Landscape Safety Training Manual For Hispanic Workers

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ACKNOWLEDGMENTS

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INTRODUCTION

PURPOSE

The purpose of this manual is to train Hispanic workers to follow proper safety practices when using landscape tools and equipment. This bilingual resource should also help managers to better understand Hispanic culture in order to better communicate with Hispanic employees.

To reach the objective of a safe working environment, a strong commitment is needed by everyone involved: employers, supervisors, and employees. To be effective, these practices must be constantly monitored and reinforced. Only through the efforts of each and every participant can a safe workplace environment be created and maintained.

Many employers indicate that well-trained workers are a great investment because many remain loyal to the company.

Rapid growth in the landscape industry has required an increase in newly hired employees, many of them Hispanic. Clear communication with these workers is often difficult due to language barriers and cultural differences. Many Hispanic workers have minimal formal education which demands additional efforts to achieve effective implementation of safety training.

ACCIDENTS DO HAPPEN

Accidents in landscape maintenance should be taken seriously. In 2003 there were 156 fatalities and in 2002 there were 14,862 non-fatal work injuries that resulted in worker absence.* Thus, proper safety has real benefits for all involved.

Acting responsibly in the workplace protects the worker, his family, and his future, his co-workers, and his employer’s company. Accidents may result in any or all of the following:

- temporary injury and loss of wages, permanent injury, or death
- medical bills
- reduced company productivity and efficiency
- higher insurance premiums or loss of insurance

Like most events in life, the tasks we do most often are the tasks most associated with accidents. For example, landscape maintenance work requires frequent bending and lifting. As one would expect, back injuries are a common problem, and what starts out as a minor injury often ends up causing significant loss in time and productivity.

In general, safer companies are more profitable ones. They also have better employment opportunities and benefits. Therefore, safety is an important factor that directly impacts company success. For this reason many companies have implemented programs to promote and encourage safety practices in the workplace.

To expedite the process, the Spanish and the English versions were written concurrently. Marco Fonseca, State Master Gardener Coordinator, coordinated the English version and Dr. Alfredo Martinez, Extension Plant Pathologist, coordinated the Spanish version. For this reason, each appears as first author in the respective language version.

PROPER USE OF THIS MANUAL

This manual is written in both Spanish and English to help the educational process. It is designed for training Hispanic landscape workers in a broad field of labor activities that include landscape installation and maintenance companies, lawn care operators, golf course superintendents, sod producers, nurseries, extension agents, consultants, students, and others.

As part of the educational training workshop, unit tests and a pre and post test (located in the Appendix) may be given to the workers to evaluate their prior knowledge and to determine the effectiveness of the training. It is suggested that the training of non-literate workers emphasize the Figures within the manual, include hands-on practical demonstrations, and oral testing for evaluation of skill proficiency. Smaller groups for more personalized contact along with landscape tools and equipment for teaching demonstrations are also recommended.

Gil Landry, Coordinator
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Cultural Influence On Workplace Safety

LEARNING OBJECTIVES

TERMS TO KNOW

GENERAL INFORMATION

HISTORY

DEFINITION OF "HISPANIC"

GEOGRAPHIC DISTRIBUTION

ECONOMIC IMPACT

RELIGION

HISPANIC FAMILY

EDUCATION

IMMIGRATION

GENERAL GUIDELINES FOR SUPERVISORS
Cultural Influence On Workplace Safety

LEARNING OBJECTIVES

• To understand how the Hispanic culture may influence landscape worker production and safety.
• To suggest general strategies for how to improve the interaction between supervisors and Hispanic landscape workers.

TERMS TO KNOW

Customs
acquired social behaviors that embrace the cultural traditions of a social group

Culture
characteristics of a social group that include art, language, social customs, race, beliefs, religion, cuisine, wearing apparel, education, traditions, and national products

Education
a process of learning by which people acquire knowledge, training or skills

Hispanic
a person of mixed racial and cultural heritage who speaks Spanish

Latino
a person from Latin America

Religion
a system of spiritual beliefs and ceremonies observed by a social group

HISTORY

Generally, there are three periods of Latin American history: Pre-Columbian, Post-Columbian and Modern.

Pre-Columbian refers to the historic period prior to Columbus of all native civilizations including Maya, Inca and Aztec who inhabited the continent.

Post-Columbian begins with the arrival of Columbus until independence from Spain (1542-1820).

The Modern period covers the time from post-independence to present day.

GENERAL INFORMATION

There are more than 39 million Hispanics living in the United States today. They represent 13 percent of the total national population. In Georgia alone, there are approximately 500,000 Hispanics. Agricultural and construction industries rely heavily on the Hispanic labor force. Georgia’s “Urban Agriculture Industry”, which includes nursery, turfgrass and greenhouse businesses, is fast growing and generates more than $8.1 billion to the state economy. Nearly 90% of industry daily laborers are Hispanic.

