manager reviews documentation and renewal application. Inspector conducts office visit and review of records and may interview employees, conduct a field evaluation, and/or interview customers. When all requirements are met, Program Manager approves renewal application.	Submit renewal application. Program Manager reviews documentation and renewal application. When all requirements are met, Program Manager approves renewal application.

Sample Certified IPM Practitioner Exam Questions

1. What term is used in IPM to indicate the level at which pests MUST be controlled?
   a. Insect level
   b. Disease severity
   c. Action Threshold
   d. Pest number

2. Your customer tells you they have small brown cockroaches that are flying around their house. These are most likely German cockroaches (*Blattella germanica*).
   T or F

3. Which describes the development of a cockroach?
   a. egg to nymph to pre adult to adult
   b. egg to nymph to adult
   c. egg to larva to pupa to adult
   d. egg to larvae to adult

4. Baits attract ants, so baits:
   a. are placed outside where there is ant activity to attract ants out of a building
   b. may have to be placed inside if the ant colony has moved inside
   c. are placed outside where there is ant activity and will reduce the potential of ants invading nearby structures.
   d. all of the above

5. Foraging Argentine ants (*Linepithema humile*) travel long distances and may be living on adjacent properties.
   T or F

6. The most important factor in keeping rodents and birds away from buildings is
   a. exclusion
   b. using repellants
   c. using bait
   d. using traps

7. The three most important pest rodents in Northern California are (circle three):
   a. Norway rats (*Rattus norvegicus*)
   b. deer mice (*Peromyscus maniculatus*)
   c. white-footed mice (*P. spp*.)
   d. roof rats (*R. rattus*)
   e. wood rats (*Neotoma spp.)*
   f. house mice (*Mus domesticus complex, or M. musculus*)
   g. pack rats (*N. spp*.)

8. Stressing rodents by removing cover, food and water sources:
   a. makes them more difficult to control
   b. makes them easier to control
   c. makes no difference at all

9. Drugstore beetles (*Stegobium paniceum*) will readily feed on dried pet food and dog cookies.
   T or F

10. Rodenticides are toxic to stored product insect pests.
    T or F

11. Which of the below best defines the principles of IPM in one statement
    a. IPM is a systems approach using multiple strategies
    b. IPM focuses its strategies on biological controls
    c. IPM promotes a single strategy for all pest problems
    d. IPM is the most cost-effective means of killing pests

12. In the EcoWise Program standards, if the certified business loses it's only certified IPM Practitioner, it needs to notify the certifying agent (the program) and may continue to take on new IPM customers.
    T or F

13. Revocation of an IPM Practitioner's certification may take place if which of the following occurs
    a. failure to comply with the EcoWise Program standards
    b. willfully making a false statement
    c. incurring serious complaints from customers
    d. all of the above

14. Which of the following is usually the most significant contribution of pesticide runoff to storm drains from a customer's site
    a. spot treatments to soil areas around the home
    b. application of pesticides inside the home
    c. application of pesticides to paved areas
    d. none of the above

Answers

1. c
2. f
3. b
4. d.
5. T
6. a
7. a, d, f
8. b
9. T
10. F
11. a
12. F
13. d
14. c

Scheduling an Office Visit and Field Evaluation for your Company or Branch Office

You must schedule your office visit and field evaluation within 1 year of the date of your business application or you may have to begin the application process over, including paying the application fee.

Contact the Program Manager to schedule your evaluation.
William Quarles
Phone: 510-524-2567
Email: birc@igc.org

For your **office visit**, you will need to have the following information available:

☐ The IPM Site Plan forms on which you recorded your 10 IPM service visits

☐ The forms you plan to use in your EcoWise Certified IPM Service, going forward—at minimum

1) IPM service inspection form(s),

2) an IPM site plan form, and

3) a treatment record form

Note that you can use the forms supplied by the Program or you can make your own forms as long as you record the necessary information.

☐ Your "IPM Toolbox" list of IPM equipment, devices, products, and pesticides that has been approved by the EcoWise Program Manager

☐ The Quality Control for EcoWise Certified Service form that details how you will ensure the Quality of your EcoWise Certified service

☐ Samples of advertising or marketing materials you plan to use in conjunction with your EcoWise Certified IPM Service (if any)

☐ Examples of fact sheets, door hangers and other customer education materials (if any)

Note: If you are Green Shield certified, you may forego the office visit and field evaluation, but you must submit the documents mentioned above (except documentation on the 10 IPM service visits), and a copy of your Green Shield certification.

For your **field evaluation**

1. The inspector will want to observe a typical IPM service
2. The inspector will want to speak to at least one of your IPM service customers

EcoWise Certified IPM Protocols

ECOWISE CERTIFIED IPM PROTOCOL FORM

Company Name_____

Prepared by_____

IPM Protocol for _____
Common name Latin name

Important Directions: *Fill out this form and attach it to your EcoWise Certified Business Application. As you fill it out, think of this form as a training document to teach a new employee how your company manages this pest. You can refer to the EcoWise Standards Section 101 for more guidance. The information in this form will help the Program Manager assess your understanding of the IPM process and the EcoWise Certified Standards.*

1. Establish a partnership with the customer.

List the information that is needed to establish a partnership (e.g., who is the decision-maker, who is the customer contact on-site, etc.). List the responsibilities of the customer that are important for successful management of this pest and/or that are specific to this particular pest. How will you engage the customer in problem solving? How will you educate the customer?

2. Record a detailed history of the pest problem

List the important information that should be obtained from the customer to facilitate management of the pest.

3. Biology of the pest

List the biological information that is pertinent to managing this pest, such as food and habitat preferences, information about its lifecycle that is important in management (time of year it is active, when it breeds, etc.). List characteristics that will help identify this pest.

4. Thoroughly inspect the site.

a. Outdoors

Where and what should the inspection concentrate on? How should the information be recorded?

b. Inside

Where and what should the inspection concentrate on? How should the information be recorded?

5. Discuss inspection findings with the customer and provide them with information

What (in general) is important to communicate to the customer regarding prevention and management of this pest? How (in general) will you determine the customer's tolerance level for this pest?

6. Develop a written site-specific IPM Plan

For each EcoWise Certified job you do, you will need to develop a written, site-specific IPM plan for how you will manage the pest(s) at that site. (For an example of a form you can use, see "IPM Site Plan & Treatment Record Form" under "III. Service Forms" in the EcoWise Certified Handbook.) Although the specific choices for treatment will depend on the site, there is a range of options for every pest. From this wide range of options, you will choose options appropriate for the customer and site.

For the pest under consideration, the IPM Site Plan will be developed from the following list of options available to or preferred by your company:

Treatment Options Outdoors (*List <u>all</u> options that your company might or could use.*)

To limit availability of food

To limit availability of shelter/habitat

To limit access to the structure

To directly suppress the pest by removal or killing

Treatment Options Inside (*List <u>all</u> options that your company might or could use.*)
To limit availability of food

To limit availability of shelter/habitat

To limit access to the structure

To directly suppress the pest by removal or killing

7. Evaluate and monitor the success of the treatment(s) for this pest and the satisfaction of the customer

What methods do you use to accomplish this?

