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AUTHOR Quandt, Sara A.; Austin, Colin K.; Arcury, Thomas A.;

Summers, Mandi E.; Martinez, H. Nolo

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ABSTRACT

Preventing or reducing exposure to agricultural chemicals is an important focus for health educators serving farmworkers and their families. The need for this health education has been intensified with the development of U.S. Environmental Protection Agency Worker Protection Standard (WPS). Among other requirements, WPS states that farmworkers must receive worker-safety training that covers specified topics related to chemical exposure. This annotated bibliography compiles 35 health education materials appropriate for use with farmworkers and related to agricultural chemical exposure. These items were published since 1988 and include various print materials, training manuals and curricula, and audiovisual products. The majority are available in both English or Spanish, or in Spanish only. Annotations include: brief description of contents and format, publisher, source, audience, language, reading level, evaluation of relevance to WPS, and suggestions for use. An introduction describes the search strategy and review process used to compile the bibliography. Appendices list information required by WPS and the bibliography's review format. (SV)

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CENTER FOR URBAN AND REGIONAL STUDIES

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Pesticide Safety Training Materials for Farmworkers: An Annotated Bibliography

Sara A. Quandt, Ph.D. Colin K. Austin, J.D., M.R.P. Thomas A. Arcury, Ph.D. Mandi E. Summers, M.P.H. H. Nolo Martinez, Ed.D.

Center for Urban and Regional Studies Campus Box 3410, Hickerson House The University of North Carolina at Chapel Hill Chapel Hill, NC 27599-3410 Phone (919) 962-3512 Fax (919) 962-2518

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Pesticide Safety Training Materials for Farmworkers: An Annotated Bibliography

Sara A. Quandt, Ph.D.¹
Colin K. Austin, J.D., M.R.P.²
Thomas A. Arcury, Ph.D.²
Mandi E. Summers, M.P.H.²
H. Nolo Martinez, Ed.D.³

¹Section on Epidemiology, Department of Public Health Sciences, Wake Forest University School of Medicine, Winston-Salem, NC 27157-1063

²Center for Urban and Regional Studies, The University of North Carolina at Chapel Hill, Campus Box 3410, Chapel Hill, NC 27599-3410

³North Carolina Cooperative Extension Service, North Carolina State University, Ricks Hall Annex, Box 7605, Raleigh, NC 27695-7605

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Pesticide Safety Training Materials For Farmworkers:

An Annotated Bibliography

Preventing or reducing exposure to agricultural chemicals is an important focus for health educators serving farmworkers and their families. The need for this health education has been intensified with the development of US Environmental Protection Agency Worker Protection Standard (WPS) (United States Environmental Protection Agency 1992). Among other requirements, the WPS states that farmworkers must receive worker-safety training that covers specified topics related to chemical exposure (Appendix 1). Health education materials are, therefore, much in demand. However, available materials are highly varied. They have been developed by different groups for different populations. They are also often difficult to find and vary in quality. No central compendium of these materials exists, and there has been no systematic evaluation of them.

To help meet this need for a listing of materials, we have compiled this annotated bibliography. It presents the results of a search for health education materials appropriate for use with farmworkers and related to agricultural chemical exposure. This search was undertaken as part of a research project (PACE: Preventing Agricultural Chemical Exposure among North Carolina Farmworkers) funded by the National Institute of Environmental Health Sciences to develop and test culturally appropriate interventions among migrant and seasonal farmworkers. In this annotated bibliography we review the types of materials available, rate the comprehensiveness of the educational objectives, and suggest strengths and weaknesses of the materials. The information presented in this bibliography will be a resource to health educators working with farmers, farmworkers, and farm families.



Search Strategy

To develop our bibliography of agricultural chemical safety training materials, we reviewed farm safety reference materials, searched computer data bases, searched farm safety materials catalogs, and contacted organizations involved in farmworker safety. We limited our search to the period since 1988. This temporal limitation was set to include only contemporary materials, particularly those materials that would be appropriate for meeting WPS training requirements.

The farm safety reference materials we reviewed include the University of California at Davis Pesticide Farm Safety Center (1989) Pesticide Safety and Training Materials Catalog (Catalogo de Materiales Educativos y Proteccion sobre Pesticidas); the US Environmental Protection Agency (1994) Worker Protection Standard: Materials Developed by EPA, States and Other Organizations; and Zimmerman (1995) Agricultural Safety and Health: A Resource Guide.

Three computer data bases were searched. *MEDLINE* (National Library of Medicine) and *PsychLIT* (American Psychological Association) were searched with the keywords "Farm," "Farmworker," "Pesticide and Intervention," "Fieldworker," and "Pesticide and Training." The Rural Information Center, National Agricultural Library searched its computerized data base *Agricola* based on a discussion of the materials we were targeting.

We reviewed three catalogs for farmworker training materials: Gempler's 1998 Master

Catalog (Gempler's 1998), a commercial farm safety materials catalog; Novela Health Education

Catalogue (Novela Health Education 1997); and Resource Catalog of the National Center for

Farmworker Health (1997).

Several organizations involved in farmworker issues or pesticide education were

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contacted to learn about any farmworker training materials that they had developed or knew about. These included the Association of Farmworker Opportunity Programs, Arlington, Virginia; PATH (Program for Appropriate Technology for Health), Washington, DC; the University of California, Statewide Integrated Pest Management Project; and the U.S. Environmental Protection Agency.

The search process produced 35 relevant items published since 1988 that we were able to obtain and review. A number of other items were out of print or otherwise unavailable. We chose to include only items that users of this annotated bibliography will be able to obtain.

These include a variety of print materials (e.g., pamphlets, posters), training manuals and curricula, and audiovisual products. Because so much of this material is difficult to find, we do not consider the list presented here complete. We intend to continue searching for materials, and addenda to this annotated bibliography will be available in the future.

Review Process

Review and annotation procedures were standardized so that all materials were reviewed in the same way. All authors conducted reviews. Two reviewers were assigned to each item in the list. Each person was assigned items in every category and paired with every other reviewer. Reviewers used a standard set of criteria and a standard form to record reference information and their evaluation of the item (Appendix 2). Reviewers completed their evaluations independently. The two reviews for each item were then reconciled by SAQ and TAA. There were few disagreements on reviews, and these were resolved by having SAQ and TAA review the item again.