DEFINITION OF “HISPANIC”

Hispanics are persons of mixed races and cultures (European, African, Asian and Amerindian) and in the United States the term “Hispanic” generally refers to a person who speaks Spanish. Mexicans represent the largest group, or more than 60% of all Hispanics in the United States.
GEOGRAPHIC DISTRIBUTION

Historically, the largest concentration of Hispanics (Mexicans) in the United States has been within the southwestern states along the Mexican border. Other groups settled primarily in New York (Puerto Ricans) and Florida (Cubans). Today, the distribution and impact of Hispanic immigrants has noticeably spread nationwide.

![Geographic Distribution Map]

ECONOMIC IMPACT

The majority of Hispanic workers are young, male, single, hard working, reliable and productive. This group represents the modern U.S. source of inexpensive labor that has fueled and sustained economic growth over the last decade. The Hispanic buying power has grown by impressive rates (i.e. 251% in GA) generating changes among major industries (bilingual news media, banking and telecommunications).

RELIGION

The principle religion among Hispanics is Roman Catholic. Latin American Catholicism is a mixture of Christian religious practices and Pre-Columbian religious traditions. In general, religion plays a very important role as it greatly influences Hispanic behavior in all aspects of life (family, work, recreation, friendships). The phrase “si Dios quiere” is commonly used by Hispanics to state the firm belief that something will happen only if it is the will of God, whether it involves seeing a friend tomorrow, winning a soccer game, or curing an illness. Among Hispanic communities in the U.S., the church provides not only sanctuary, but also a vital community center that offers legal protection, social services, and employment information.

THE HISPANIC FAMILY

The Hispanic family supersedes everything, including work, and is the center of the worker’s life. The concept of family typically includes not only the nuclear family unit, but also all immediate relatives such as grandparents, grandchildren, uncles, aunts, and cousins.

Throughout Latin America, there is a general tendency to revere women and mothers. This is probably rooted in Catholic religious traditions that revere Mary and other female saints. However, though ironic, women as a class are also generally oppressed and only have limited decision-making within the household. The older males usually have the most authority.

Very often, Hispanic workers in the U.S. provide financial support for such extended family networks at their “homes” of origin. Also, it is common practice for Hispanic workers to be relatives and friends of their co-workers because there is a great tendency for families and neighbors to immigrate and re-settle together.

EDUCATION

Historically, Hispanic workers represent a population from rural areas with only elementary education. Today, due to socio-economic factors, many workers represent more variety in their educational and geographic backgrounds. People from Latin American countries respect education, and educated persons often are authority figures. Formal education is based on rote memorization, which contrasts with the U.S. methods of school teaching based on the understanding and questioning of concepts.

IMMIGRATION

Immigration-related issues are the main sources of stress, anxiety and absenteeism among Hispanic workers. Immigration is such a complex matter that it requires expert advice that may be found through
any well-known or reliable social service institution. For further information see the Appendix listing of institutions and addresses.

**GENERAL GUIDELINES FOR SUPERVISORS**

- Identify and provide language training in English (ESOL) to reduce communication barriers.
- Locate sources of community information in Spanish (yellow pages, radio stations, newspapers, associations, schools, churches, etc.).
- Facilitate communication of workers with their families remaining in the countries of origin.
- Establish relationships with local banks and postal facilities to help workers send postal packages or money orders to relatives.
- Help locate local churches since they are trusted centers of information for immigrants.
- Translate important company information (i.e. insurance policies, work and safety manuals) in an easy-to-understand style.
- Provide information and access to public transportation.
- Avoid public reprimands (yelling, and “in your face” confrontations) of Hispanics since they feel personally insulted by such behavior.
- Consider education and training of workers as an investment, not an expense.
- Cultural sensitivity and awareness builds loyalty and retention of good workers.
UNIT I
HEALTH SAFETY ISSUES

LEARNING OBJECTIVES

GENERAL INFORMATION

TERMS TO KNOW

GENERAL HEALTH GUIDELINES

- BACK INJURIES
- REPETITIVE MOTION INJURIES
- POISONOUS PLANTS
- INSECT AND SNAKE BITES
- HEAT STRESS AND HEAT STROKE

PESTICIDES

- TOXICITY
- EXPOSURE REACTIONS
- ROUTES OF EXPOSURE
- LENGTH OF EXPOSURE
- SIGNS AND SYMPTOMS

TEST YOUR KNOWLEDGE
HEALTH SAFETY ISSUES

LEARNING OBJECTIVES
• To learn preventive health measures and their influence on worker safety.
• To learn the correct use of pesticides and their potential effect on worker health.