8. **If the customer is a one-time customer, under what circumstances might you make a 2nd or 3rd visit to a client with this pest?**

9. **In what circumstances would you establish a periodic monitoring program for a customer with this pest?**

10. **Other information you think is important:**

Example
IPM PROTOCOL FOR THE ARGENTINE ANT (*LINEPITHEMA HUMILE*)

Purpose of the Example IPM Protocol:

This document is an example to help you fill out the IPM Protocol Form that you must attach to your Business Application.

Note: This Argentine ant protocol was prepared by BIRC with input from two pest control companies. This is an example and not meant to be exhaustive. Other techniques and other pesticides on the Program Materials List may work just as well or better. The protocol is written as if it were being used by a "typical" EcoWise Certified company for a commercial account.

1. **Establish a partnership with the customer.** It is important for the success of our company's IPM service to establish a partnership with the customer (to the extent feasible—each customer will vary).
   a. Determine who your customer contact will be; record their name and phone number
   b. Determine who the decision-maker at the site will be; record their name and phone number
   c. At the appropriate time, advise the customer of their responsibilities:
      - Keeping dumpsters and areas around them clean, locating dumpsters away from the building, and making sure they are emptied at least once a week
      - Keeping inside trash receptacles clean, lined with plastic and emptied nightly—no trash left overnight without the bag knotted
      - Maintaining adequate sanitation in the building
      - Informing building occupants that all food in workspaces must either be in a refrigerator or sealed in an ant-proof container (screw top jar with rubber on the lid or plastic container with tight-fitting lid, such as Tupperware)
      - Distributing our company's Argentine Ant Fact Sheet to appropriate building occupants; distributing our Sanitation and Pest Management Fact Sheet to appropriate building staff/contractors
      - Refraining from spraying aerosol pesticides near or on bait stations that we set up
      - Following through on recommendations made by our company
   d. Determine with the decision-maker which pest management recommendations will be the responsibility of the customer and which will be the responsibility of our company.
   e. Suggest periodic meetings (by phone or in person) with the decision-maker to review pest management progress and any issues
   f. If the ant problem is very serious because of customer non-cooperation, suggest a short customer training/education session for an extra fee

2. **Record a detailed history about the problem.**
   Some of the following questions are appropriate for asking on the phone before you visit the site. Others can be asked on the phone or in person.
   a. Where is the site/structure?
   b. Type of building?
   c. Where do they see ants?
   d. How long have they had the problem?
   e. Have changes occurred that might relate to the ants being a problem now (e.g. potted plants brought inside, construction activity disturbing soil)?
   f. Have they or someone else treated the problem? How or with what?
   g. Are there children at the site? (crumbs, food in places other than kitchen) Pets? (dog food, cat food left out, people may be feeding feral cats)
   h. Do they have ants all year? If not, when do they see them?

3. **Biology of the pest.** This section contains important biological information related to effective ant management.

Argentine Ant Colonies

- Colonies are linked by tunnels; workers and queens move freely from nest to nest; each colony has many queens that live in harmony. Perhaps it is more accurate to think of Argentine ants as living in huge colonies with 1000's of entrances.
- Because of these huge "supercolonies," the concept of finding and killing "the" nest is not always valid.
- The energy that most other ant species use in defending the colony is used instead for reproduction.

Feeding Behavior

- Worker ants (all females) feed and care for the young, but also feed each other and the queens (called **trophallaxis**); this is the way baits are spread throughout a colony
- On average at any one time, a very small proportion of a colony is out foraging, so killing these ants will not eliminate the colony.
- These ants feed on just about anything from dead animals (including insects) to all kinds of human and pet food, to vomit, feces, and even human sputum.
- A favorite food is the honeydew produced by insects like aphids, mealybugs, scales, and whiteflies. Argentine ants protect these insects from their natural enemies.
    - Plants that harbor these pests and are growing near a structure will attract ants to the building.
    - If ants are excluded from plants with honeydew-producing insects, natural enemies will often eliminate the plant pests
- Liquid baits with sugar as the attractant are useful throughout the year, because adult ants will always feed on sugary liquids.
- Baits with a protein attractant may only be useful when the colony is expanding and ants are feeding a large number of young.

Nesting sites

- Argentine ants move their colonies within hours to take advantage of a food source or to escape inhospitable conditions. In winter they look for places that are warmer and drier, and in summer they seek cooler and moister sites.
- Their shallow nests are primarily in the ground, and they are not marked by significant soil mounds. They prefer moist, well-drained soil.

Outside, some places to find nests are

- near irrigated turf and other landscaping
- in planters and potted plants
- in the ground under trees, especially trees with honeydew producing insects,
- near faucets and irrigation valves
- under sidewalks, stones and patios
- in soil accumulated in the corners of a roof

Inside, nests can be found

- in potted plants
- inside cupboards and drawers
- under tiles on kitchen counters, behind wall tile and brick veneer
- in the insulation in dishwashers, washing machines, and refrigerators,
- in wall voids, in moist basements, and in vehicles
- in unusual places including inside metal curtain rods and inside a bathroom sink in the void that allows overflowing water to escape down the drain.

Seasonal Colony Development and Feeding Behavior

Winter (November thru January): many adults die, colony essentially stops breeding and ant population is small.

Liquid sugar baits are accepted better than other baits, and less is needed because of the low population.

Late winter/early spring: breeding increases and adult workers seek honeydew producing insects (aphids, scale) and protein to feed developing larvae.

Both solid protein and liquid sugar baits are accepted

Summer: honeydew producers decline (beginning in July/August) and ants start to look elsewhere for food, often in nearby buildings.

In early summer, solid protein baits are still accepted.
Liquid sugar baits are readily accepted all summer

Fall: the ant population has reached its maximum, honeydew food source has declined and foraging pressure results in more nearby building invasions.

Sugar baits readily accepted

4. **Thoroughly inspect the site.** Record information on our company's inspection form.

   a. Verify the ant species. Make sure you really are dealing with the Argentine ant.

   b. Inspect outdoors

   Begin your inspection around the perimeter of the building. If you don't find trails and entry points there, move farther out from the building.

   - Look for ant trails and follow back to a nest, if possible, and note nest site. Look along edges of foundation, paving, roof line, gutters; inspect pipes and wires near or leading into the building, inspect nearby trees and shrubs (especially if branches touch the building), hanging or potted plants, planters; inspect lumber piles, logs or other wooden elements in the landscape, inspect around garbage cans, dumpsters, recycling storage
   - Check for other obvious nests and note them. See above for nesting sites.
   - Note and record entry points where ants are currently entering structure & where ants could enter structure, such as
     - Holes where pipes, wires, conduit penetrate walls
     - Cracks, crevices, openings between window or door and sill or frame
     - Weep holes in doors or windows
     - Cracks in the foundation

- Note and record conducive conditions including lack of sanitation, plants with honeydew-producing insects or extra-floral nectaries (esp. citrus, roses, pines, birches, black acacia, bottlebrush, birches); ground covers and mulches; leaking irrigation; other areas of warmth and moisture or humidity
- Check garbage can/dumpster areas for cleanliness, tight lids and sealed bags

c. Inspect inside

- Look for ant trails and follow back to entry point, if possible. Follow into crawl space if necessary. Look along the edges of counters, cupboards, along and behind baseboards, under carpet along the tack strip (use needle-nosed pliers to pull up), along pipes and wires, in and around heating and air conditioning ducts, behind electrical switch plates, around windows and doors, around garbage and recycling storage, near food storage, in and around vending machines, in attics and basements in damp areas
- Note conducive conditions, such as improper food storage, substandard sanitation, holes, gaps to the outdoors, potted plants.