The goals of the review process were to provide an accurate description of the farm safety



materials and to provide some evaluation of quality, completeness, and appropriateness of materials for farmworkers. We did not test the effectiveness of any of the materials in changing farmworker knowledge, behavior, or chemical exposure. Such tests are badly needed, but are beyond the scope of this review.

References

- Gempler's. 1998. Gempler's 1998 Master Catalog. Bellesville, WI: Gempler's.
- National Center for Farmworker Health, Inc. 1997. Resource Catalog, Fall 1997. Austin, TX: National Center for Farmworker Health, Inc.
- Novela Health Education. 1997. Novela Health Education 1997 Catalogue. Seattle, WA: University of Washington.
- University of California at Davis Pesticide Farm Safety Center. 1989. Pesticide Safety and Training Materials Catalog (Catalogo de Materiales Educativos y Proteccion sobre Pesticidas). United States Environmental Protection Agency, Office of Pesticide Programs, Prevention, Pesticides and Toxic Substances (H-7506C). Davis: University of California at Davis.
- United States Environmental Protection Agency. 1992. Pesticide Worker Protection Standard Training 40CFR Part170.130.
- United States Environmental Protection Agency. 1994. Worker Protection Standard: Materials Developed by EPA, States and Other Organizations. United States Environmental Protection Agency, Office of Pesticide Programs, Prevention, Pesticides and Toxic Substances (7506C), 735-B-94-002. Washington, DC: U.S. Government Printing Office.
- Zimmerman, Joy (compiler). 1995. Agricultural Safety and Health: A Resource Guide. Rural Information Center Publication Series, No. 40, Revised Edition. Beltsville, MD: National Agricultural Library (ISSN: 1056-9685).



Annotated Bibliography

Format:

Print -- Comic

Title:

Cuidate

Author:

Mark Lyons, Project Coordinator

Publisher:

Sa-Lantic Health Services and RCAP (Rural Community Assistance Project)

Source:

CATA: el Comité de Apoyo a los Trabajadores Agrícolas

P.O. Box 458 4S Delsea Drive Glassboro, NJ 08028

Comments:

Length: 12 pages

Date: 1992

Audience:

Hispanic farmworker

Language:

Spanish

This is a densely illustrated action comic with text in the form of dialogue written at a junior high to high school reading level. The purpose of the comic is to provide workers with information about field sanitation. Sections include heat stress, protecting oneself from infectious diseases in the field, pesticide safety, and legal rights. The comic asks the worker to be proactive in requesting sanitation facilities from the grower. Information contained is relatively current, but does not contain sufficient detail to meet US EPA Worker Protection Standard training. Cover pages are in color, with inside pages in black and white. The illustrations are effective. Comic book format of illustrations and text may be too complicated for workers with limited reading skills. Content is empowering, educating workers about problems and informing them of their rights. Comic has sufficient information to stand alone, or be a good supplement to a training session or video. It could also serve as a good resource for peer trainers.



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Format: Print -- Comic

Title: Podemos Protegernos de los Pesticidas

Author: Danny Torres and Mary Lyons

Publisher: Department of Occupational Health-New Jersey

Source: New Jersey Health Department

(609) 984-1863

Comments: Length: 20 pages

Date: 1990

Audience: Hispanic farmworker

Language: Spanish

This comic offers a great deal of information to farmworkers about pesticide exposure prevention, symptom recognition, first aid, and the rights of workers when exposed to pesticides. The information presented is current, but because it pre-dates the US EPA Worker Protection Standard, it does not contain all of the points required by WPS training. The comic illustrations are good and often dramatic (e.g., evil pesticide particles, contorted facial expressions), but the combination of text and illustrations is difficult to follow. Workers with low literacy skills will find the materials difficult to use. The content is very empowering, providing information on rights and where to get medical care. However, it is written for Puerto Rican workers in New Jersey, so references to resources and clinic to contact are inappropriate elsewhere. Some of the words in the text are characteristic of Puerto Rican Spanish and may be misunderstood by other Hispanic readers.



Format: Print -- Fotonovela

Title: Dancing with Danger: A Pesticide Worker Protection Story

Bailando con el Peligro: Una Historia para que se Cuide do los Pesticidas

Author: Steve Derthick and Robert L. McLymore

Publisher: North Carolina Cooperative Extension Service

Source: North Carolina Cooperative Extension Service

North Carolina State University

Raleigh, NC 27695

Comments: Length: 16 pages

Date: 1994

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English

Spanish

This pamphlet is a "fotonovela" that reads from one cover in English, and from the other in Spanish. The dialogue is presented in easy to read, short sentences. The plot centers on a new farmworker who gets sick by working without wearing a shirt in fields recently sprayed with a pesticide. This is used to illustrate the dangers of pesticide exposure, how workers might get exposed, the symptoms of acute exposure, and how acute exposure can be treated. The pamphlet uses clear black-and-white photos with dialogue balloons, and has high print quality on glossy paper. After the novela, there are several pages with discussion questions and answers and a picture quiz on ways to protect oneself. Although a one-page review section does mention several key Worker Protection Standard training points (where pesticides may be found, possible short- and long-term effects of exposure, how pesticides enter the body, some exposure symptoms, first aid for poisoning, how to avoid exposure, and the responsibility of growers to protect workers), these concepts are not developed in the story. The document is quite limited in content. It considers only one exposure reduction behavior (wearing a long-sleeved shirt), and it blames the victim for the problem. It should be used with caution only to supplement other materials.



Title: Salud: Los Pesticidas

Author: None listed

Publisher: BOCES Geneseo Migrant Center

Source: BOCES Geneseo Migrant Center

Holcomb Building 210 Geneseo, NY 14454

Comments: Length: 1 page

Date: 1989-1991

Audience: Hispanic farmworker

Language: Spanish

This fact sheet summarizes the dangers of pesticides. Bullets are used to simply list symptoms and prevention information, along with a warning statement; basic illustrations are provided. The material is current, although the appearance looks a little dated and the print quality is not good. This sheet is meant for farmworkers, but the format is difficult to read because the text is small and the layout is cramped. It is written at a high school level. It could be used to supplement training or a longer publication. Because of the reading level and presentation style, this fact sheet may be more appropriate for health department and migrant clinic staff who can supplement the information for use by workers.