GENERAL INFORMATION
• The worker’s health status will directly influence his response to pesticide exposure. It is important to observe and implement preventive health measures.
• Pesticides are beneficial for urban use yet they can be harmful when handled incorrectly.
• At all times, observe extreme caution when using or exposed to pesticides.
• Be sure to inform the supervisor of any special preexisting health condition including allergies to insects, pollens and plants.

TERMS TO KNOW
Repetitive Motion Injuries: tremors, numbness, and loss of heat and cold sensation due to damage caused by repeated trauma to the hand/wrist area (i.e. vibrating tools, prolonged use of hand tools)

Sun Screen/Sun Block: protect skin from harmful sun damage

Routes of Exposure: pesticide exposure possible through eyes, nose, mouth or skin

Pesticide Poisoning: caused by pesticides that harm internal organs

Pesticide Related Injuries: caused by pesticides that are external irritants

Signs (of illness): objective changes, observable by other people (i.e. vomiting, rash)

Symptoms (of illness): subjective changes, not observable by other people, only felt by the person himself (i.e. nausea, headache).

Toxicity: the extent or degree to cause harmful or poisonous effects

Acute Toxicity: illness or injury that occurs within 24 hours of exposure to a pesticide

Chronic Toxicity: illness or injury occurring later than 24 hours after exposure to a pesticide

Hazard = Toxicity x Exposure. A hazard is the risk of harmful effects from pesticides. Hazard depends on both the toxicity of the pesticide and the exposure received in any situation.

PPE: Personal Protective Equipment (i.e. safety goggles, ear protection, sturdy work boots)

HEALTH GUIDELINES
• Use sunscreen to prevent harmful sun damage.
• Be careful to prevent heat stress and heat stroke by drinking sufficient liquids (i.e. water, Gatorade).
• Do not work when fatigued.
• Never work when under the influence of drugs or alcohol.
• Never operate motorized equipment when fatigued, sick, or taking medications causing drowsiness.
• Inform the supervisor of any history of allergic reactions to plants, pollens or insects. Notify the supervisor for any allergic reaction that may occur.
• To prevent carbon monoxide poisoning, never operate motorized equipment in confined or poorly ventilated spaces.
• Prior to handling or applying pesticides, follow all PPE and pesticide label instructions.
• After handling or applying pesticides, follow all instructions regarding safe showering and laundering procedures.
• Following pesticide exposure, wash hands prior to eating, drinking, smoking, or using the restroom.
• Wear well-fitting (not loose or baggy) clothes, sturdy work shoes, gloves, safety goggles and ear protection. Keep hair short or secured back, and avoid wearing jewelry chains or pendants to prevent entanglement with machinery.
The goal of observing good body mechanics and implementing preventive practices is to make sure that workers are un-injured, safe, comfortable and productive. Training should be provided to teach safe methods of working.

BACK INJURIES

Most back injuries are sprains or strains to the lower back muscles caused by falls, or lifting or carrying heavy loads, pushing or pulling equipment, or bending and twisting while working. These injuries can be disabling, and affect worker earnings and company profits. Preventive practices are very cost-effective. The leading causes of disability for people in their working years is a consequence of chronic exposure to the following:

Physical Stresses
- Forceful gripping
- Lifting
- Bending
- Twisting
- Kneeling
- Squatting or crouching
- Vibrating equipment

Common Symptoms
- Pain
- Weakness
- Tingling
- Numbness
- Stiffness

Prevention
- Warm-up exercises (i.e. stretching)
- Use carts, dollies, forklifts, back support and proper body mechanics (i.e. lift with legs, not back) to move and lift heavy equipment
- Get help from a co-worker
- Use good body mechanics
- Prevent falls from tripping on rocky uneven terrain or from slipping on wet surfaces
- Carry smaller and less heavy loads when lifting or moving equipment
- Avoid back bending and back twisting motions

REpetitive Motion INJURIES

- Repetitive and sustained activities lead to injuries.
- Avoid prolonged and continuous work when using vibrating equipment. Rest hands periodically and alternate job activities throughout the day to prevent injury.
- Advise the supervisor of any signs or symptoms of the hands, wrists or arms such as pain, numbness, tingling, redness or swelling. Seek medical help as necessary.
- Carpal Tunnel Syndrome is trauma to the wrist nerves that may occur as a consequence of repetitive motion activity. Medical attention is required to help this condition using wrist splints, pain medication, rest, and avoidance of any repetitive and prolonged activities.
- It is important to be aware of repetitive motion injuries in order to prevent them by observing the necessary precautions while working.

