



This research has identified the need for better education about safe, sustainable methods for cockroach control among rural residents in North Carolina.

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## Perception of the Presence of German Cockroaches in Residential Housing and Day Care Centers in Rural Communities in North Carolina

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### Who cares and why?

The presence of cockroaches can lead to health problems such as asthma, but the chemicals used to eliminate them may pose much more serious health risks, particularly to children. In both residential homes and day-care centers, pesticides are often applied frequently and not as needed. This approach to pesticide application is not consistent with an integrated pest management (IPM) program and may not be necessary, if no specific pests have been identified. Therefore, this project is focused on

understanding the awareness of residents and day-care center providers in rural communities regarding cockroach and other domestic pests, their control, and the perceived impact of these on residents.

### What has the project done so far?

A survey of 100 rural residents and 10 day-care center directors in North Carolina indicated the need for more education about integrated pest management (IPM). More than half of the respondents reported having an indoor pest problem. Overall, pesticides were the main control measure used in homes and day-care centers and respondents indicated that pesticides were applied routinely, irrespective of need. In both residential homes and day care centers no warning signs are posted indoors or outdoors when pesticides are applied. All directors of day-care centers were unfamiliar with IPM and only 9 percent of residential respondents reported knowing what the term IPM meant. For day-care centers, pest control companies were the most common source of pest management information (33 percent), while 42 percent of residential respondents indicated friends and colleagues as their sources of information. Other common sources were Cooperative Extension and the Internet. Based on our findings, we believe that organizing an educational IPM program will increase awareness among residents, day-care center directors and pest management personnel, and make sustainable IPM implementation more likely to succeed.

Ten residents from the survey group volunteered to participate in a study. Their residences were monitored weekly for the level and distribution of German cockroach populations. Cockroaches were collected and tested for resistance to pesticides. In addition, dust samples were collected and analyzed for the presence of pathogenic bacteria and allergens.

From these samples, researchers identified the presence of pathogenic bacteria and cockroach allergens in residential homes and day-care centers. The results indicate that German cockroaches that were collected from different homes and day-care centers have differential tolerances to commonly used insecticidal bait products. Each strain had a different profile of tolerance, indicating that each strain had a unique treatment history. In general, dinotefuran was the most toxic insecticide to all strains and avermectin was least toxic.



## Impact Statement

This project indicates that integrated pest management (IPM) education should be targeted to include all individuals responsible for pest management at homes and daycare centers, thus resulting in an increase in the number of people managing pests in a sustainable and health-promoting manner.

### What research is needed?

A robust integrated pest management program/strategy, different from routine monthly pesticide applications, should be developed to reduce pests and allergens in homes and day-care centers. An IPM education program/workshop should be designed for daycare center providers and public housing residents so IPM practice can be adopted in a more sustainable way. Our results indicate that IPM education should be targeted to include all individuals responsible for pest management at homes and day-care centers, thus resulting in an increase in the number of people managing pests in a sustainable and health-promoting manner.



### Want to know more?

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