Title: Salud: Insecticidas - Lavar la Ropa

Author: None listed

Publisher: BOCES Geneseo Migrant Center

Source: BOCES Geneseo Migrant Center

Holomb Building 210 Geneseo, NY 14454

Comments: Length: 1 page

Date: 1989-1991

Audience: Hispanic farmworker

Language: Spanish

This fact sheet provides detailed, seven step instructions on washing clothes that are contaminated with insecticides. It states that work clothes can cause harm to the worker and the worker's family. It is written at a high school level, and it is translated from an English publication. The material is current and is presented matter-of-factly. It contains good, to-the-point illustrations. The text is large enough to be read easily, but the print quality is poor giving it a dated appearance. This sheet is useful to farmworkers as one of the few materials that presents specific steps for washing clothes. Because of the advanced reading level, this fact sheet should used to supplement a broader training or a longer publication.



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Title: The Ten Commandments Against Pesticides

Los Diez Mandamientos Contra Los Pesticidas

Author: El Proyecto de Trabajadores Agricolas (North Carolina Farmworkers Project)

Publisher: North Carolina Farmworkers Project

Source: North Carolina Farmworkers Project

303 South Market Street Benson, NC 27504

Comments: Length: 1 page

Date: 1990s

Audience: Hispanic farmworker

Language: English

Spanish

This tip sheet uses the format of the Ten Commandment tablets (with English on one side and Spanish on the reverse) to offer "always" or "never" imperatives to prevent exposure to pesticides and their residues. Content includes portions of US EPA Worker Protection Standard training. Production quality is poor. Contains considerable information to tell why certain actions are protective or dangerous, but this results in a reading level that may be above that of many farmworkers. The tone of the tip sheet is empowering to farmworkers, but confrontational to growers. This tip sheet is a clever idea that might suggest a format for worker training.



Title: Protect Yourself from Pesticides

Protejase de los Pesticidas

Author: None listed

Publisher: US Environmental Protection Agency

Office of Prevention, Pesticides, and Toxic Substances

Source: US Environmental Protection Agency

Office of Pesticide Programs H7506C

401 M Street, SW Washington, DC 20460

Comments: Length: 6 panels

Date: 1994

Audience: Hispanic farmworker

Non-Hispanic farmworker

Language: English

Spanish

This brochure uses half-tone drawings and text in English and Spanish to present basic information to farmworkers on preventing pesticide exposure and emergency actions to take if they come into direct contact with pesticides. The brochure also notes that there are Federal rules to protect workers and that these rules require that their employer train workers in pesticide safety. There is a place on the brochure to add the telephone number and location of the nearest emergency medical facility and an 800 number is given to receive more pesticide information. The content of this brochure is simple and straight forward, telling workers what they should do but also noting that their employer has some responsibilities. One panel of the brochure notes the EPA Worker Protection Standard, but this is in small print and requires high literacy skills to read. This brochure is a general informational tool that could be used to recruit workers to participate in a training program or as a reminder to workers who have participated in a training program.



Title: Protect Yourself from Pesticides--Guide for Agricultural Workers

Protéjase de los Pesticidas--Guía para los Trabajadores Agrícolas

Author: US Environmental Protection Agency

Publisher: US Environmental Protection Agency

Source: United States Environmental Protection Agency

Office of Pesticide Programs H7506C

401 M Street, SW Washington, DC 20460

Gempler's 1998 Master Catalog Item #HW20

Gempler's

100 Countryside Drive

PO Box 270

Belleville, WI 53508

Comments: Length: 43 pages

Date: 1993

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English

Spanish

This brochure presents all the major points of the US EPA Worker Protection Standard training at a basic reading level with black and white line drawings. Material is current, well organized and clearly presented. Two versions of the booklet are available (on newsprint or on heavier paper with cover); both have good print quality. The brochure is divided into 8 sections, each addressing a different issue for reducing risk of exposure to pesticides: pesticide safety, how you can protect yourself from pesticides, sources of pesticide exposure, how pesticides can hurt you, what to do if you get sick at work, what to do if exposed to pesticides, legal protection for farmworkers, and steps to protect yourself. Each section includes a short narrative in English followed by Spanish, with an illustration. Most of the information is simply factual; steps to protect oneself focus on what an employer is required to do, rather than empowering workers with information they can use to protect themselves. The brochure covers considerable material in general terms. Length may be a little daunting; it should be used as a review or as a supplement for WPS training session.



Title: Steps to Protect Yourself from Pesticides

Pasos a Sequir para Protegerse de los Pesticidas

Author: US Environmental Protection Agency

Publisher: US Environmental Protection Agency

Source: US Environmental Protection Agency

Occupational Safety Branch Office of Pesticide Programs

401 M Street, SW Washington, DC 20460

Comments: Length: 25 pages

Date: 1995

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English with Spanish translation

English with Haitian Creole translation

This pocket-size brochure highlights the major points of US EPA Worker Protection Standard training. Publication is of good print quality on white paper. Topics include several routes of pesticide exposure and six steps of hygiene to reduce exposure or its effects. There is no mention of pesticide residues as a source of exposure to explain why hygienic practices are necessary. Material infers that safety is achieved when workers take responsibility for their own protection. Text is in very simple English, with Spanish translation and standard EPA line drawings on same page. The brochure's concise format makes it appropriate for use with English or Spanish speaking farmworkers as a supplement to other instruction.



Title: Washing Pesticide-Contaminated Clothing

El Lavado de la Ropa Contaminada con Pesticidas

Author: North Carolina Cooperative Extension Service

Publisher: North Carolina Cooperative Extension Service

Source: North Carolina State University

College of Agriculture and Life Sciences

Raleigh, NC 27695

Comments: Length: 1 page each language

Date: 1994

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English

Spanish

This single page brochure (one side in English, the other side in Spanish) tells farmworkers why it is important for them to wash their work clothing to reduce exposure, how they should wash their work clothing, and it alerts them to the differences between clothing and personal protective equipment. The brochure presents current, basic information in a matter-of-fact format, with specific, clear instructions. The printing is three tone (black, and two shades of blue), and uses appropriate line drawings. This is a useful supplement to a broad-based training program.