POISONOUS PLANTS

The most common poisonous plants encountered in the landscape are poison ivy, poison oak and poison sumac. These plants can cause serious allergic reactions in the majority of the population. The incubation period can take as long as 7 to 10 days but a reaction may be seen earlier. Exposure can result in severe red, itchy and blistering rashes that are spread by direct hand contact. The most important prevention is ability to accurately identify these plants to avoid contact. Be sure to notify the supervisor of any pre-existing allergic condition to any plant or pollen or if allergic reaction should occur.

Identification: Poison Ivy and Poison Oak:
- vines
- 3 leaf clusters
- hairy stems
- greenish color during summer
- reddish color during fall
- usually found in damp and shady areas
Poison Sumac
- Shrub-like
- 7-13 leaves per branch
- green color during summer
- yellow to orange-red color during fall
- more painful irritation than poison ivy or poison oak

INSECT AND SNAKE BITES

Insects
Most insect bites are not dangerous. However, the bites of spiders, ticks, and stinging or burning insects may be extremely poisonous or associated with disease. Treat immediately by removing any stingers, washing area with mild soap and water, applying cool compresses, avoid scratching and keep clean. Seek medical attention as necessary.

Examples: spiders (black widow and brown recluse), ticks, scorpions, fire ants, burning insects (saddleback caterpillars-green with brown), stinging insects (wasps, yellow jackets, bees, hornets).

Prevention:
- Use light color clothing
- Wear long sleeve shirts and long pants
- Apply insect repellent
- No colognes or perfumes
- Avoid loose clothing
- Inspect work area for insect nests on ground and in bushes or trees
- Avoid contact with flowering plants during early morning (most active time for insect activity)
- For a known allergy history, wear medical I.D. tag and carry emergency medical kit and advise supervisor so that necessary precautions may be implemented

Snakes
Of the 40 snake species in the state of Georgia, only a few are poisonous. Most snake bites occur while trying to handle or kill them. Accidental bites occur while picking up logs, rocks or vegetation that provides shelter or food for snakes. Be careful when handling such objects. Avoid placing hands or feet where snakes might be hidden. Always wear appropriate boots, long pants and gloves for protection. If bitten by a snake, the best advice is to remain calm, seek medical attention immediately and notify supervisor.

HEAT STROKE AND HEAT EXHAUSTION

Prolonged or intense exposure to hot temperatures with high humidity can cause heat-related illnesses, such as heat exhaustion and heat stroke (sun stroke). This occurs due to excessive loss of body fluids and salt resulting in severe dehydration. With prompt treatment, most people recover completely from such emergencies. However, it is better to prevent heat stress and heat stroke by following a few common sense rules.

Symptoms
Common symptoms of heat-related illnesses may include nausea and vomiting, headache, muscle cramps, fatigue and dizziness.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Heat Stroke</th>
<th>Heat Exhaustion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>red, dry, hot</td>
<td>pale, moist, cool</td>
</tr>
<tr>
<td>Skin</td>
<td>hot, dry</td>
<td>cool, clammy</td>
</tr>
<tr>
<td>Temperature</td>
<td>very high (104-106°F)</td>
<td>below 100°F</td>
</tr>
<tr>
<td>Pulse</td>
<td>rapid, strong (160-180)</td>
<td>rapid, weak</td>
</tr>
<tr>
<td>Respiration</td>
<td>fast, noisy</td>
<td>shallow, quiet</td>
</tr>
<tr>
<td>Eyes</td>
<td>pupils dilated</td>
<td>pupils normal</td>
</tr>
</tbody>
</table>

Prevention
- Avoid excessive exposure to hot weather. Perform strenuous activities during cooler times of day (i.e. early morning and late afternoon)
- Drink plenty of fluids (i.e. water, Gatorade)
- Rest frequently
- Wear light color clothing and hat
- Use sun block/sun screen

PESTICIDES

Toxicity
Toxicity is the extent or degree to cause harmful or poisonous effects. Toxicity depends on the amount of active ingredient, length of exposure and the type of formulation of the pesticide.

The signal words are listed on the front of all pesticide labels. Such signal words are good indications of any harm or injury that can be caused by the pesticide.
ACUTE TOXICITY
- Acute toxicity occurs within 24 hours of exposure to a pesticide.
- Symptoms are easy to diagnose and the affects are often reversible if the appropriate medical care is given promptly.

CHRONIC TOXICITY
- Chronic toxicity is an illness or injury that occurs later than 24 hours after a pesticide exposure.
- Symptoms are not easily recognized and long term effects can be very harmful to both the worker and his family that often require extensive medical treatment.