5. Discuss inspection findings with the customer and provide them with information

a. Discuss inspection results, priorities and what we will do for the customer for no additional charge and where appropriate, our price for additional work.
b. Discuss the possible outcomes of the treatment methods, how long they might take to gain control and what to expect.
c. Discuss the emphasis of IPM while judging customer interest level (e.g., long term solutions, using knowledge of pest biology, monitoring, trapping, baiting, pest exclusion, all of which lead to effective pest control and minimal pesticide use).
d. For customers not on a bimonthly schedule, emphasize the importance of being on a scheduled service so baiting can begin early in the year and help prevent infestations in the future.
d. Provide written information to reinforce and supplement verbal discussion. At minimum, this should include a copy of the inspection report and IPM site plan.
e. Discuss the customer's role such as keeping things clean, not using sprays, etc.; provide them with our Ant Fact Sheet and our Sanitation and Pest Management Fact Sheet
f. Discuss pest tolerance levels and action levels that trigger treatment, and if applicable, the advantages of higher tolerance level but be careful about being too persistent on this subject.
g. Mention that substantial control can be achieved for ants outside but we can't guarantee ants will never again come into the structure.

6. Develop a written site-specific IPM plan

This is the written plan for how our company manages a target pest at a particular site. Use our company IPM Site Plan & Treatment Record Form to record the information. IPM strives for prevention and long-term solutions with the lowest risk to people, pets, and the environment. Integrating a number of the treatments options below will result in better control than using a single treatment. Specific options chosen will depend on the time of year, customer needs, and the situation at the site.

Treatment Options Outdoors

To limit availability of food

- Treat honeydew-producing insects on vegetation near the structure by washing with plain water or with insecticidal soap and water
- Use sticky barriers around trunks to exclude ants; be sure to trim branches that touch the building, the ground, other plants or structures to prevent ants from finding an alternative route into the plant
- Remove plants that regularly have large populations of honeydew-producing insects

BIRC Note: a DPR license may be necessary for some of the above work

To limit availability of shelter/habitat

- Reduce excessive moisture and irrigation leaks near structures
- Reduce areas outside covered with black plastic and decorative rock
- Cut back or eliminate ground covers next to the structure, especially to have access to the foundation.

To limit access to the structure (pest-proofing)

- Trim trees and bushes touching structure
- Caulk or otherwise seal accessible areas where ants are getting in or have been seen getting in

To directly suppress the pest by removal or killing

Use direct suppression alongside the preceding treatment options, not as a stand-alone treatment.

Baiting (For more information, see attached Notes on Baiting for Argentine Ants)

Winter (November thru January)

- Liquid sugar baits, such as Gourmet Ant Bait Liquid (borate), Terro Ant Killer II (borate)—use outside in bait station
- Maxforce FC Professional Ant Bait Gel (fipronil)—use outside in cracks and crevices

  Place in locations where ants are present or near where they are entering structure (out of sight).

Late winter/early spring

- Liquid sugar baits, such as Gourmet Ant Bait Liquid (borate), Terro Ant Killer II (borate)—use outside in bait station
- Protein baits such as Maxforce Professional Insect Control Granular Insect Bait, Niban FG

Early Summer

- Liquid sugar baits, such as Gourmet Ant Bait Liquid (borate), Terro Ant Killer II (borate)—use outside in bait station
- Protein baits such as Maxforce Professional Insect Control Granular Insect Bait, Niban FG

Late Summer and Fall

- Liquid sugar baits, such as Gourmet Ant Bait Liquid (borate), Terro Ant Killer II (borate)—use outside in bait station

Other Baiting Considerations

To attract ants outside of the house use MaxForce Ant Killer gel with fipronil or Gourmet Ant Bait Liquid with borate.

A 5% concentration of borate will kill ants quickly, usually before they get back to the nest, and is useful for getting rid of ants inside. Little if any borate will make it back to the nest so a high concentration of borate will have little effect on the ant colony. A lower concentration of borate (0.5% to 2%) can kill an entire colony, but may take several weeks.

To make a bait solution with a 1% concentration of borate from a 5% concentration, dilute one part ant bait with four parts sugar water (1 cup sugar in a quart of water will make a 25% sugar solution, the ideal for Argentine ants). Add a small amount of disodium benzoate food preservative for a 1% concentration to help prevent mold growth. Use either a PFT station (Rockwell Labs) or the KM AntPro station.

- Spot treat trails and nests with a mixture of sodium lauryl sulfate and water; sodium lauryl sulfate and diatomaceous earth; rosemary oil

Record actions taken, location of bait stations or bait placement, amount and kind of material used.

Inside

To limit availability of food

- Remove and clean up food sources
- Discuss importance of sanitation with appropriate people
- Discuss importance of not feeding feral cats

To limit availability of shelter/habitat

- Look for attractive habitat—warmth and moisture—and discuss remedies with customer
- Discuss with customer about removing potted plants with nests
- Suggest using an Antser® (platform with soapy water moat underneath) to prevent ants from reaching potted plants, pet food, garbage
- Suggest placing potted plants in a dish of water with a drop of detergent as another option

To limit access to the structure (pest-proofing)

- Caulk or otherwise seal entry points that ants are currently using or are nearby
- Blow diatomaceous earth into cracks and wall voids

To directly suppress the pest by removal or killing

- Clean up ant trails with soap and water
- Vacuum up ant trails, or use a lint roller to pick them up
- Use baits temporarily to eliminate ant trails inside; remove after trails are gone

In general, it is preferable to bait ants outside because baiting inside can exacerbate the problem by drawing more ants into the structure; however, at various times, it may be necessary to bait inside briefly to eliminate trailing ants.

Record actions taken. Note locations of any bait stations.

7. Evaluate and monitor the success of the treatment(s) for this pest and the satisfaction of the customer

Return in 7 to 10 days

- Remove inside bait stations if ant trails have been eliminated
- Check bait stations outside to ensure that bait is being accepted
- Change bait if necessary
- Refill bait stations outside, if necessary
- Bait stations can be moved away from building toward fence/property line
- Check for ants trailing into building; seal entry points.
- Check on the progress of customer responsibilities to limit access, food, and habitat.

Return in 7 to 10 days

- Check and refill bait stations for last time.

8. If the customer is a one-time customer, under what circumstances might you make a 2nd or 3rd visit?

If the ant problem is severe and cannot be solved in one visit

9. In what circumstances would you establish a regular monitoring program for a customer with Argentine ants?

A regular monthly or bi-monthly customer should have a monitoring program for Argentine ants. This monitoring does not have to be highly detailed but should at minimum cover the following:

a. An evaluation of the success of actions taken by customer and our company. Check bait stations to ensure bait is being accepted. Move or change bait as needed
b. A check of problem areas for ants and other key pests
c. An inspection for new problems
d. Communication to update the customer.
e. A record of additional treatment actions taken
f. Assessment of customer's satisfaction with treatment. Leave comment card.