Title: Cultivando Las Semillas del Conocimiento (Harvesting the Seeds of Knowledge)

Lo Que Ud: Dele Saber Sobre los Pesticidas

Author: Rachel Avery

Publisher: North Carolina Department of Labor

Source: North Carolina Department of Labor

Agricultural Safety and Health Section

413 North Salisbury Street Raleigh, NC 27603-5942

Comments: Length: 4 pages

Date: 1997

Audience: Hispanic farmworker

Language: Spanish

The purpose of the brochure is to provide detailed information about agricultural chemicals and safety in a compact format. This brochure is focused on tobacco; it is meant to be the first in a series of crop specific chemical brochures. Future brochures will focus on other major North Carolina crops, such as cucumbers, sweet potatoes and Christmas trees. The brochure contains a chart detailing the chemicals used on tobacco (e.g., insecticides, growth regulators, ripening agents), their health effects, and their re-entry periods, as well as the basic points of the US EPA Worker Protection Standard training requirements. Much of the information presented is detailed, and reading for meaning would require a high school level reading ability. The information is up-to-date. The print quality is legible, but the text is cramped. The Spanish version of the brochure contains several translation errors; the author plans to correct these in future printings. This brochure focuses on education and provides more detailed information about pesticides than is available in other publications (empowering). It is good for farmworkers who want more details about the chemicals with which they work, but some farmworkers may find it too technical. It would be useful to lay health advisors and trainers as a reference or as part of an interactive training.



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Title: Debemos Saber y Recordar (We Should Know and Remember)

Author: None listed

Publisher: North Carolina Department of Labor

Agricultural Safety and Health Section

Source: North Carolina Department of Labor

Agricultural Safety and Health Section

413 North Salisbury Street Raleigh, NC 27603-5942

Comments: Length: 6 panels

Date: 1997

Audience: Hispanic farmworker

Language: Spanish

This brochure is designed for use in North Carolina to inform farmworkers about their rights regarding pesticide exposure. It presents pesticide safety laws and field sanitation requirements. Telephone numbers for health agencies and workers' rights resources in North Carolina are also provided. The brochure's layout is simple, using black print and illustrations on yellow paper. Print quality is good. The information is current, but it does not provide details on the US EPA Worker Protection Standard. The brochure provides information to workers on legal rights and resources, and is therefore empowering. The materials are appropriate for Latino farmworkers who have a general reading ability. It could be used as a supplement to a training or to more detailed information on pesticide safety.



Format: Print -- Flipchart

Title: Protect Yourself from Pesticides: Safety Training for Agricultural Workers

Protéjase de los Pesticidas--Una Programa de Seguridad Trabajadores Agrícolas

Author: US Environmental Protection Agency

Publisher: US Environmental Protection Agency

Source: US Environmental Protection Agency

Office of Pesticide Programs H7506C

401 M Street, SW Washington, DC 20460

Gempler's 1998 Master Catalog Item #FC100

Gempler's

100 Countryside Drive

PO Box 270

Belleville, WI 53508

Comments: Length: 84 pages, 11"x17"

Date: 1994

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English

Spanish

This flipchart has pictures for farmworkers and script for trainers designed to cover the content required by US EPA Worker Protection Standard for training. Although pesticide residues are mentioned, they are not included as a source of chemical exposure. Script is at high school reading level or higher; no reading is required of farmworker learners. The chart is divided into 8 sections, each containing information that faces trainers (behavioral objectives, teaching content, review questions and answers) and black and white line drawings that face farmworkers. The flipchart is sturdy and will stand on a table; it folds for carrying. It is printed in black on white cover stock and contained in a large plastic ring binder. Small size limits group with which it can be effectively used to 7-8 workers. There are no guidelines for trainers to evaluate effectiveness of training. WPS information is so consolidated in the teaching script that amplification of content by a knowledgeable trainer is needed to effectively teach material.



Format:

Print -- Poster

Title:

Protect Yourself from Pesticides

Protegase de los Pesticidas

Author:

US Environmental Protection Agency

Publisher:

US Environmental Protection Agency - EPA 735-H-93001

Source:

US Environmental Protection Agency Office of Pesticide Programs H7506C

401 M Street, SW

Washington, DC 20460

Gempler's 1998 Master Catalog Item #P928

Gempler's

100 Countryside Drive

PO Box 270

Belleville, WI 53508

Comments:

Size: 23"x35"

Date: 1994

Audience:

Hispanic farmworker

Non-hispanic farmworker

Language:

English and Spanish

This poster contains standard US EPA Worker Protection Standard content on reducing exposure to pesticides, employer obligations to provide training in pesticide safety, and washing off pesticides "in an emergency". There is no listing of symptoms that might constitute an emergency. Space is provided to write in the location and telephone number of the nearest emergency medical facility. Poster is of high production quality on sturdy paper, with colorful illustrations (colorized versions of standard EPA line drawings). This poster can be displayed near work areas to remind workers of the content of the training course; its primary function is to provide emergency medical facility information. Laminating would be desirable if used out of doors.



Format: Print -- Book

Title: Cosecha Dolerosa: Campesinos y Pesticidas, Parte 1 Trabajadores en el Fil

Author: Marion Moses

Publisher: Pesticide Education Center

Source: Pesticide Education Center

PO Box 420870

San Francisco, CA 94142

Comments: Length: 71 pages (including appendices)

Date: 1992

Audience: Hispanic farmworker

Non-hispanic farmworker

Service provider

Health educator/promoter

Language: Spanish (also available in English)

This book's general theme is that pesticides can be dangerous and that workers need to seek ways to protect themselves. The book has a large amount of text, providing comprehensive information about pesticide exposure and general chemical information. The material included is relatively current and detailed, but it does not discuss the US EPA Worker Protection Standard (which was published the same year as this book). The content and style of this publication requires a high school or higher reading level. The publication is of good print quality on white paper, and it is illustrated with superb life-like drawings. The cover is colorful and durable. The material is empowerment oriented, but confrontational. A lot of information is given in the context of workers learning the details and knowing their rights, while blaming growers and large companies for the use of pesticides. While much of the factual information is accurate, sensational inferences are drawn from it that are largely unsubstantiated. This would be a difficult document for many farmworkers to read, but it could be an important resource for health educators or lay health promoters who are knowledgeable enough to use certain sections with caution.