Notify supervisor immediately of any pesticide exposure!

EXPOSURE REACTIONS

The definition of pesticide exposure is “when a pesticide comes in contact with a surface or an organism.” For humans, pesticide exposure signifies getting pesticides in or on the body. The health condition of the worker will play an important role in the type of reaction he may experience upon exposure to any pesticide. Health conditions include age, allergies, stress, skin cuts or abrasions, and pre-existing medical conditions (i.e. diabetes, emphysema).

ROUTES OF EXPOSURE

Workers may be exposed to pesticides either externally, as an irritant causing pesticide-related injury such as a rash or chemical burn, or internally, as a poison causing systemic illness. Pesticide exposure may occur by four different routes:

SIGNS AND SYMPTOMS

SKIN - Dermal
Skin exposure is the most common type, often caused by:
- not washing hands after handling pesticides
- inadequate, pesticide-contaminated or non-use of PPE
- applying pesticides in windy weather
- touching pesticide-treated surfaces
- splashing, spraying or spilling pesticides on unprotected skin

MOUTH - Oral
Exposure occurs when a pesticide is swallowed, often caused by:
- not washing hands before eating, drinking, smoking or chewing
- mistaking a pesticide for food or drink
- accidentally splashing pesticide into the mouth

NOSE - Inhalation
Exposure occurs when pesticide gases (vapors, aerosols, mists) or dusts are breathed in due to:
- Poorly-fitting, inadequate or non-use of a mask or respirator
- Re-entering the area too soon after a pesticide application
- Poorly ventilated area
- Accidental inhalation from pesticide drift
Exposure occurs when pesticide liquids, gases or dusts enter the eyes due to:
EYES – Ocular
- Splashing, spraying exposures during pesticide mixing, pouring, or application
- Poorly fitting, inadequate, or non-use of eye protection (safety goggles) or face shield
- Rubbing eyes with pesticide-contaminated hands, gloves

LENGTH OF EXPOSURE

Hazard is the risk of harmful effects from pesticides. Hazard depends on both the toxicity of the pesticide and the exposure received in any situation. Some pesticides are more toxic or harmful than others. Also, the amount of pesticide involved and the length of exposure time influence further the degree or extent of harm caused.

Hazard = Toxicity x Exposure

The length of exposure to pesticides can be minimized by reading and strictly following all pesticide label instructions, using the appropriate PPE, washing hands and showering, laundering contaminated clothing, keeping PPE clean and in good operating condition.

SIGNS AND SYMPTOMS

SIGNS – These are the medical changes, such as vomiting or a rash that can be observed or seen by other persons.

SYMPTOMS – These are the medical changes, such as nausea, headache or blurred vision that are felt by the person, but go unrecognized by others.

Generally, signs and symptoms of pesticide exposure will depend upon the pesticide’s level of toxicity, the amount of pesticide, the length of exposure time and the route of exposure. Below is a list of allergic affects, pesticide irritants and pesticide poisoning.

ALLERGIC EFFECTS

- Systemic effects such as asthma or even life threatening shock
- Skin irritations such as rash, blisters or open sores
- Eye and nose irritation such as itchy, watery eyes and sneezing

PESTICIDE IRRITANTS

- Redness, blisters, rash and/or burns on skin
- Swelling, a stinging sensation and/or burns in eyes, nose, mouth and throat

PESTICIDE POISONING

- Nausea, vomiting, diarrhea and/or stomach cramps
- Headache, dizziness, weakness and/or confusion
- Excessive sweating, chills and/or thirst
- Chest pain and/or difficulty breathing
- Muscle cramps and/or general body aches
TEST YOUR KNOWLEDGE
Instructions: Please circle the correct answer for each question.

UNIT I – HEALTH SAFETY ISSUES

1. Acute toxicity is illness or injury that occurs within ___ hours of exposure to a pesticide.
   a. 12 hours
   b. 48 hours
   c. 24 hours
   d. 18 hours

2. The most common route of pesticide exposure is by the
   a. mouth
   b. eyes
   c. skin
   d. nose

3. Which signal words are used to classify pesticide toxicity?
   a. Danger
   b. Warning
   c. Caution
   d. All of the above

4. Which is a good example of correct body mechanics?
   a. use legs for lifting, not back
   b. bending
   c. lifting heavy loads
   d. twisting

5. What is sun screen/sun block?
   a. insect repellant
   b. hand soap
   c. protect skin against harmful sun
   d. shampoo

6. What could cause a repetitive motion injury?
   a. shovel
   b. vibrating tool
   c. hoe

7. What could cause heat stroke or heat exhaustion?
   a. drink plenty of fluids
   b. work during hottest time of day
   c. wear light color clothing and hat
   d. rest as needed