10. Other information you think is important:

None

Sources:

Agurto, Luis Sr., Luis Agurto IV & Carlos Agurto. 2005. Pestec IPM Provider, San Francisco, CA. Personal communication

Klotz, John. 2005. U.C. Riverside. Riverside, CA. Personnal communication.

Klotz, J., M. Rust & A. Soeprono. Why delay when you bait & spray? *Pest Control*. April 2004, pp 33-34.

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Reierson, D., M. Rust & J. Klotz. There's Safety in Numbers. *Pest Control*. March 2001, pp 50-52.

Slater, Arthur. 2006. Slater Pest Control. Sebastopol, CA. Personal communication.

Soeprono, A., M. Rust. Strategies for Controlling Argentine Ants (Hymenoptera: Formicidae). *Sociobiology*. 2004. Vol. 44, No. 3, pp 669-682.

Notes on Baiting for Argentine Ants

Why Baits Work

- Baits work because worker ants feed them to queens and young (larvae) and share them with each other. (This is called "trophallaxis".)
- Baits must have delayed toxic effects so that workers can thoroughly and uniformly share the bait throughout the colony by trophallaxis.

Which Baits Do Argentine Ants Like Best?

- Liquid sugar baits are taken all year round and can be ingested by workers. Liquid sugar baits are also fed to queens and larvae.
- Solid protein baits are taken best in the spring and early summer when there are many larvae to feed in the colony. Workers cannot ingest solid baits, so workers must first feed solid baits to larvae to be digested. Workers then feed on this pre-digested liquid and spread it through the colony.
- Argentine ants will feed on gel baits, but not as efficiently as on liquid baits.
- Argentine ants are selective when feeding on granular baits. Being small ants, Argentine ants will feed more efficiently on small granules. They prefer particles between 840 and 1000 micrometers.

The Concentration of Active Ingredient in the Bait is Very Important

- If the concentration of **active ingredient** (in other words, insecticide) **is too high** in a bait, it can repel worker ants or kill them before they have a chance to share much, if any, with the colony.

  Special Notes on Liquid Boron-based baits:

  - For a boric acid or borate baits, the concentration of active ingredient that will be most effective in killing the colony (rather than just stopping the ant trail) is between **0.5% and 2%**. Higher concentrations may be used to quickly eliminate ants indoors.
  - Commercial liquid boric acid or borate baits with a high sugar concentration (e.g. Terro®) can be diluted with tap water to achieve the desired concentration of active ingredient.
  - The optimum sugar concentration in liquid bait is 25%.
  - When you dilute a liquid bait that does not have the high sugar content of Terro, you need to fortify the sugar content (DPR confirms this is allowed as long as you are not re-selling the mixed bait). To ensure adequate sugar, dilute the bait with 25% sugar water.

  To make 25% sugar water, mix one cup of sugar with 1 quart of water.

- As the insecticidal activity in a bait increases, feeding on the bait decreases. This is true for all insecticides including borates and other toxicants.
  - Again, if the concentration of **active ingredient is too high**, it will kill ants before they can spread it to the colony, or they will refuse to feed on it at all.
  - Evaporation from a bait station could increase the active ingredient to the point where it is too highly concentrated to be effective.
  - If the concentration of the **active ingredient is too low**, ants will readily consume the bait, but it will not kill them.
  - An Argentine ant typically feeds 4 to 12 other ants, so in this process, a liquid bait with too little active ingredient could be diluted to the point where it is no longer effective.
- Research suggests that liquid baits containing low percentages of boric acid may need to be provided for several weeks to be most effective. *However, this does not mean that using liquid baits cannot work if they are used for a shorter amount of time, because it depends on the degree of infestation. It may not take as long to have a substantial impact on a light infestation.*

Locate Bait Stations Properly

- In general it is best to bait for ants outside the structure. This is because it may take a number of weeks to eliminate a colony, and you don't want to be continually attracting trails of ants into a structure.
- A liquid bait with a high concentration (greater than 4%) of boric acid or borate can be used indoors to eliminate an ant invasion within a few days.
    - Indoor bait stations should be placed in an out of the way spot, but on the ant trail.
    - Remove interior bait stations as soon as the trail disappears. Leaving them longer may attract more ants to the spot.
- Do not spray ant bait stations with pesticide; it will repel the ants.
- Do not locate ant bait stations near areas that have recently been sprayed with pesticide or that are likely to be sprayed with pesticide in the future.
- Outside, place bait stations out of direct sunlight. This will reduce evaporation, and prevent the bait from becoming too hot for the ants to feed on.
- Place bait stations where ants are seen trailing and/or near sources of moisture or food.
- Bait stations can initially be placed close to the structure and then gradually moved farther away toward the property line.

Use Enough Bait Stations The number of bait stations used should be based on the size of the structure and degree of infestation. This has not been scientifically determined for all bait stations with all baits, so experimentation may be needed.

Commonly Available Ant Bait Products. Effectiveness varies.

Active Ingredient	Example product name
Avermectin B (Abamectin)	Advance Granular Ant Bait
Borate-based products	Drax Ant Kill Gel PF Drax Ant Kill Gel Snuffer Niban FG Niban FG Niban Granular Bait MRF 2000 (Stapleton's) Advance liquid ant bait Uncle Albert"s Super Smart Ant B Gourmet Ant Bait Gel Gourmet Ant Bait Liquid Terro Ant Killer II Dr. Moss's Liquid Bait System Drax Liquidator Ant Bait
Fipronil	Maxforce FC Prof. Insect Control Bait Sta. Maxforce Ant Killer Bait Gel
Hydramethylnon	Maxforce Prof. Ant Killer Bait Stations Maxforce Prof. Granular Insect Bait Maxforce Prof. Fine Granular Insect Bait

Sources for this fact sheet:

Klotz, J., M. Rust & A. Soeprono. Why delay when you bait & spray? *Pest Control*. April 2004, pp 33-34.

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Kupfer, K. Guide to Sentinel® System Placement! KMAntPro LLC, P.O. Box 967, Nokomis, FL 34275. 2004.

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Soeprono, A., M. Rust. Strategies for Controlling Argentine Ants (Hymenoptera: Formicidae). *Sociobiology*. 2004. Vol. 44, No. 3, pp 669-682

EcoWise Certified Service Forms

Example

Pest Problem Background/Initial Contact with Customer

Date_____ Certified IPM Practitioner/Receptionist_____

Customer Contact _____

☐Facilities manager ☐Homeowner ☐Other_____

Work Ph:_____ Home:_____ Cell_____ Pager_____

Company name_____

Street Address_____City_____

Notes on directions to house/site/Bldg._____

_____

Describe current problem including evidence of pests:_____

_____

_____

Suspected cause of problem: ☐Unknown ☐Ants ☐Bedbugs ☐Bees ☐Birds ☐Cockroaches ☐Fleas ☐Flies ☐Mice ☐Rats ☐Raccoons ☐Spiders ☐Stored Product Pests ☐Other ☐Not Applicable

Location of problem: ☐Inside ☐Outside Notes_____

_____

Actions already taken by customer or previous PMP:_____

_____

Describe incidents, actions, weather, etc. (if any) that occurred prior to or around the time the pest problem was first noticed that might be linked to the pest infestation:_____

_____

Example EcoWise Certified Inspection Report

Date_____ EcoWise Certified IPM Practitioner_____

Customer Contact _____

☐Facilities manager ☐Homeowner ☐Other_____

Work Ph:_____ Home:_____ Cell_____ Pager_____

Street Address_____City_____

Pest(s), or pest evidence observed: ☐Ants ☐Bedbugs ☐Bees ☐Birds ☐Cockroaches ☐Fleas ☐Flies ☐Mice ☐Rats ☐Raccoons ☐Spiders ☐Stored Product Pests ☐Other_____

Number of pests/extent of damage_____

PCO Cust.