Format: Game and Instruction Guide

Title: La Loteria de los Pesticidas

Author: University of California, Statewide Integrated Pest Management Project

Publisher: University of California - Davis

Source: Publications

Division of Agriculture and Natural Resources

University of California 6701 San Pablo Avenue Oakland, CA 94608-1239

For A Guide to Using La Loteria de los Pesticidas:

IPM Education and Publications University of California - Davis

Davis, CA 95616-8620

For slide set (#94-101):

For game only:

Visual Media

Novela Health Education 1001 Broadway, Suite 100

University of California - Davis Davis, CA 95616-8748

Seattle, WA 98122

Davis, CA 95010-0740

Length: enough cards for 16 players

Date: 1994

Audience: Hispanic farmworker

Comments:

Language: Spanish (with English instructions)

This is a game designed to teach pesticide safety themes. It is patterned on "loteria" a game played in Latin America that is similar to bingo. Themes include general pesticide information, protective equipment, employer responsibilities, and working safely and staying clean. Concepts related to these broad themes are all keyed to pictures, and the Guide contains questions that correspond to the pictures. The concepts are printed on the cards under the pictures; these pictures make it easier for individuals with limited reading skills. Players receive grid cards with various pictures on them, and they mark them when the corresponding concept is "called". The information is current, but the game was produced in 1992 and does not cover the US EPA Worker Protection Standard. It is of good quality, produced with bright colors and durable cards. It is educational and very much learner oriented. If used as a part of a broader training program, playing the game will reinforce training. This game is appropriate for Hispanic farmworkers, and the interactive format looks like it would be interesting and fun. The drawbacks are that it does not cover the US EPA Worker Protection Standard and it seems to focus more on applicators than on field workers. Slide set is available, but was not reviewed.



Format: Training -- Curriculum

Title: ESL for Farm Safety: Student Workbook/Teacher's Manual

Author: Kathleen Flannery Sile and Beth Outterson

Publisher: Association of Farmworker Opportunity Programs (AFOP)

Source: AFOP

1611 North Kent Street

Suite 910

Arlington, VA 22209

Comments: Length: Teacher's Manual: 158 pages; Student Workbook 95 pages

Date: 1997

Audience: Hispanic farmworker

Language: English

This training package consists of a teacher's manual and student workbook for teaching English as a second language (ESL). Materials are well produced, with readable text and well-spaced layout. Standard EPA line drawings are used. The curriculum uses farm safety, especially pesticide safety as a teaching vehicle; content meets US EPA Worker Protection Standard training requirements. The topics covered include what pesticides are, how they are harmful, what to do if pesticides cause illness, actions to protect against exposure, legal rights, and general farm safety. The presentation of information is even-handed. The teacher's manual includes detailed lesson plans for each topic and citations for additional reference materials. The curriculum is appropriate for teaching non-English speaking farmworkers about safety issues in the context of an ESL class. Its effectiveness depends on workers having sufficient time to attend classes. Format is probably not useful outside an ESL class; curriculum does not add any information to other available EPA training materials. A drawback of the curriculum is that ESL teachers may have little background on farm safety; they would need to seek additional information in the cited references to adequately train workers.



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Format: Training -- Curriculum

Title: The Playing Field: A Curriculum Guide to Pesticide Education for Fourth, Fifth,

and Sixth Grades

Author: Diane Bellissemo and Deliana Garcia

Publisher: National Migrant Resource Program, Inc.

Source: National Migrant Resource Program, Inc.,

1515 Capital of Texas Highway South, Suite 220

Austin, TX 78746

Comments: Length: 52 pages

Date: 1994

Audience: Children

Language: English

This curriculum is designed to teach children in grades 4 through 6 about pesticide safety and the important role of farmworkers in the US agricultural economy. It may be of greater benefit to non-farmworker children, than to farmworker children and their parents. The curriculum can be used as a week-long unit, or as five separate lessons. The lessons focus on the video "The Playing Field," fruits and vegetables, migrant and seasonal farmworkers, pesticides and their uses, and protection from pesticides. The units integrate content from social studies, health, science, and English language arts. Learning objectives for each unit are presented. The guide includes drawings that can be made into overheads. It also has a bibliography for further reading for children and teachers. This curriculum guide is designed for elementary school teacher, so it is written at an advanced reading level. The guide is current in content and appearance, and it is easy to read.



Format: Print -- Manual

Title: The Illustrated Guide to Pesticide Safety

Author: Melanie Zavala

Publisher: University of California

Statewide Integrated Pest Management Project

Source: Publications

Division of Agriculture and Natural Resources

University of California 6701 San Pablo Avenue Oakland, CA 94608-1239

Comments: Length: 44 pages for Worker's Edition, 72 pages for Instructor's Edition

Date: 1991

Audience: Hispanic farmworker

Language: English with Spanish translation

This training manual comes in two editions: a Worker's Edition and an Instructor's Edition. The Worker's Edition summarizes general information about how poisoning occurs and how to prevent poisoning in the first 18 pages. The remaining 26 pages are geared toward handlers and applicators, addressing such issues as personal protective equipment (PPE) and safe handling techniques. The Instructor's Edition includes the entire Worker's Edition with marginal notes for the instructor. There are also extensive appendices in the Instructor's Edition. The material is presented in short sentences with illustrations, but requires high school level reading ability for full comprehension. The information presented is current, but published in 1991, it does not cover all of the points required by the US EPA Worker Protection Standard. The manual focuses on the worker's responsibility to keep safe (i.e., pesticides will not harm you if you take the right precautions). This document contains very little information for farmworkers who are not handlers and applicators.



27

Title: Instructor's Guide: Field Sanitation and Worker Personal Cleanliness

Guía de Entrenamiento para Instructores: Higiene Personal del Trabajador y

Limpieza en el Campo

Author: University of California - Davis

Publisher: University of California - Davis, Agriculture Health and Safety Center

Source: Department of Applied Behavioral Science

University of California - Davis

Davis, CA 95616

Comments: Length: 8 pages each language

Date: 1992

Audience: Grower

Language: English

Spanish

This training manual is designed to provide instructors, particularly growers, with a step-by-step guide for teaching field sanitation. It is well produced, with black and white line drawings. It requires at least a high school reading ability. It includes ways farmworkers are responsible for their own hygiene, as well as proper use of water and toilet facilities. Each section is well organized, containing specific objectives, a basic script for instructors, and teaching tips. The materials make little reference to pesticides; while the content is very appropriate for field sanitation, it is not comprehensive enough to meet WPS requirements.



Title: Fieldworkers and Pesticides: A Trainer's Manual, 2nd ed.