8. What is the best way to prevent insect bites?
   a. dark clothing
   b. cologne and perfume
   c. insect repellant
   d. mow over yellow jacket nest

9. What is the most common characteristic of Poison Ivy/Poison Oak?
   a. one leaf
   b. yellow color
   c. shrub-like
   d. 3 leaf cluster

10. What might be included with PPE?
    a. safety goggles, ear plugs, gloves
    b. sandals or sneakers
    c. T-shirts and shorts
    d. belts and key rings
UNIT II
EQUIPMENT AND TOOL SAFETY

LEARNING OBJECTIVES

GENERAL INFORMATION

TERMS TO KNOW

GENERAL GUIDELINES FOR EQUIPMENT AND TOOL SAFETY

- USER MANUAL
- REFUELING EQUIPMENT
- SAFETY GEAR AND CLOTHING
- HEALTH CONCERNS
- GENERAL PRECAUTIONS
- WORKING ON BUSY STREETS
- WORK RESPONSIBLY AND SAFELY

LANDSCAPE EQUIPMENT AND TOOLS

- PUSH MOWER
- RIDING MOWER
- WEED EATER AND EDGER
- LEAF BLOWER
- PRUNERS

OTHER HANDTOOLS

TEST YOUR KNOWLEDGE
EQUIPMENT AND TOOL SAFETY

LEARNING OBJECTIVES

• To instruct the landscape worker on the proper and safe use of equipment and tools.
• To improve productivity and reduce the number of landscape accidents.
• To increase awareness of how safety measures in the landscape workplace result in accident prevention, maximum use of human and material resources, and increased productivity.

GENERAL INFORMATION

• The supervisor should only assign equipment and tools for which the worker has been trained to operate.
• The worker should only use equipment and tools for which he has been trained to operate.
• Check general operating condition of all equipment and tools before using.
• Before loading a work vehicle, check for proper fuel and oil levels.
• To avoid back injury when loading and unloading the work vehicle, use proper body mechanics for lifting.
• Do not fill the oil or gas tank on turfgrass or landscape areas. Spills can damage plants, soil and the environment and create hazardous conditions for the landscape worker.
• Do not smoke when re-fueling equipment.
• Keep an operator’s manual available for all equipment for use by workers.

TERMS TO KNOW

SAFETY GOGGLES (GLASSES) - protect the eyes from harmful flying objects (glass, stones, and other debris)

FACE SHIELD - protect the face from harmful flying objects (glass, stones, and other debris)

EAR PROTECTION - protect the ears from loud and harmful equipment noise

PRUNERS AND EDGERS – landscape tools that are used to cut and trim limbs or branches, and used to trim along the edge of driveways and sidewalks

UTILITIES – public service connections such as electricity, gas, water, sewage and telephone lines

DANGER ZONE – The safe operating distance area of 45 feet to be maintained between any motorized equipment in use and people/animals.

GENERAL GUIDELINES FOR EQUIPMENT AND TOOL SAFETY

USER MANUAL

• Follow equipment safety labels and instructions in manufacturer user manual.
• Never remove or alter labels.
• Before operating machinery, locate the operating controls and emergency brake.
• Always check new equipment before using.

REFUELING EQUIPMENT

• Strictly limit the number of employees who do the refueling to those who have been trained and authorized to perform the procedure.
• Follow these safety precautions when refueling:
Shut off the engine and let it cool first.
Close the fuel cap slowly and hold it at the semi-lock position until pressure is released.
Allow the nozzle to empty by keeping it in the filler opening for several seconds after shutting off the flow.
Replace the fuel cap after checking to see that the venting is not clogged.

- Store fuel in appropriate containers.
- Maintain nearby fire extinguishers and other firefighting equipment.
- Do not smoke, have an open flame or any other source of ignition nearby.
- If fuel spills on equipment, wipe up and allow any residue to dry before starting the engine.
- Do not run if your clothing catches on fire. **Stop, drop and roll.** Use a blanket or fire extinguisher on any co-worker who catches on fire.

SAFETY GEAR AND CLOTHING
- Wear comfortable well-fitting clothing. Avoid loose or baggy clothes.
- Avoid wearing jewelry pendants or chains that may get entangled in machinery.
- Use protective safety goggles, ear protection and hat as needed.
- Wear long pants.
- Use appropriate sturdy work shoes, preferably steel-tipped.
- Use appropriate gloves as needed.
- Keep hair short or properly secured to prevent entanglement in machinery.
HEALTH CONCERNS
- Use sun screen/sun block to prevent sun damage.
- Avoid heat stroke.
- Rest when tired.
- Drink plenty of water.
- Do not operate machinery if tired, sick, under the influence of alcohol or taking medication that causes drowsiness or sleepiness.
- To prevent carbon monoxide poisoning, never operate machinery in poorly ventilated areas.
- Inform the supervisor of pre-existing allergies to plants, pollens and insect bites.

