

## Northeastern IPM Center – IPM Partnership Grant Program 2012

### Project Description

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**Lead Institution:** Rutgers, The State University of New Jersey

**Co-PD(s) and Institutions:** Richard Cooper, Rutgers, The State University of New Jersey

**Project Title:** Developing bed bug educational videos for Hispanic/Latino Communities

**Project Type:** Regional IPM Publications

#### 1. *Project Summary*

In recent years, bed bug infestations have become a major concern throughout the U.S. The resurgence of bed bugs has caused significant economic burden and health impact among the urban communities. More alarmingly, bed bugs began to appear in work places, hospitals, schools, and other public places. Because bed bugs are a relatively new pest, most people are unprepared for dealing with them. Many educational materials have been developed. But most of them are in English. There is a shortage of user-friendly bed bug educational materials in other languages. Spanish is the second most widely used/spoken language in the U.S. Hispanic/Latino communities are subject to higher rates of bed bug infestations and misuse of pesticides due to their lower socioeconomic status. We propose to develop two Spanish bed bug educational videos that target Hispanic/Latino people. Such materials are in *urgent need* for conducting outreach work in these under-served communities. The objectives of this project are to: 1) develop a Spanish video introducing the bed bug biology and IPM; and 2) develop a Spanish video demonstrating the details of individual bed bug control techniques. This project fills an important gap in bed bug educational resources. It will increase the awareness about bed bugs, reduce bed bug spread, pesticide use, and human health risks associated with improper bed bug control practices. This project addresses the priority proposed by U.S. Environmental Protection Agency in 2009.

#### 2. *Background and Justification*

During the past ten years, bed bugs (*Cimex lectularius* L.) have re-emerged as a serious pest throughout the United States as well as many other developed countries (Doggett et al. 2007). This increase has been especially dramatic in the northeastern region. Between 2004 and 2011, the New York City Department of Health and Mental Hygiene saw bed bug related complaints rise from 537 to 13,140 (NYC Department of Housing Preservation and Development, 2010). The northeastern region has most bed bug reports based on a free web based report (Figure 1).

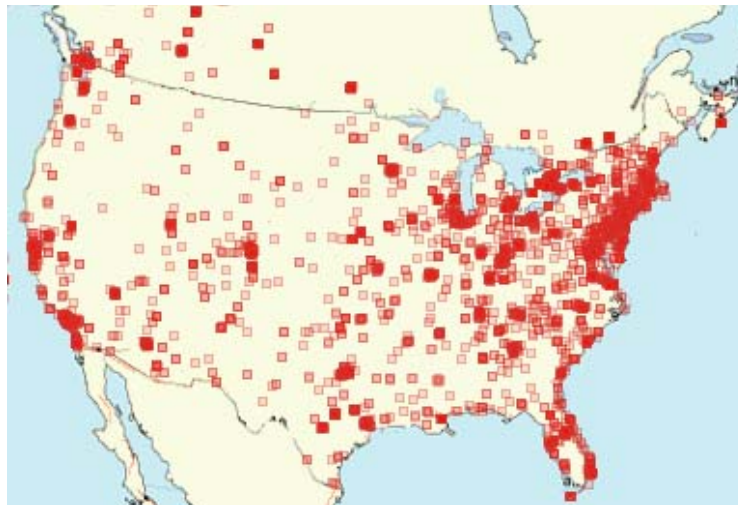


Figure 1. Distribution of bed bug reports at <http://www.bedbugregistry.com/> (accessed on 12/1/2011)

The growing bed bug problem across the country is recognized by private, state, and government agencies. The first North American bed bug summit held at Chicago in 2010 attracted > 300 attendees. The 2<sup>nd</sup> bed bug summit held in September 2011 attracted approximately 600 attendees (Bed Bug Central, Lawrenceville, NJ). U.S. Environmental Protection Agency (EPA) also organized two bed bug summits in 2009 and 2011. EPA listed bed bugs as a priority area for research and extension in 2009. The U.S. Department of Housing and Urban Department listed “support research to improve methods for preventing and combating bed bug infestations” as one of its long term strategies of the Healthy Homes Strategic Plan ([www.hud.gov/healthyhomes](http://www.hud.gov/healthyhomes)).

Lack of knowledge about bed bugs among the general public is the most important challenge in the current campaign for fighting bed bug resurgence. In a recent survey, we found 50% of the residents were unaware of bed bugs while their homes were infested (Wang et al. 2010). Lack of public knowledge on bed bugs causes unintended spread of bed bugs within housing communities and into the greater society. Failing to recognize bed bug infestations at their early stage makes the control effort more difficult and expensive. Another challenge is that the public often do not know the options available to eliminate bed bug infestations successfully. It is common for people to resort to hazardous methods to rid themselves of bed bugs. In 2011, the NY Fire Department issued a warning to city residents to avoid the use of gasoline and other fuel products for the control of bed bugs. People often rely on pesticides to control bed bugs (Figure 2) (Potter 2008, Wang et al. 2010). However, some commonly used insecticides such as boric acid, contact sprays, and insect foggers are not effective for controlling bed bugs. Even when effective insecticides are available, most people do not know how to properly use them. Misuse of insecticides when dealing with bed bugs is becoming an increasing concern as indicated from a recent webinar (11/17/2011) hosted by U.S. Environmental Protection Agency Region 5. Label instructions of consumer products are not intuitive and are not easily followed. Most of the misuse was done by occupants or unlicensed applicator. Similarly, most people are not familiar with how to inspect, monitor and implement an integrated pest management (IPM) program to maximize bed bug control and minimize health and environmental impacts.