Author: Melanie Zavala and Jennifer Weber

Publisher: University of California, Statewide Integrated Pest Management Project, Division

of Agriculture and Natural Resources

Source: Pesticide Education Program

Statewide Integrated Pest Management Project

University of California

Davis, CA 95616

Comments: Length: 120 pages (including the appendix)

Date: 1996

Audience: Service provider

Trainer

Language: English

This is a nuts and bolts guide to prepare someone to provide US EPA Worker Protection Standard training to farmworkers. A high school or higher reading ability is required. Each of the several chapters covers an important point for preparing a trainer: required content of training, training preparation, training techniques, and making training practical and useful. Examples are given throughout, and an appendix contains line drawings that can be reproduced for use with different training methods. This manual provides instruction for developing training sessions, but does not provide the training sessions themselves. The content is geared to federal EPA regulations as well as those specific to California, and addresses long-term low level exposure as well as acute poisoning. The presentation is even-handed, noting that both workers and growers are responsible for protecting workers from exposure. This manual is an excellent introduction to a trainer on how to develop and present a Worker Protection Standard training session.



Title: Peligro: Trabajamos con Venenos (Danger: We work with Pesticides)

Author: None listed

Publisher: Farmworker Health and Safety Institute

Source: Farmworker Health and Safety Institute

2001 "S" Street, Suite 210 Washington, DC 20009

Comments: Length: 90 pages

Date: Unknown

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: Spanish (English version available)

This curriculum is designed to be used by a professional health educator or lay health worker to teach a variety of information about pesticide exposure (including preventing exposure, its consequences, treatment, and legal rights of farmworkers) that would meet the US EPA Worker Protection Standard training requirements. The teachers manual is detailed and requires a fairly high reading level for trainers. No reading is required of students. Each section of the manual contains behavioral objectives, an interactive methodology, and materials necessary to complete the section (e.g., role-play script or flipchart). The approach is based on the learner-centered Frierian education model of raising awareness of the workers and allowing them to develop their own responses. Lessons are reasonably complete, but contain no background information for the instructor on pesticides and exposure. This manual is a copier-quality production. While not flashy, it contains some very innovative ideas for educating farmworkers with a problem-solving and empowering approach that should facilitate greater learning than many other available training packages.



26

Title: Protect Yourself from Pesticides: Safety Training for Agricultural Workers

Author: US Environmental Protection Agency

Publisher: US Environmental Protection Agency

Source: US Environmental Protection Agency

Occupational Safety Branch H7506C

Office of Pesticide Programs

401 M Street, SW

Washington, DC 20460

Comments: Length: 32 pages with 2 page appendix

Date: 1993

Audience: Service provider

Trainer

Language: English

This manual provides an overview of the US EPA Worker Protection Standard and training as required under the 1992 regulations. The material is very comprehensive and requires a fairly high reading ability. Text is accompanied by standard EPA black and white line drawings. The manual is designed for growers and others who provide training to farmworkers. It contains seven sections: WPS regulations, the 11 points required in WPS safety training, training materials, recommendations for effective training, training objectives and review questions, training verification, and a quick reference guide to the WPS. The information is current and the presentation is straightforward.



Title: Camp Health Aide Manual (Chapter 6: Occupational Health)

Author: Midwest Migrant Health Information Office

Publisher: Midwest Migrant Health Information Office

Source: Midwest Migrant Health Information Office

502 West Elm Avenue Monroe, MI 48162

Comments: Length: (Chapter 6) 17 pages in each language; 11 pages on pesticides

Date: 1997

Audience: Hispanic farmworker

Non-hispanic farmworker

Service provider

Language: English

Spanish

This chapter is from a larger manual for training camp health aides (outreach workers) to work with farmworkers and their families. This chapter addresses general occupational health issues, with more that half the space devoted to pesticides. This includes information on how farmworkers can prevent or minimize exposure, symptoms of exposure, treatment, and the US EPA Worker Protection Standard. It provides some explanation of why certain behaviors are important. It addresses acute symptoms of exposure, but does not mention chronic exposure or residues. While oriented to the WPS, it describes reality (e.g., not all growers provide water) and advises trainers on how farmworkers can protect themselves. Its problem-solving approach is empowering. A lesson plan is included for training trainers, but no training programs for those trainers to use with farmworkers. Material is current and well organized, with key ideas boldfaced or boxed. Manual is photocopied. Some line drawings are of poor quality but overall, it is very readable.



Title: The Worker Protection Standard for Agricultural Pesticides -- How to comply:

What Employers Need to Know

Author: US Environmental Protection Agency

Publisher: United States Environmental Protection Agency

Prevention, Pesticides, and Toxic Substances (H7506C)

EPA 735-B-93-001 ISBN 0-16-041939-5

Source: US Government Printing Office

Superintendent of Documents

Mail Stop: SSOP

Washington, DC 2002-9328

Comments: Length: 141 pages

Date: 1993

Audience: Grower

Language: English

This manual includes all the information an employer needs to convey to farmworkers, as well as the format for teaching this information, to be in compliance with the 1992 Worker Protection Standard. It consists of 6 units plus appendices and sample forms. It is written for those with at least high school reading ability. Production quality is good, with limited but appropriate illustrations. The content is current to the WPS statute. While this is designed to be used by growers or labor contractors, it could be used by other trainers to get basic facts about training to meet WPS requirements. It is not appropriate for use by most farmworkers, as it contains information beyond that needed to train farmworkers.



Format: Audiovisual -- Video

Title: Siguiendo el Sol (Chasing the Sun)

Author: Deliana Garcia, Executive Producer

Jon Lacy, Director

Diane Weidenkopf, Producer

Publisher: National Migrant Resource Program, Inc.

Source: National Migrant Resource Program, Inc.

1515 Capital of Texas Highway S, Suite 220

Austin, TX 78746

Gempler's 1998 Master Catalog Item #V210

Gempler's

100 Countryside Drive

PO Box 270

Belleville, WI 53508

Comments: Length: 31 minutes with a 5 minute review

Date: 1994

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English and Spanish

This video uses a story situation of farmworkers being trained in pesticide safety to convey information on reducing exposure and administering emergency first aid. English and Spanish are spoken by actors as appropriate, with Spanish subtitled into English. The information is more detailed than EPA publications and takes the tactic of convincing a skeptical farmworker of the necessity for pesticide knowledge and exposure prevention. It is contemporary in appearance with good sound and video quality. Content and story line are more engaging than many other videos, and the approach is empowering, providing some specific suggestions of things farmworkers can do to reduce exposure or treat its effects. This video is a good tool to be used in combination with other materials that can in combination meet the WPS training requirements. It contains an excellent review at the end of the video that provides effective reinforcement of the information conveyed in the story. This review could be used separately, with stops for discussion.