Pest exclusion work needed (note location in space after item):

☐ ☐ 1. Seal holes in wall around pipes, cables, and wires ☐Inside ☐Outdoors_____

☐ ☐ 2. Seal cracks and crevice with caulk or paint ☐Inside ☐Outdoors_____

☐ ☐ 3. Seal other holes 1/4" or larger ☐Inside ☐Outdoors_____

☐ ☐ 4. Screen drains ☐Inside ☐Outdoors_____

☐ ☐ 5. Cap drains_____

☐ ☐ 6. Inside doors: ☐Repair ☐Replace ☐Weather-strip ☐Add kickplate ☐Add door sweep ☐Other_____

☐ ☐ 7. Outside doors: ☐Repair ☐Replace ☐Weather-strip ☐Add kickplate ☐Add door sweep ☐Other_____

☐ ☐ 8. Windows: ☐Repair ☐Replace ☐Weatherstrip ☐Screen ☐Other_____

☐ ☐ 9. Cover air vents with ¼" hardware cloth_____

☐ ☐ 10. Seal/repair air conditioning units_____

☐ ☐ 11. Repair roof_____

☐ ☐ 12. Move compost into rodent proof container_____

☐ ☐ 13. Keep tight-fitting lids on garbage cans and dumpsters_____

☐ ☐ 14. Store grass seed and birdseed in rodent-proof containers_____

☐ ☐ 15. Store human and pet food in pest-proof containers/perishables in refrigerator_____

☐ ☐ 16. Store rodent nesting material (fabric, paper, rug scraps, plastic, insulation) in rodent-proof containers

General conducive conditions to be corrected (Note location in space after item):

☐ ☐ 17. Fix leaky plumbing ☐Inside ☐Outdoors_____

☐ ☐ 18. Correct excessive moisture problems, specifically_____

☐ ☐ 19. Eliminate standing water_____

☐ ☐ 20. Improve drainage_____

☐ ☐ 21. Remove clutter, esp. near sinks, stoves, & refrigerators_____

☐ ☐ 22. Bring order to storage rooms/closets/garage/storage shed_____

PCO Cust.

☐ ☐ 23, Store items off the ground and 18" away from wall_____

☐ ☐ 24. Dispose of insect- or rodent-infested goods_____

☐ ☐ 25. Remove debris, lumber or rock piles_____

☐ ☐ 26. Remove debris from roof/gutters_____

☐ ☐ 27. Move firewood as far as possible from structure_____

☐ ☐ 28. Cut grass or weeds_____

☐ ☐ 29. Remove fallen fruit or nuts_____

☐ ☐ 30. Remove pet food after pets have finished_____

☐ ☐ 31. Remove pet waste_____

☐ ☐ 32. Remove spilled birdseed_____

☐ ☐ 33. Cut vegetation back from building walls at least 18"; leave a clear border around foundation_____

☐ ☐ 34. Remove ivy or other vines from sides of buildings or nearby trees_____

☐ ☐ 35. Trim back tree branches 3' to 6' from building_____

☐ ☐ 36. Trim, treat, or remove vegetation harboring honeydew-producing insects (aphids, scales, mealybugs)

Sanitation

☐ ☐ 37. Improve cleanliness of __break room(s) __equipment __appliance drip pans __garbage cans __floors __floor drains __sink drains __counters __dumpsters __area around dumpster __elevator pit __recycling area __other/notes_____

☐ ☐ 38. Empty indoor trash cans at end of every day; if trash cannot be emptied, tie knot in liner

☐ ☐ 39. Store mops and brooms off floor on racks_____

☐ ☐ 40. Remove food from employee desks/store in pest proof containers_____

☐ ☐ 41. Other_____

☐ ☐ 42. Other_____

Notes_____

_____

Communication with Customer

☐ Discussed inspection findings with customer

☐ Discussed emphasis of IPM (long-term solutions, using knowledge of pest biology, monitoring, trapping, baiting, pest exclusion, all of which lead to effective pest control and minimal pesticide use)

☐ Gave customer EcoWise brochure

☐ Discussed responsibilities of technician and customer

☐ Discussed customer's pest tolerance level that triggers treatment ☐ Discussed treatment options with customer

☐ Gave customer fact sheets or other educational materials (list):_____

☐ Discussed possible outcomes of treatment methods, how long they will take, what to expect

☐ Discussed estimated cost

☐ Copy sent/given to customer Date_____

Signed_____, **EcoWise Certified IPM Practitioner**

Signed_____, **Customer** _____**Date**

IPM Site Plan Form for the 10 Service Visits

Instructions: Use this form to document your 10 IPM service visits for at least 3 customer sites before you schedule an office visit with the EcoWise Inspector. Use a separate form for each customer site.

Date of Initial Inspection_____ Certified IPM Practitioner completing form_____

Pest Control Co. _____Customer Site _____
☐ Commercial ☐ Residential ☐Other_____

1. Inspection

☐ Customer interviewed for history of pest problem(s) & information recorded

☐ Site inspected and pest(s) identified: Target Pest(s):_____

☐ Conducive conditions recorded ☐ Discussed findings with customer

☐ Discussed tolerance levels with customer. Rate customer's tolerance level for each pest:_____

_____

2. Initial Treatment to directly suppress pest:_____

_____

_____

3. Prevention Recommendations: Mark appropriate choices on Reverse side of this form.

4. Treatment Record

Date	**Treatment Site** (*use codes on reverse*)	**Treatment Method** (*use codes on reverse*)	**Equipment Used** (use codes on reverse)	**Product** PRODUCT NAME	EPA/CA Reg. #	**Check** if not on Program List	**Quantity** (# of devices or amt. of concentrate—specify measure: oz., lbs. pt., qt. gal.)
						☐	
☐ Follow-up: Date_____ Actions taken:							
						☐	
☐ Follow-up: Date_____ Actions taken:							
						☐	
☐ Follow-up: Date_____ Actions taken:							
☐ Follow-up: Date_____ Actions taken:							

5. Information about pest/treatment communicated to/left with customer: _____

_____

6. Describe method of evaluating and monitoring the success of the IPM plan & customer satisfaction_____

_____

7. Please attach site maps and/or diagrams of this property. **OVER ➡**

IPM Site Plan Form for the 10 Service Visits

Prevention (Choose appropriate prevention techniques and mark party responsible for implementation)