Figure 2. Bed bug control pesticides found in an affordable apartment in New Jersey.

Many educational materials are available. However, few are available in Spanish. People of Hispanic or Latino origin represent the largest non-English speaking ethnic group in the U.S. Tens of millions of Spanish speaking immigrants do not speak or read English. They tend to live in urban centers where housing is crowded and bed bug infestations are concentrated. Self-control of bed bugs using insecticides in these communities is common in our surveys in apartments (Wang, unpublished data). Thus, there is an *urgent need* for educating these underserved communities. Failing to educate the underserved communities will lead to significant financial burden and create bed bug reservoirs which will spread into other communities.

Video materials describing step-by-step approaches on bed bug management are the easiest format for educating the public. They are superior to printed materials in that they are easier to learn by audiences of all education levels. Many bed bug control procedures (such as inspection, application of hot steam, proper removal of infested items, etc.) are best learned through demonstrations. Therefore, videos demonstrating step by step bed bug management strategies will likely lead to more effective learning of bed bug prevention and control than traditional publications.

An internet search on December 6, 2011 using key words “bed bug” and “chinchés de cama” at youtube.com found 30,000 and 77 items, respectively. The very low numbers of Spanish videos on bed bugs (“chinchés de cama” in Spanish) demonstrates the lack of Spanish educational materials on bed bugs.

At the present time, there are no comprehensive Spanish videos describing bed bug biology and management. The proposed project will develop two Spanish bed bug videos. The first one is an introductory video about bed bugs and principles to manage bed bugs. The second video will introduce the details of various bed bug treatment techniques and tools. These videos will fill an important gap in bed bug educational materials. This project addresses the priority “Bed bugs” proposed by EPA. It will benefit many different groups of Spanish speaking people that include, but are not limited to: property managers, tenants in apartment buildings, health workers, social workers, and the general public. The videos can be used in Hispanic/Latino communities throughout the United States.

We have an ongoing bed bug video project funded by Northeastern IPM Center. This project will contribute to the proposed Spanish videos by providing many of the video footages necessary for the videos.

### *3. Objectives and Anticipated Impacts*

Our objectives are to: 1) develop an introductory Spanish video about bed bug biology and IPM; and 2) develop a Spanish video demonstrating the details of various non-chemical and chemical control techniques.

This project will *further augment the mission* of the Northeastern IPM Center by providing easy-to-learn bed bug IPM education materials. Use of educational video materials is expected to have the following impacts:

- 1) Safeguarding human health and the environment. The public will be more aware of bed bug biology, prevention methods, control options, and IPM. They will be less likely to bring in new infestations or spread existing infestations unintentionally. Use of off-label products or non-effective pesticides is expected to be reduced.
- 2) Economic benefits. Effective learning of IPM principles and proven effective technologies will lead to more effective bed bug control, reduced bed bug infestations, and lowered pest control cost and economic loss.
- 3) Implementation of IPM. We anticipate the video materials will stimulate the audience in adopting safer and more effective bed bug IPM programs in their daily practices. The bed bug videos will also become available nationwide through youtube.com web account registered by New Jersey Agricultural Experiment Station.

### *4. Approach and Procedures*

Dr. Changlu Wang from Rutgers University will design video contents. A video photographer, a temporary worker, and a Spanish narrator will help produce the videos and conduct interviews to evaluate the audience's feedback on the videos. A draft of the videos will be sent to two peer reviewers and a stakeholder for review.

The first video will contain information on bed bug biology, how to prevent bed bugs, and principles of IPM. The second video will contain information on the details of various bed bug control techniques. These techniques include: inspecting a room for bed bugs, using bed bug intercepting devices, proper installation of encasements, proper disposal of infested items, novel non-chemical alternatives for electronics and other sensitive items, de-cluttering, selecting and applying insecticide dust, selecting and applying insecticide sprays, using hot steam, and conducting a bed bug IPM program.

Free copies of the videos will be produced and distributed to at least 50 Hispanic/Latino communities in New Jersey. The videos will be posted on youtube.com, the Rutgers University web site or web sites from partners. The impact of the videos on people's behavior will be evaluated at 2-3 Hispanic communities in New Jersey.

Time table (4/1/2012 – 10/31/2012)

- 4/1/2012 – 7/31/13: Obtain all necessary video footages and finish a draft of the videos.
- August 2012: Send videos for reviews.
- September 2012: Revise videos.
- October 2012: Show videos to selected communities and evaluate the effect of the videos.