Format: Audiovisual -- Video

Title: You Can Do It: How to Teach Pesticide Health and Safety to Farmworkers and

Their Families

Author: Alice Larson and Judith Ruskin

Publisher: US Environmental Protection Agency

Source: US Environmental Protection Agency, Region X

1200 Sixth Avenue Seatle, WA 98191

Comments: Length: 26 minutes

Date: 1991

Audience: Grower

Service provider Other trainers

Language: English

The goal of this video is to train trainers who will educate farmworkers about pesticide safety. It provides some basic pesticide safety information, and shows many sources from which additional information and materials can be obtained. It also provides information on how to develop and present pesticide safety training, such as developing a presentation and conducting individual and group training sessions. This video predates US EPA Worker Protection Standard training requirements, so the WPS requirements and how to meet these requirements are not addressed. The copy of the video reviewed is low quality; the original may be of higher quality. The characters in the video story are obviously amateur actors drawn from actual outreach workers, public health nurses, and growers. While the acting is not very good, the characters are believable. The video is appropriate for use with growers and service providers as a pep-talk that gives some basic ideas on how to conduct worker training. It would be useful in conjunction with a train-the-trainer workshop.



Format: Audiovisual -- Video

Title: Pesticide Handlers and the Worker Protection Standard

Author: Michigan State University Extension Service, Pesticide Education Programs

Publisher: Michigan State University Cooperative Extension Service

Source: Michigan State University

Cooperative Extension Service

11 Agricultural Hall

East Lansing, MI 48824-1039

Gempler's 1998 Master Catalog Item #V400 (English), #V405 (Spanish)

Gempler's

100 Countryside Drive

PO Box 270

Belleville, WI 53508

Comments: Length: about 15 minutes for fieldworkers (total length is 50 minutes)

Date: 1994

Audience: Hispanic farmworker

Grower Applicator

Language: English

Spanish

This video consists of 16 segments ranging in length from 35 seconds to 5:45 minutes. It is very clearly aimed at handlers, as it contains very specific information on personal protective equipment (PPE), respirators and other equipment, and mixing and loading chemicals. The first 15 minutes of the video are appropriate for farmworkers; during this time the video covers the US EPA Worker Protection Standard and briefly discusses personal safety. Some of the major points are presented in text, as well as audio. The material presented is current, and the footage looks real. The production quality of this video is high, with sound and graphics. The video is intended primarily for pesticide handlers, but field workers could learn from the first section. Unfortunately, the narrative is dry and reviews a great deal of material quickly.



Title: Pesticide Safety: Worker Protection

Author: College of Agriculture, University of Idaho

Publisher: Agriculture Communications Center

Source: Agriculture Communications Center

University of Idaho Moscow, ID 8394-2332

Gempler's 1998 Master Catalog Item #V100

Gempler's

100 Countryside Drive

PO Box 270

Belleville, WI 53508

Comments: Length: Agricultural worker segment -- English 19:12; Spanish 18:28

Length: Pesticide handler segment--English 17:12; Spanish 17:18

Date: 1997

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English

Spanish

This is a two segment video designed to meet US EPA Worker Protection Standard training requirements for agricultural workers and pesticide handlers. Topics covered in the agricultural workers segment include: types of pesticides, pesticide residues, posting requirements, re-entry periods, pesticide symbols, exposure prevention, decontamination, laundry, acute and chronic effects of exposure, and symptoms and treatment. The identification, treatment and prevention of heat illness are also reviewed, as are workers' legal rights and employer requirements. The content of the video is current. The equipment used by workers and growers, and the clothing of the actors all look contemporary. The video uses high quality text, visuals and sound to convey its message. It is even-handed in its presentation of responsibility, stating that it is up to the worker to use common sense and work safely, but also noting the employers' obligations to the workers. This is a very good video. It addresses topics such as residue and chronic effects that few other interventions mention. It uses repetition in an appropriate way to reinforce important ideas. It could be an important part of a general training program.



Title: Protect Yourself from Pesticides

Author: SOS Communications

Publisher: SOS Communications

Source: SOS Communications

2999 Monterey/Salinas Highway

Monterey, CA 93940

Comments: Length: English - 12 minutes, Spanish - 14 minutes

Date: 1994

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English

Spanish

This cassette contains English and Spanish versions of the same video. The content is the same as the EPA flipchart and pocket guide, reciting with little elaboration simple basic information on how to prevent exposure and on hygiene to reduce effects of exposure. The material covers the requirements for US EPA Worker Protection Standard training. The production uses colorful animated graphics, rather than live actors. Although it was produced in 1994, the appearance of the graphics seems out of date. The cheerful background music seems at odds with the serious nature of the subject matter and is quite distracting. The sound quality is good, but the colors on the graphics too often clash, producing a poor quality picture. This video can be used for training workers, but its concise format is best used in an interactive teaching context, not as a standalone instructional video.



Title: Pesticide Training for Agricultural Employees

Author: Farm Employers Labor Service

Publisher: Farm Employers Labor Service

Source: Farm Employers Labor Service

1601 Exposition Boulevard, FB7

Sacramento, CA 95815

Comments: Length: 63 minutes

Date: 1995

Audience: Hispanic farmworker

Non-hispanic farmworker

Language: English

Spanish

The video covers the basic materials required by the US EPA Worker Protection Standard training. It provides limited information on "pesticide basics," including residue, how to protect against exposure, acute versus chronic effects of exposure, symptoms of exposure, and decontamination areas. The video quality is good. However, the voice of the narrator changes during the video, the text material is presented too quickly for it to be remembered, and the sound in the Spanish version is poor. While the video does note employer requirements, it emphasizes worker responsibility. It focuses on the worker being careful and assumes that the grower will comply with regulations. The video tries to present too much information in a short time. The narrator uses a very rapid approach to presenting information, with text being shot across the screen. At several points the video images do not match the points the narrator is making. This video is better for applicators and handlers than for field workers.



Format:

Audiovisual -- Video

Title:

The Playing Field

Author:

Kelly Blake MacAluso and Diane Weidenkopf

Publisher:

Migrant Resource Program, Inc.

Source:

National Migrant Resource Program, Inc.