GENERAL PRECAUTIONS
- Never work during electrical storms, heavy rain or windy conditions.
- Never operate machinery in conditions of poor visibility.
- At the work site, check and clean the garden and turfgrass by removing rocks, bottles, toys or other debris that could be picked up and thrown by landscape machines.
- Maintain a work area distance of at least 45 feet between motorized machinery and people/animals.
- Observe special precautions when working with electrical equipment (i.e. avoid cutting electric cord, working on wet surfaces).
- Do not smoke near gasoline-operated equipment.
- Let machinery cool down before re-fueling.
- Do not start machinery near fuel containers.
- Never work alone, especially when operating motorized and/or hazardous equipment.
- Do not use personal radios with head phones or ear plugs while operating machinery.
- During severe storms (lightning, extreme wind or rain), seek immediate shelter.
- Be sure to identify the location of power lines and maintain a safe distance of at least 10 feet while operating trimmers/pruners.

WORKING ON THE STREET
- Work facing the traffic.
- Use traffic security vest (fluorescent orange).
- Always be alert and aware of traffic.

WORK RESPONSIBLY AND SAFELY
- Be responsible when operating machinery.
- Never allow passengers while operating a riding machine.
- Never allow any unauthorized persons to operate the machinery.
• Keep feet and hands away from moving parts of machinery, or away from other dangerous equipment or tools.
• Do not leave machinery running while unattended. Turn the motor off and remove the keys.
• Before repairing or adjusting any machinery, turn the motor off and disconnect the spark plug cable.

- Equipment should be stored in an appropriate place.
- Tag broken tools or equipment with a company designated tag color so workers know not to use them.
- Equipment and tools already checked for particular seasons or specialty work should have company designated tag colors.
- Be sure to use fall protection equipment when working at a height greater than 6 feet off the ground or exposed to a 6 foot fall.

BEFORE OPERATING THE MOWER
• Know how to use the mower before operating it.
• Make certain all safety devices are in place.
• Wear appropriate clothing, non-slip safety shoes and safety gear for eyes and ears.

- Adjust the mower cutting height and inspect cutting blade condition. Sharpen the blade as necessary.
- Inspect for hidden hazards such as holes, roots, drain pipes and insect nests.
- The supervisor should provide and review the operating manual with each worker prior to use.

OPERATING THE MOWER
• Start mower engine at the work area to save fuel and reduce unnecessary noise and pollution.
• Do not operate machinery with wet or slippery hands, or during rain storms.
• Push and do not pull the mower.
• Do not adjust tires while engine is running.
• Do not lift or tilt the mower while engine is running.
• Do not clean or remove grass from the discharge chute while motor is running.
• Identify and label the safe slope that the equipment can be used.

LANDSCAPE EQUIPMENT AND TOOLS

PUSH MOWER
• Slow down when turning and when on slopes to avoid tipping over.
• Avoid steep slopes. Use mower only on flat or gentle slopes.
• Inspect blades frequently to be sure that they are tight and sharp.
• During operation, keep hands away from both the blades and the discharge chute.
• Do not operate mower on hard surfaces such as concrete, stones, gravel, etc.
• Walk (do not run) when operating a mower.
• Do not use hands to remove turfgrass debris from machinery and make sure that the mower’s engine is turned off.
• When pushing a hand mower, always move up the slope.
• Do not work for more than 4 hours without using ear protection.
• Never leave a mower unattended while the engine is running.
• Do not use cold water to rinse mower until engine is cooled.
• Avoid wet or muddy work areas.

• Do not work for more than 3 hours without using ear protection.
• Measure turfgrass height and density in order to correctly adjust mower blade height and speed. Sharpen the blades as needed because dull blades may cause engine to stall or create irregular wavy patterns of grass.
• Never remove any protective shields unless the engine is turned off.
• Make sure that people and animals are kept at a safe distance (45 feet) from the work area.
• Inspect terrain for hidden hazards such as holes, roots, drain pipes and insect nests.
• Never operate weed eater/edger without protective shield in place.
• Use appropriate protective gear for ear and eye safety.