### 5. Evaluation plans

We will show the first video to residents living in bed bug infested communities. Survey sheets will be handed out after showing the video or sending out the videos. The survey sheets will include the following questions:

- 1) Have you encountered bed bugs in your home or work place during the past year?
- 2) What methods you used to prevent/control bed bugs?
  - a) Washing/drying \_\_\_\_\_
  - b) Insecticide sprays or dusts \_\_\_\_\_
  - c) Foggers \_\_\_\_\_
  - d) Alcohol, bleach, disinfectants \_\_\_\_\_
  - e) Discarding furniture or other items \_\_\_\_\_
  - f) De-cluttering \_\_\_\_\_
  - g) Others \_\_\_\_\_
- 3) How do you rate the overall usefulness of the video (circle one from the following answers)?
  - a) Very useful \_\_, b) somewhat useful \_\_, c) not useful \_\_.
- 4) What changes you will make regarding bed bug control as a result of watching the video?
- 5) What additional contents you would like to see in future editions?
- 6) Please describe yourself (circle one from the following answers):
  - a) resident \_\_, b) management staff \_\_, d) other, please specify: \_\_\_\_\_.

The second video will be distributed to 30-50 pest management professionals, building management staff or interested individuals. Viewers will be asked to fill out the following questionnaire immediately after viewing:

- 1) What changes you will make regarding bed bug control as a result of watching the video?  
\_\_\_\_\_
- 2) How do you rate the overall usefulness of the video (circle one from the following answers)?
  - b) Very useful \_\_, b) somewhat useful \_\_, c) not useful \_\_.
- 3) What additional contents you would like to see in future editions?  
\_\_\_\_\_
- 4) Please describe yourself (circle one from the following answers):
  - a) Occupant \_\_, b) management staff \_\_, d) other, please specify: \_\_\_\_\_.

Dr. Changlu Wang has experiences in conducting similar surveys from previously funded projects. The survey sheets will be analyzed for environmental impact and likelihood of

voluntary IPM adoption. A logic model describing the project evaluation plan can be found in the appendix.

#### *6. Cooperation, Institutional Units, and Key Personnel Involved*

Dr. Changlu Wang is an Assistant Professor at Rutgers University. He has been conducting research and extension on bed bugs since 2007. He conducted three successful surveys on pests and pesticide use in low-income housing. The results were published in two peer-reviewed journals (Wang et al 2008, 2010). He assisted in producing two bed bug videos (20 minutes and 2 minutes long, respectively) in the past. One of them won the 1<sup>st</sup> *Stinger Award* (Instruction category) from Entomological Society of America. He will design the contents of the videos, supervise staff for producing the videos, conduct surveys, and analyze the survey data.

Mr. Richard Cooper is a Ph.D. candidate in the department of Entomology at Rutgers University. He has been the technical director of Cooper Pest Solutions for 20 years. Mr. Cooper is a nationally renowned bed bug expert with extensive practical experience on bed bug management. Currently, he is conducting research on bed bug ecology and detection. He will advise on the contents of the video and assist in the surveys. His expertise will help make the videos both accurate and practical.

Mr. Daniel Jusino currently works as a laboratory technician in the Entomology Department at Rutgers University. He has been a video director and editor for the past four years and has edited numerous videos. He was the editor of the winning video “Menace in the Mattress” during the Entomology Society of America Youtube Your Entomology Contest in 2009. Most recently, Mr. Jusino helped producing an English bed bug biology and IPM video (<http://youtu.be/QCZ5bgb3ol0>). A second video describing the details of bed bug control procedures will be finished in April 2012 under the sponsorship of a partnership grant from the Northeastern IPM center. These experiences will allow him to make new Spanish videos efficiently and economically.

Dr. Wang has on-going collaborations with Jersey City Housing Authority, St. Mary’s Villa, Essex Plaza Management Associates, and Cooper Pest Solutions in New Jersey through two grant programs: EPA Bed Bug Educational Grant and USDA Northeastern IPM Center Partnership Grant. Hispanic residents from these communities and technicians from Cooper Pest Solutions are available for taking videos or conducting surveys. In addition, the IPM program from Pennsylvania State University has been a partner with us in urban IPM outreach efforts. They will volunteer in advising the contents of our videos (see attached support letter). They will also immediately incorporate the videos made from this project into their outreach activities in Pennsylvania. Their outreach activities will allow us to obtain valuable information on the impact of the videos.

#### **Literature Cited**

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**SITUATION:** In recent years, bed bug infestations increased rapidly in the U.S. There is an urgent need for easy-to-learn Spanish educational materials to prevent and control bed bug infestations in Hispanic/Latino communities.

**PRIORITIES:** "Bed bugs" and "Use diverse media to educate the public on implementing IPM in their homes, lawns, and landscapes"

**PROGRAM ACTION- LOGIC MODEL**