1515 Capital of Texas Highway South, Suite 220

Austin, TX 78746

Comments:

Length: Approximately 18 minutes

Date: 1992

Audience:

Hispanic farmworker and children

Service provider

Language:

Primarily in Spanish with English subtitles or translation

Some English

The vehicle for this video is the story of a farmworker family in which a daughter gets sick after playing in an orchard that has been treated with pesticides. Its conveys information about symptom recognition, and exposure prevention. In addition to general US EPA Worker Protection Standard information, the video provides information about exposure prevention around the home, including prevention related to household pesticide use. The video touches on agricultural chemical residue, but it is generally concerned with acute poisoning. There is an accompanying curriculum guide for grades 4 through 6. The video is contemporary in appearance and content, and has very good presentation quality. It could be used as an introductory statement, but includes too little information to be used by itself. It does not discuss several important sources of child pesticide exposure such as drift. The video is interesting to watch, has an appealing story and characters, but presents only basic information.



Title: Long Term Health Effects of Pesticide Exposure

Author: University of California Communication Services

Publisher: University of California - Davis

Source: University of California Communication Services

University of California - Davis

Davis, CA 95616

Comments: Length: 25 Minutes

Date: 1994

Audience: Non-hispanic farmworker

Grower Applicator

Service Provider

Language: English

This video provides a general overview of the possible long-term effects of pesticide exposure, and of means to minimize exposure. It is organized by body system (e.g., respiration, reproduction) and by type of chemical. The presentation includes a question and answer session with an expert, who attempts to explain the science of toxicology, but does so badly. He focuses on animal studies of exposure consequences and gets bogged down in apologies for lack of consistent evidence. Epidemiologic data are not fully reviewed, resulting in what seems like an apology for the chemical industry. While the bottom line message "nothing can hurt you if you don't get exposed" is worthwhile, this video is totally inappropriate for training farmworkers. The appearance of the video is quite dated. It was obviously produced by splicing several existing pieces of video with voice-overs by different narrators.



Title: Harvest of Sorrow: Part 1 - "Fieldworkers"

Cosecha Dolerosa: Parte 1 - "Trabajadores en el Fil"

Author: Marion Moses and Lorena Parlee

Publisher: Pesticide Education Center

Source: Pesticide Education Center

P.O. Box 420870

San Francisco, CA 94142

Comments: Length: Approximately 30 minutes.

Date: 1992

Audience: Farmworker

Service provider

Trainer

General audience

Language: English

Spanish

This video attempts to educate farmworkers and the general public about the dangers of pesticides. It contains information about symptom recognition and exposure prevention. An emphasis is placed on removing pesticides by washing work clothes. A memorable story about a dog that got sick by sleeping on work clothes is presented. Most of the video, however, focuses on describing the dangers of working in the fields where chemicals are applied. Because the video was produced in 1992 the EPA Worker Protection Standard is not described or referenced. Unlike most of the WPS materials, this video does contain a section on exposure through contact with chemical residues left on plants. The format of the video is a series of testimonials from farmworkers and farmworker advocates describing injuries and long-term health effects of pesticides. Footage includes helicopters applying chemicals and children with birth defects that are attributed to pesticide exposure, making much of the video sensational rather than strictly educational. But it does grab the viewers attention. The quality of the video is mixed. Some scenes are well dramatized and recorded, while others have poor lighting. Although the quality is not always professional, real farmworkers are interviewed and actual sprayings are filmed giving the presentation an authentic feel. In the Spanish version the voice-over is muffled and sometimes difficult to understand. An informational booklet with the same title is available.



Format: Audiovisual -- Audio Cassettes

Title: Radio Pesticida

Author: Lynda Diane Mull and Beth Outterson

Publisher: Association of Farmworker Opportunity Programs (AFOP)

Source: AFOP

1611 North Kent Street

Suite 910

Arlington, VA 22209

Comments: Length: 6 cassettes (novellas are 4 to 5 minutes each)

Date: 1997

Audience: Hispanic farmworker

Language: Spanish

The theme of these Spanish language radio broadcast tapes is informing the listeners about personal safety. The tapes include a public service announcement, 5 radio novellas, and several talk shows discussing the novellas. The content of these tapes is very current, covering the points of the US EPA Worker Protection Standard. The sound quality is excellent. The Service Provider's Guide that accompanies the tapes is of professional quality and written at a fairly high reading level. One of the novellas stresses the employer's responsibility to provide training. The other tapes emphasize workers being careful and taking responsibility for themselves. None of the tapes addresses unsafe work conditions. The presentations are well produced and appropriate for Hispanic farmworkers who listen to radio. These cassettes could also be used in other teaching situations. The dramatizations are very effective and well done. The dramatizations followed by the talk show format are long, but a very good idea.



Appendix 1

Information Required by US Environmental Protection Agency Worker Protection Standard

- 1. Descriptions of where and in what forms pesticides may be encountered during work activities.
- 2. Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.
- 3. Routes through which pesticides can enter the body.
- 4. Signs and symptoms of common types of pesticide poisoning.
- 5. Emergency first aid for pesticide injuries or poisonings.
- 6. Instructions on how to obtain emergency medical care.
- 7. Routine and emergency decontamination procedures, including emergency eye flushing techniques.
- 8. Hazards from chemigation and drift.
- 9. Hazards from pesticide residues on clothing.
- 10. Warnings about taking pesticides or pesticide containers home.
- 11. Requirements of the WPS designed to reduce risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and protection against retaliatory acts.



PACE Project



<u>Preventing Agricultural Chemical Exposure among North Carolina Farmworkers*</u>
Center for Urban and Regional Studies, University of North Carolina at Chapel Hill

REVIEW FORMAT FARMWORKER AGRICULTURAL SAFETY AND HEALTH INTERVENTION MATERIALS

Sara A. Quandt, Colin K. Austin, Thomas A. Arcury, and H. Nolo Martinez

Reference Information		
Category	[circle one]	 Printed material Audiovisual Training package
Format	[circle one]	 Brochure/pamphlet Tip sheet Comic Fotonovela Script Slide show Video Flip chart Training manual Other
Title	Original [Translation]	·
Author		
Publisher		
Source	[give most current information on best way to obtain item]	
Language of presentation	[indicate language used, plus language of subtitles if appropriate]	
Length	[pages, minutes, etc.]	
Target audience	[circle all that apply]	 Hispanic farmworker Non-hispanic farmworker Grower Applicator Service provider



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g., empowering vs. ame-the-victim]	
rith whom and when is appropriate for use]	
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*For more information about the PACE Project, contact:
Thomas A. Arcury, Ph.D., Principal Investigator (919-962-3512) or
Colin K. Austin, Project Coordinator (919-962-6835)
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