CUST	PCO	1. TO LIMIT FOOD
❑	❑	a. Improve general cleanliness
❑	❑	b. Vacuum and/or mop floors
❑	❑	c. Store food (incl. pet & bird food) in pest-proof containers or in refrig
❑	❑	d. Remove or seal up garbage at night.
❑	❑	e. Clean garbage cans/garbage area
❑	❑	f. Clean recyclables before storing
❑	❑	g. Clean recycling area
❑	❑	h. Keep tight-fitting lids on garbage cans and dumpsters when not in use and at night
❑	❑	i. Remove and clean pet dishes after pets eat
❑	❑	j. Treat, trim or remove vegetation with honeydew producing insects (aphids, scales, mealybugs)
❑	❑	k. Remove pet droppings outside
❑	❑	l. Clean up fallen fruit and nuts outside
❑	❑	m. Clean up spilled bird seed outside
❑	❑	x. Other_____
❑	❑	y. Other_____
❑	❑	z. Other_____

CUST	PCO	2. TO LIMIT HABITAT/HARBORAGE
❑	❑	a. Move wood piles away from structure
❑	❑	b. Remove brush and/or rock piles
❑	❑	c. Eliminate areas of excessive moisture
❑	❑	d. Fix plumbing and irrigation leaks
❑	❑	e. Seal up cracks and crevices
❑	❑	f. Bring order to storage areas
❑	❑	g. Eliminate clutter, esp. near sinks, stoves & refrigerators
❑	❑	h. Eliminate long expanses of dense, ground cover
❑	❑	i. Trim tree and shrub branches 3' to 6' away from structure—leave a clean border around foundation
❑	❑	j. Remove standing water
❑	❑	k. Remove debris from gutters
❑	❑	l. Remove debris from roof
❑	❑	x. Other_____
❑	❑	y. Other_____
❑	❑	z. Other_____

CUST	PCO	3. TO LIMIT ACCESS
❑	❑	a. Seal holes in structure outside
❑	❑	b. Seal holes in structure inside
❑	❑	c. Trim tree and shrub branches 3' to 6' away from structure—leave a clean border around foundation
❑	❑	d. Weatherstip doors and/or windows
❑	❑	e. Add screens
❑	❑	f. Repair screens
❑	❑	g. Add door sweeps or otherwise fix gaps under doors
❑	❑	h. Add kickplates
❑	❑	i. Seal HVAC units
❑	❑	j. Cover air vents with ¼" hardware cloth
❑	❑	x. Other_____
❑	❑	y. Other_____
❑	❑	z. Other_____

SITE = Site where treatment applied

RESIDENTIAL

1. Kitchen
2. Living Room
3. Bathrooms
4. Bedrooms
5. Dining room
6. Den
7. Utility room
8. Basement/crawl space
9. Outside
10. Attic
11. Roof/gutters

IDENTIFY OTHER AREAS NOT LISTED

12._____

13._____

14._____

COMMERCIAL

20. Product areas
21. Rest rooms
22. Storage
23. Offices
24. Classrooms
25. Meeting rooms
26. Areas occupied by people
27. Food consumption areas
28. Food prep areas
29. Recreation
30. Dumpster
31. Exterior
32. Basement or crawl space

IDENTIFY OTHER AREAS NOT LISTED

33._____

34._____

35._____

METHOD = Treatment method used

NON-CHEMICAL

50. Inspection only
51. General cleaning
52. Vacuuming
53. Steam cleaning
54. Pest exclusion work
55. Insect sticky trap placement
56. Snap trap placement
57. Multiple-catch trap placement
58. Glue board placement
59. Live trap placement
60. Rodent monitoring block/non-toxic tracking powder placement
61. Other_____
62. Other_____
63. Other_____

CHEMICAL

70. Insect bait placement
71. Void treatment
72. Treatment to other inaccessible area
73. Treatment to area humans would not normally contact
74. Spot treatment outdoors (2ft. sq. max.)
75. Rodenticide placement
76. Other_____
77. Other_____
78. Other_____
79. Other_____

100. Method not allowed in the *Standards* and requiring Notice of Deviation. Describe:

_____

_____

EQUIPMENT = Equip. used for chemical appl.

200. Insect bait station
201. Hand duster
202. Power duster
203. Insect bait applicator
204. Aerosol can
205. Paint brush application
206. Compressed sprayer
207. ULV machine
208. Rodent bait station
209. Other_____
210. Other_____
211. Other_____
212. Other_____

300. Power sprayer

Informed Release for Deviation
from the EcoWise Certified Pesticide Application Standard

To the Certified IPM Practitioner—please complete the following form and return a copy of this Informed Release within 10 business days to the EcoWise Certified Program Manager.

Requested pesticide application method:

Describe why this pesticide application method was necessary:

How could this kind of pesticide use be avoided in the future?

Certified IPM Practitioner name: _____ Certification# _____

Certified IPM Practitioner Signature:_____ Date:_____

Company/Branch Office name: _____

Address: _____
Street/P.O. Box City State Zip

Company Certification#: _____

Return to William Quarles, Program Manager
birc@igc.org
EcoWise Certified
c/o BIRC
P.O. Box 7414
Berkeley, CA 94707

◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆ ◆◆

To the customer—please read the information above, and then read and sign the following statement:

In consultation with my pest management professional, I have requested a pesticide application method that is not in compliance with the Pesticide Application Standard of the *EcoWise Certified Standards for IPM Certification in Structural Pest Management*.

I authorize my pest management professional to perform the service as described below.

Customer name_____
(Please Print)

Signature_____ Date_____

EcoWise Certified Evaluation Checklist

EcoWise Certified Office and Field Evaluation Checklist

EcoWise Certified
William Quarles, Program Manager

COMPANY_____ INSPECTOR_____

BRANCH_____ DATE INSPECTED_____

ADDRESS_____ TIME ARRIVED_____

_____ TIME DEPARTED_____

OWNER/BRNCH MGR_____

PERSON RESPONSIBLE FOR CERTIFICATION COMPLIANCE_____

TITLE_____

PHONE_____ CELL PHONE_____ FAX_____

CERTIFIED IPM PRACTITIONER (if different from above)_____

___INITIAL EVALUATION ____RE-EVALUATION (because of deficiencies) ____TRI-ANNUAL EVALUATION

SEEKING CERTIFICATION FOR: ___Entire company ___Entire branch off. ___IPM Service w/in company/branch off.

