Skin Health in Agricultural Workers

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INTRODUCTION

Agricultural workers engaged in outdoor work activities are susceptible to numerous factors in their environment that may result in work-related skin disorders. Various physical, biological, mechanical and chemical exposures encountered in the agricultural industry can cause these disorders:

- **environmental** conditions such as temperature extremes, humidity, dusty work environments and sunlight;
- **biological** agents including arthropods (insects, spiders) and contact with plants;
- **mechanical** agents include abrasions and cuts from working with plants and trees, tools and moving parts of machinery; and
- **chemical** exposure to fertilizers, pesticides and machinery fluids and oils.

As with all occupational diseases, reducing or controlling exposures is the key to avoiding skin diseases. The best way to prevent dermatitis is to avoid the source of the problem.

ENVIRONMENT

Heat and Humidity

Heat rash occurs in hot, humid climates when sweat cannot evaporate. The itchy, red, prickly rash usually develops in areas that are covered by clothing. It can be the first sign of heat stress when a worker is not acclimated to the heat and humidity. There are some workers who take longer to become acclimated to heat than others. Some things that can be done to prevent heat rash:

- Use clothing that dries quickly to allow the skin to breathe. Cotton fabric works well for this purpose.
- Clothes should be cleaned regularly to remove dirt, dust, plant particles, chemicals and perspiration.
- Be sure there is plenty of water to drink and cool areas to rest when there is significant heat exposure.

If heat rash does occur, it can be treated by

- removing the soaked clothing,
- taking a cool shower,
- drying the skin and
- staying in an area that is cool and ideally has increased air movement (such as a fan).

Another condition present in high heat situations is intertrigo. This is a red, irritated skin rash caused by sweating in addition to friction from clothing, such as the waistband area, under the arms and the inner thighs. It is common for this rash to become infected with yeast or bacterial organisms. This rash is seen more often in heavy individuals. Using absorbent powders containing talc can help prevent the rash.

Sunlight

Exposure to the sun damages the skin. Skin becomes leathery, discolored and wrinkled

from sunlight. The most dangerous effect of sunlight exposure is skin cancer. Some drugs such as antibiotics, high blood pressure medications and anti-inflammatory drugs in combination with sunlight exposure can result in significant, sometimes painful rashes.

- Wearing UV protective sunglasses can help prevent cataracts caused by chronic sun exposure.
- Sunscreens (UVA and UVB blocking) can be used to protect workers from sunburns and skin cancer, but require reapplication throughout the day.
- Wearing long sleeved clothing and wide brimmed hats can greatly reduce sunlight exposure on the skin.
- Clothing also protects workers from exposure to chemicals, insects and plant material.

BIOLOGICAL

Insects and Spiders

Insect and spider bites can be a source of irritation, infection and allergies. Problems can range from itching, pain and secondary infection of the skin from bites to severe allergic reactions to stinging insects such as wasps, yellowjackets and bees. Spider bites from the hobo or black widow spiders can also result in significant injury to the skin.

Some things you can do:

- Watch for stinging insects when eating meat or drinking liquids with a high sugar content. Keep all food sources covered. Don't eat near trash bins. Remove waste, food and trash and place in sealed containers.
- Insect repellents containing "DEET" on the skin and clothing especially near the sleeves and cuffs of pants can help keep insects away. Rarely, DEET can cause hives, blisters or a chronic rash.
- If a bee or wasp lands on food or a person, do not swat or wave it away. This provokes a defensive stinging reaction in the insect. Brush away the insect.
- Workers should be aware of the dangers of stinging insects such as wasps, bees and hornets and what to do if someone is stung. If hives develop after being stung, be sure the person gets medical attention.
- If a bee stings a person, remove the stinger by scraping the skin with a stiff plastic card (like a credit card). Using tweezers crushes the stinger and releases more venom.
- Immediately applying ice to the bites can decrease swelling. Calamine lotion can help relieve the itching.
- Wear gloves before sticking hands in dark corners, boxes, around lumber piles or other items that have been stored or stacked undisturbed for long periods of time. Spiders hide in dark places and will bite as a defensive mechanism.
- Ice packs, calamine lotion and aspirin are first aid remedies for spider bites. If there is significant pain, redness and swelling, be sure a person gets medical attention. Some people have severe reactions to the venom in spider bites.

Plants

The most common plants that cause allergic reactions in agricultural workers are poison oak or ivy. The oil in the plant, urushiol, is the cause of the problem. The person's first contact with the plant oil usually does not cause a rash though subsequent exposures can cause an allergic reaction. The skin reaction ranges from itching and mild blistering to very severe blistering and sometimes swelling. The oil can stick to shoes, clothing and tools. Burning the

plant causes the oil to be released into the air. Exposure to the smoke particles can cause very severe allergic reactions in the lungs and the skin around the eyes. About 80% of people are allergic to poison oak/ivy.

- If there is contact with the plant, the skin should be rinsed immediately with water and washed with soap.
- Any contaminated clothes should be removed and soaked with running water before being brought into the house. Wash contaminated clothing separately with detergent.
- Shoes, gloves and tools also need to be cleaned with running water to remove the oil and then washed with soap. Isopropyl (rubbing) alcohol also removes the oil.
- The oil can remain on contaminated clothes, shoes and tools for years.
- Using recommended methods to remove the plants will greatly reduce the problem from poison oak/ivy.
- Contact with poison oak or ivy should be avoided year-round.
- Photos of the plants can be found in field guides to plants, as well as on the world-wide web at www.lni.wa.gov/sharp/derm.
- An educational brochure and poster on poison oak/ivy printed in English and Spanish are available from the SHARP Program for helping to identify and safely remove the plants from farmlands.

