



## Reducing the Impact of Green Tobacco Sickness among Latino Farmworkers

Green tobacco sickness (GTS) is acute nicotine poisoning due to nicotine absorption through the skin. It is characterized by headache, dizziness, nausea, and vomiting. GTS impairs the work productivity and threatens the health of minority farmworkers who supply most tobacco labor in the U.S. and small farmers who cultivate much of the tobacco abroad. Prior to this project, fewer than 40 scientific papers had been published on GTS, many of them case studies or reviews and some of them attributing the causes of the condition to heat, pesticides, or unknown chemicals in tobacco. The primary advice given to workers for prevention was to smoke. Few culturally-appropriate and medically accurate educational materials were available.

The GTS project consisted of three related research projects that combined epidemiology and ethnography. It produced the first body of scholarly work on GTS epidemiology, as well as culturally appropriate educational materials for farmworkers and materials for medical personnel who treat GTS. The combined results from the study indicate that a significant proportion of workers and workdays are affected by GTS. Modifiable risk factors (changing out of wet clothes, wearing protective clothing) have potential for protecting workers from GTS and can be recommended instead of smoking. Varied understanding of GTS by growers, workers, and HCPs suggests that better understanding of the causes and prevention of GTS can improve worker safety and health.

The GTS project has produced educational materials for farmworkers that translate the scientific results into three different media formats culturally and educationally appropriate for workers.

- The first is a 53-minute video/DVD on agricultural chemical safety in Spanish with English subtitles. This video uses the story of a group of workers exposed to tobacco and to pesticides to teach safety and prevention in a context of empowering workers to manage their own safety. Over 700 copies of this video have been distributed throughout the Southeast and into the tobacco-producing regions of New England, Canada, Mexico, Central America, and South America.
- The second is a fotonovela designed to teach about GTS and its prevention using a dramatic story format. Dialogue is presented in both Spanish and English. To date, over 10,000 copies have been distributed to workers in the US and another 2,000 in Canada.
- The third is a safety comic, "El Monstruo Verde," that can be inexpensively reproduced by clinics and other service providers.

These materials are currently used by a wide variety of entities, including the U.S. EPA in training farmworkers across the South, by the Occupational Health Clinics for Ontario Workers, Inc., by the NC Department of Agriculture & Consumer Services in their worker education program, by the NC Growers Association which brings approximately 10,000 H2A workers to North Carolina annually, and by the outreach programs of the NC Migrant Health Program and community health clinics across North Carolina. The print materials are distributed free of charge through the National Agricultural Safety Program web site at CDC.

The project has also produced materials to educate HCPs about GTS diagnosis, including differential diagnosis with pesticide poisoning and heat stress. These include papers in two publications directed specifically at HCPs serving farmworkers, seven conference presentations for HCPs, and a continuing medical education workshop that has been offered at six locations throughout North Carolina and Virginia for physicians, nurses, and outreach workers. It is also available for CME credit on line.

### Research Innovation

By combining anthropological and epidemiological methods, this project was able to develop data collection as well as statistical analysis methods to accommodate the unique language, cultural, legal, and geographic issues encountered when trying to reach the farmworker population. The direct translation of research results to worker safety and health education and to continuing education for HCPs serving this at-risk population is a model for taking basic research directly to workers and providers. The research was able to identify modifiable risk factors (wearing wet clothing) and provide positive actions available to workers and growers (taking dry clothes to the field; providing protective clothing) that protect worker health and decrease lost work time.

Funding for the project came from NIOSH (R01-OH03648), NC Dept of Agriculture & Consumer Services, Albert Schweitzer Fellows Program, Bureau of Primary Healthcare, and private corporations.

For a listing of partners and a full project description, go to [www.cdc.gov/niosh/nora](http://www.cdc.gov/niosh/nora) and click on the "2006 NORA Awards" link.

DHHS (NIOSH) Publication No. 2011-111