NUMBER OF IPM CUSTOMERS—Estimate of One Time Cust./mo._____ Regularly scheduled_____

NUMBER OF EMPLOYEES_____

MARKET SEGMENTS SERVED___residential ___commercial ___schools ___childcare ___hospitals ___nursing homes

___other:_____

Information current on Business Application? __Yes __No If NO, attach an updated copy.
(Inspector will bring copy of the Bus. App. on file with EcoWise)

PAPERWORK REQUIRED BEFORE OFFICE VISIT	**Yes**	**No**	**N/A**	**Comments**
1. Records for 10 IPM services?	☐	☐	☐	_____
a. Is pest prevention emphasized?	☐	☐	☐	_____
b. Is integration of multiple strategies emphasized?	☐	☐	☐	_____
c. Is a systems approach to pest management emphasized?	☐	☐	☐	_____
d. Is a detailed history of the pest problem gathered?	☐	☐	☐	_____
e. Are maps used to record where pests are found?	☐	☐	☐	_____
f. Do inspections record conducive conditions?	☐	☐	☐	_____
g. Are maps used to record where conducive conditions are found?	☐	☐	☐	_____
h. Do inspections record pest proofing/repairs needed?	☐	☐	☐	_____
i. Do recommended treatments appear to be appropriate for site?	☐	☐	☐	_____
j. In general, do the 10 services show that pesticides are used when non-chemical methods are insufficient to solve the problem in an effective and affordable manner?	☐	☐	☐	_____
k. Do pesticides appear to be applied with the most precise application technique, in the smallest area and using the minimum quantity of pesticide necessary to achieve control?	☐	☐	☐	_____
l. Are pesticide amts. & application methods documented?	☐	☐	☐	_____

Company/Branch Name_____

	Yes	No	N/A	Comments
2. At least 1 Certified Practitioner?	☐	☐	☐	_____
3. IPM Plan for at least 1 pest?	☐	☐	☐	_____
4. IPM Toolbox List (both chemical & non-chemical)	☐	☐	☐	_____
a. Is list in harmony with EC List?	☐	☐	☐	_____
b. If no, were discrepancies discussed with candidate?	☐	☐	☐	_____

Notes:_____

_____

5. Copies of marketing materials (if any)?	☐	☐	☐	_____
6. Copies of customer education materials (if any)?	☐	☐	☐	_____

OFFICE VISIT

CERTIFIED PRACTITIONER

7. Confirmed that operation employs at least 1 Certified Practitioner?	☐	☐	☐	_____

If not, when did the Cert. Practitioner's employment end? _____

How will operation replace Cert. Practitioner?_____

PESTICIDE USE

8. Verified IPM Toolbox List and availability in office?	☐	☐	☐	_____
9. Discussed any discrepancies between IPM Toolbox and EC List?	☐	☐	☐	_____

a. How will company designate, for the customer, which pesticides are not on the EC Recommended list?

_____

10. Is risk to employees considered when choosing pesticides/app. methods?	☐	☐	☐	_____
11. Is risk to the environment considered when choosing pesticides?	☐	☐	☐	_____
12. Is risk to the customer considered when choosing pesticides?	☐	☐	☐	_____
13. Are perimeter treatments used?	☐	☐	☐	_____

a. If yes, which chemicals are used and how are they applied?_____

_____

RECORD KEEPING

14. Reviewed all forms to be used in EcoWise service?	☐	☐	☐	_____

☐ An IPM service inspection form(s)

☐ An IPM site plan form and

☐ A treatment record form

☐ Other_____

☐ Other_____

15. Customer gets inspection rpts. & recommendations w/in a week?	☐	☐	☐	_____
16. Records for Certified service are immediately identifiable?	☐	☐	☐	_____
17. Records are legible and organized?	☐	☐	☐	_____
18. Notices of Discontinuation of Service filed in office & sent to Program?	☐	☐	☐	_____
19. Operation has a current copy of the EcoWise Standards? If no, Inspector will provide.	☐	☐	☐	_____

	Yes	No	N/A	Comments
20. Operation has up-to-date EcoWise Handbook? If no, Inspector will provide.	☐	☐	☐	_____
21. Records concerning certification have been kept for 3 years?	☐	☐	☐	_____

EDUCATION AND TRAINING

22. In-house or on-line IPM training for Applicators/Technicians? ☐ ☐ ☐ _____

    How often? _____ Length of sessions?_____

23. Training records for in-house IPM training for Applicators/Techs? ☐ ☐ ☐ _____

24. Is there a plan to train staff in the specifics of the EcoWise Certified *Standards,* especially those who will provide service but did not complete an Orientation? ☐ ☐ ☐ _____

    Describe plan:_____

25. In the opinion of the owner and/or IPM Practitioner, what are the training needs for the staff of this company?

    _____

    _____

IPM PLAN AND QUALITY CONTROL

26. Cert. Pract. prepares an IPM Plan for each customer? (Company uses EC form or equivalent) ☐ ☐ ☐ _____
27. IPM Plans include recommendations for preventive measures? ☐ ☐ ☐ _____
28. Cert. Pract. does actual hands-on pest mgmt work for Cert. accts? ☐ ☐ ☐ _____
29. Cert. Pract. directly supervises pest mgmt work for Cert. accts? ☐ ☐ ☐ _____

    a. If above is Yes, how will the Cert. Pract. carry out "direct supervision" of techs?

    _____

    _____

    _____

    b. If above is Yes, what is the company's/branch office's procedure for quality control of pest mgmt work on Cert. accts?_____

    _____

    _____

IPM SERVICE

30. What is the company's response time for an emergency call for service?_____
31. Does the company visit the customer site only when alerted to a problem or does the company schedule regular inspections for all customer sites?_____

    _____

32. Does company visit hot spots/problem areas more frequently and areas with little pest activity less frequently, or are all sites on the same service visit schedule?_____

    _____

33. When an infestation is detected and actions taken, when does the PMP return to check on the success of the actions: Next day or very soon after treatment?_____ Not till the next scheduled service call?_____

	Yes	No	N/A	Comments
34. For rodent trapping, if returning the next day is not possible, does the company make arrangements with the customer to check the traps?	☐	☐	☐	_____

MARKETING

35. Samples of advertising/marketing materials provided and reviewed?	☐	☐	☐	_____

How will the company be marketing their EcoWise Service?_____

_____

CUSTOMER SITE VISIT

PARTNERSHIP WITH CUSTOMER

36. Involves customer in solving pest problems? (Enlists customer/customer's staff to help monitor or detect pest probs)	☐	☐	☐	_____
37. Reports findings to customer verbally?	☐	☐	☐	_____
38. Reports findings to customer in writing?				
39. Discusses tolerance thresholds with customer?	☐	☐	☐	_____
40. Is willing and interested in working w/customer?	☐	☐	☐	_____
41. Educates cust. re: relation between conducive cond. & pest presence?	☐	☐	☐	_____
42. Encourages customer to address conducive conditions?	☐	☐	☐	_____
43. Offers to correct conducive conditions (for a fee)?	☐	☐	☐	_____
44. Assesses customer satisfaction after treatment?	☐	☐	☐	_____
45. Pest-specific fact sheets available to give customers?	☐	☐	☐	_____

Suggestions for fact sheets/customer education materials needed from the Program_____

_____

INSPECTION

46. Makes contact with customer?	☐	☐	☐	_____

If customer cannot be found, how does tech let customer know what was found/done?_____

_____

47. Customers interviewed for background info?	☐	☐	☐	_____

How is this information recorded _____

48. Reviews the day's planned service with customer?	☐	☐	☐	_____
49. Asks how things have been going?	☐	☐	☐	_____
50. Discusses any potential problems/hazards for technician or customer?	☐	☐	☐	_____
51. Shows familiarity with building?	☐	☐	☐	_____
52. Property thoroughly inspected?	☐	☐	☐	_____
a. Pest sighting logs/reports used in commercial accts?	☐	☐	☐	_____
b. Conducive conditions recorded?	☐	☐	☐	_____
c. Maps used to record info?	☐	☐	☐	_____
d. Possible sources of infestation identified?	☐	☐	☐	_____

Company/Branch Name_____

NOTES

ECOWISE INSPECTOR STATEMENT

I evaluated the service provided by _____ (business name) on

the_____ day of _____ (month), 20_____ (year).