There are number of other plants besides poison oak/ivy that can cause allergic reactions. Most of these plants are weeds such as tansy, ox-eye daisies or florist plants such as tulips, lilies or chrysanthemums. Some plants have chemicals that cause a reaction in the skin only when there is exposure to sunlight such as parsnips, carrots, fennel, parsley, celery, figs, yarrow and giant hogweed. The reaction can cause blistering and leave the skin discolored when the reaction heals. The sap in some plants can cause blisters when there is contact with the skin such as spurge, mustards and poinsettia. Other plants may cause hives when there is contact with the skin such as strawberries, garlic, onion, tulips and lilies.

A list of plants and the types of skin reactions caused by the plant is available from SHARP or at the following world-wide website www.lni.wa.gov/sharp/derm.

If a reaction to a plant does develop, the following measures can be taken to relieve the symptoms.

- Cool showers can relieve itching.
- Wet compresses followed by calamine lotion may be helpful for mild rashes.
- Soaking in a baking soda or oatmeal bath may help to dry the blisters on the skin.
- Oral antihistamines at night may reduce the itching.

MECHANICAL

Besides causing rashes, working with plants can also result in cuts, abrasions and punctures. Plants can contain enough fungal and bacterial organisms and animal matter that could result in infections if the skin is broken and the infectious material gets into the skin.

- Cuts and scratches should be washed with soap and water.
- The use of protective gloves and long sleeves may be helpful to prevent abrasions and punctures.
- Workers who pick fruit from trees are susceptible to injuries from branches scratching the skin and injuring the eyes. The use of protective eyewear can prevent serious injuries to the eyes.

FARM CHEMICALS

Agricultural workers can be exposed to a wide array of chemicals such as machinery fluids and oils when operating equipment, pesticides,

herbicides, fertilizers and the carrier used to dilute the active ingredients. With most chemicals, when properly handled, diluted, mixed and/or applied, reactions can be avoided. Some of these chemicals can be absorbed through the skin and can cause severe body-wide reactions. Severe blistering can occur when some pesticides contact the skin. Exposure can also occur when clothes or shoes have been saturated with the chemicals.

- Trained personnel who work with pesticide mixing, loading and application should use the manufacturer's recommended personal protective equipment to reduce exposure to these chemicals.
- The specific pesticide formulation and application method will determine the best type of glove and other protective equipment.
- Natural rubber (latex) and polyvinyl chloride materials are generally **not** recommended.
- Preferred materials generally include nitrile rubber, butyl rubber and plastic film laminates.

Gloves

The label on the pesticide or material safety data sheet (MSDS) specifies the type of gloves necessary to handle the chemicals. The use of personal protective equipment may be required by law.

- Be sure the correct reentry times for the particular pesticides being used are followed to prevent problems.
- Clothing contaminated with oils, chemicals, pesticides need to be removed to prevent absorption of chemicals into the skin.
- Thoroughly washing the hands after handling chemicals and before smoking, drinking, eating or using the bathroom is needed to prevent body-wide toxicity or localized skin reactions from contact with the chemicals.
- Taking a shower with soap and washing the hair with shampoo after handling chemicals or working in fields where the chemicals have been applied helps to remove residual chemicals.
- Clean clothes should be worn every day.
- Clothes that have come in contact with oils, machinery fluid, pesticides and other chemicals need to be washed separately to prevent contaminating other clothing not worn at work. Washing contaminated clothes also prevents buildup of chemicals and avoids secondary exposure to other farmworkers and family members.

Supervisors and those handling chemicals should know the symptoms and signs of pesticide overexposure and know what to do if there is accidental overexposure.

SUMMARY

The way to prevent dermatitis is to use the "hierarchy of controls." This is simply a ranking of exposure controls from the most effective to the least effective. Controlling exposures means:

- eliminating the source (substituting safer chemicals, exterminating poison oak or ivy),
- using engineering controls to reduce the exposure,
- administrative controls (proper application techniques in correct weather conditions, reentry times for pesticides)
- personal hygiene and
- using personal protective equipment.

To control the exposure at the worker level through protective equipment, education, policies, etc. relies on the workers to implement the control measure and requires much oversight to be effective. Personal hygiene may seem exclusively the worker's responsibility, however, without access to

water, effective cleaning agents, or wearing clothing items that are contaminated or soiled with chemicals, dust and dirt, these conditions can result in significant problems.

WHEN TO SEEK MEDICAL ATTENTION

Supervisors and workers should be aware of the symptoms of heat stress, stinging insect and spider bite reactions and pesticide overexposure.

Reactions to plants, insects and chemicals may be mild or severe. If there is swelling, hives, severe blistering or problems with breathing, first aid may be needed quickly in these conditions.

Skin rashes that are persistent and interfering with the employee's ability to work (such as allergic reactions to plants or an infection) should be evaluated by a medical professional.

Workers may be inclined to treat the condition with over-the-counter medications. However, these medications may not help the symptoms and the underlying condition may worsen. It is important to ensure that workers get proper medical attention and the exposure causing the skin condition is controlled or eliminated.

References

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For more information, contact SHARP at 1-888-66-SHARP or visit our website at www.lni.wa.gov/sharp/derm.