Inspector Signature: _____Print Name:_____

SERVICE PROVIDER STATEMENT

I (we) understand that certification is not transferable in the event of change of ownership and agree to inform the EcoWise Program Manager within 30 days in the event of any change in ownership or management, revocation or suspension of business licenses or regulatory certifications, violations or citations received, or bankruptcy.

I (we) agree to provide all IPM customers with a written statement explaining the EcoWise Certified program and options for providing feedback directly to EcoWise Certified, using text provided by EcoWise Certified.

I (we) have reviewed this report with the EcoWise Certified Inspector and find it accurate.

Authorized Representative(s):

Name: _____ Name: _____

Title:_____ Title:_____

Signature: _____ Signature: _____

Date: _____ Date: _____

Mailing address: _____

City, State, Zip: _____

Phone: ( )_____ E- mail: _____

Service provider comments, if any (attach additional pages as needed):

Company/Branch Name_____

Date_____

YOUR COMPANY'S IPM TOOLBOX—IPM EQUIPMENT, DEVICES, & PRODUCTS, *OTHER THAN PESTICIDES*

Note: This list will be held in confidence.

Brand name	Description	Purpose/Use

Program Manager Field Inspector Date

Company/Branch Name_____

Date_____

YOUR COMPANY'S IPM TOOLBOX—CHEMICAL PESTICIDES

PESTICIDE PRODUCTS YOU WILL USE IN YOUR COMPANY'S ECOWISE CERTIFIED IPM SERVICE

Note: This list will be held in confidence.

Brand Name	**Active Ingredient & %**	**Form** (spray, dust, granular bait, liquid bait, bait block, etc.)	**EPA Reg. #**

Program Manager Field Inspector Date

Company/Branch Name_____ Date_____

QUALITY CONTROL FOR ECOWISE CERTIFIED SERVICE

This document explains how your company or branch will help ensure that customers receive service that consistently meets the EcoWise Certified Standards.

1. Who will perform the actual, hands-on pest management work for customers with EcoWise Certified service? Please circle one:
   a. EcoWise Certified Practitioners
   b. Employees who are under the direct supervision of an EcoWise Certified Practitioner

2. If you circled "b", above, what will your procedures be for ensuring the quality of work performed by un-certified employees? How will your company provide training in the EcoWise Certified Standards for these employees? Please explain thoroughly.

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

3. What procedures will you use to ensure the quality of work of your EcoWise Certified Practitioner(s)? Please explain thoroughly.

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

Signed: _____ _____

Company Owner/Branch Manager EcoWise Certified IPM Practitioner

Signed: _____ _____

EcoWise Certified Program Manager Date

Resources

Structural IPM Resources

Useful Websites for IPM Information

IPM Institute
http://www.ipminstitute.org/school_biblio_buildings.htm
This web page lists useful articles about specific pests, and many of the articles are available online.

Bed Bug Central
http://www.bedbugcentral.com/
Although this is a commercial site, it has excellent information on bed bug biology, inspection, control, and research.

California Department of Pesticide Regulation School IPM Page
http://www.schoolipm.info/
This section of the DPR web site contains a wealth of information about school IPM.

University of California Statewide IPM Project
http://www.ipm.ucdavis.edu/
U.C. Pest Notes for pests of homes, structures, people and pets. A great resource for identification (there is a wonderful ant key), biology, and management.

UC Riverside wasp pages
http://wasps.ucr.edu/waspid.html
This information is for Southern California, but the same species occur in the Bay Area.

UC Riverside spider pages
http://spiders.ucr.edu/index.html
This site debunks the myth of the brown recluse, as well as some other spider myths.

University of Florida Entomology Featured Creatures
http://entnemdept.ufl.edu/creatures/
Provides in-depth profiles of insects, nematodes, arachnids and other organisms.

University of Florida School IPM
http://schoolipm.ifas.ufl.edu/
Useful information on school IPM.

Marin County Department of Agriculture Model School IPM Program
http://www.co.marin.ca.us/depts/AG/Main/IPM/schoolipmprogram.cfm
This site has fact sheets to help educate school staff, teachers and parents.

Correspondence and On Line Courses

Purdue University Correspondence Course
http://www.entm.purdue.edu/entomology/urban/Urban_Info/courses.html
Here you will find information on Purdue's IPM correspondence courses.

University of Minnesota IPM Education
http://www.cce.umn.edu/Integrated-Pest-Management-Education/index.html

There are a number of courses to choose from that are made available at certain times of the year. Fees are collected to view these courses.

Books and Manuals

Bennet, G., J. Owens, and R. Corrigan [eds.]. 1997.*Truman's Scientific Guide to Pest Management Operations*. 6th ed. Advanstar Publications, Cleveland, OH.

Doggett, S. 2010. Code of Practice for the Control of Bed Bug Infestations in Australia. University of Sydney Department of Medical Entomology. http://medent.usyd.edu.au/bedbug/bedbug_cop.htm

Although this is written for Australia, it is an excellent set of best management practices that Dr. Doggett updates periodically; probably more useful in practice than the recently released BMPs from the National Pest Management Asssociation.

Gold, R. E., and S. C. Jones [eds.]. 2000. *Handbook of Household and Structural Insect Pests*. Entomological Society of America, Lanham, MD.

Hedges, S. A. 1996. *Field Guide for the Management of Structure Infesting Flies* G.I.E. Publishing, Cleveland, OH.

Hedges, S. A. 1998. *Field Guide for the Management of Structure-infesting Ants*. G.I.E. Publishing, Cleveland, OH.

Hedges, S. A., and M. S. Lacey. 1996. *Field Guide for the Management of Structure-infesting Beetles*. Vols. I (Hide and carpet beetles/ wood-boring beetles) and II (Stored product beetles/occasional and overwintering beetles). G.I.E. Publishing, Cleveland, OH.

Kramer, R. 1998. *PCT Technician's Handbook*. G.I.E. Publishing, Cleveland, OH.

Mallis, A. 2004. *Handbook of Pest Control*, 9th edition. Pest Control Technology, Cleveland, OH.

O'Connor-Marer, Patrick J., M.L. Flint, M.K. Rust. 2006. *Residential, Industrial, and Institutional Pest Control.* 2nd. Edition. U.C. Statewide Integrated Pest Management Program. ANR Publication #3334. University of California Agriculture and Natural Resources Publications, Oakland, CA 1-800-944-8849

Pinto, L. J., R. J., Cooper, and S. K. Kraft, 2007. The Bed Bug Handbook. Pinto and Associates. http://www.bedbugcentral.com/shop/products.cfm/bed-bug-handbook

Smith, Eric H. and Richard C. Whitman. 1992. *NPMA Field Guide to Structural Pests.* Published by the National Pest Management Association

Bio-Integral Resource Center (BIRC) publications

For a list of publications on pest management available from BIRC, go to http://www.birc.org or call 510-524-2567.

Integrated Pest Management for Schools: A How-To Manual (written by BIRC staff)

Find the full text at http://www.epa.gov/pesticides/ipm/schoolipm/index.html. Hard copies are available from BIRC (see below).