OPERATING THE MOWER

• Never use the mower in reverse to cut the grass.
• Use slow speed when mowing on slopes and make turns only on level terrain.
• Avoid mowing over holes, ditches or any other dangerous depressions. Avoid tires getting caught, which could lead to loss of control and overturning.
• Always keep both hands on the mower steering wheel or handles.
• Before backing up, make sure there are no people or animals behind the mower.
• Never change direction sharply.
• Never let the clutch go suddenly.
• Change gears or velocity only on level terrain.
• When using a riding mower, always move down the slope, especially if the slope is more than 5 degrees or 9% (this is opposite to the hand mower).
• Never use a riding mower if slope is greater than 15 degrees or 27% because a steep slope causes wheels to spin, loss of control, and turfgrass damage. See Appendix for easy steps to calculate % of slope.
- When using a grass clipping bag, be sure devise does not cause instability of mower.
- Keep the discharge chute pointed away from buildings, people and animals.
- Never allow passengers.
- Never clear a clogged chute while engine is running or ignition is in the “on” position.

WEED EATER AND EDGER

- Inspect weed eater for good working condition.

BEFORE OPERATING THE WEED EATER AND EDGER

- Inspect work area and remove any debris or objects that might become hazards.

- Avoid contact with electric lines, telephone wires and/or television cables, and clearly identify and flag them.
- Be sure blades and nylon strings are in proper working condition.
- Never operate weed eater/edger without protective shield in place.
- Use appropriate PPE for ear and eye safety.
- Supervisor should provide and review operator’s manual with each worker prior to use.

OPERATING THE WEED EATER

- Using good body mechanics, utilize both hands to start the engine. One hand should pull the starting cord while the other hand maintains the weed eater stable against the ground.
- Do not start weed eater/edger up in the air.
- Do not use the weed eater/edger to cut plants of heights above knee level.
- Turn off weed eater immediately if the unit is shaking, vibrating or making strange noises. Report any problem to the supervisor.
- Do not store the unit with a full tank of gas because it may spill and cause a fire.
- Do not operate under conditions of poor ventilation.
- Do not operate under conditions of poor visibility.
- Maintain a work area distance of at least 45 feet from people and animals.
- After turning off the machine, wait to be sure that blades or strings have come to a complete stop before handling.
- When storing the weed eater, unplug the spark plug to avoid possible fire hazard.

- Use both hands when operating the machine to avoid losing control.
- Use personal protective equipment - PPE.

**BEFORE OPERATING THE BLOWER**

- The supervisor should provide and review the operator's manual with each worker prior to use.
- Be familiar with operating instructions.
- Inspect the machine carefully for loose, broken, or damaged parts. Repair or replace them before using the machine.
- Wear appropriate clothing and avoid jewelry chains or pendants that may become entangled in machinery.

- Use face mask, safety goggles and ear protection as needed.
- Re-fill the fuel tank outdoors after making sure that the engine is cool.

**OPERATING THE LEAF BLOWER**

- Always start and operate blower in a vertical position.
- To avoid carbon monoxide exposure, always start
- Never operate the blower without the tubing.
- Always direct the discharge of debris away from people and animals because blown objects could cause injury.
- Do not use the machine for spreading/misting any chemicals or fertilizers.
- Do not operate the leaf blower from ladders, trees, roof tops, or other unstable structures.

HAND AND MOTORIZED PRUNERS

BEFORE OPERATING THE PRUNERS

- The supervisor should provide and review the operator's manual with each worker prior to use.
- Be familiar with operating instructions.
- Use appropriate protective gear including face shield, safety goggles, ear plugs and gloves.
- Wear appropriate clothing and sturdy non-slip safety shoes.
- Keep hair short or properly secured to prevent entanglement in machinery.
- Make sure that the job site is free of trash and debris.
- Make sure that the machine is functioning properly. Never operate the machine with loose, defective or missing parts.
- Avoid contact with any electric lines, telephone wires or televisions cables, and be sure to clearly identify and flag them.
- Make sure that the gas tank is properly filled.

OPERATING THE PRUNERS

- Use a back support belt to avoid back strain.
- Use appropriate ear protective gear (i.e. earplugs).
- Always use both hands to operate motorized pruners. Use your stronger hand to hold the back of the machine while your other hand stabilizes the front and steers direction.
UNIT III
PESTICIDE SAFETY

LEARNING OBJECTIVES

GENERAL INFORMATION

TERMS TO KNOW

PESTICIDE SAFETY

• PESTICIDE LABELS
• EQUIPMENT
• PESTICIDE APPLICATION
• TRANSPORTATION
• PESTICIDE HANDLING
• SPILL CLEANUP
• WORKER PROTECTION STANDARDS (WPS)

TEST YOUR KNOWLEDGE
PESTICIDE SAFETY

LEARNING OBJECTIVES
• To understand the safety measures required for the application, handling, transportation and storage of pesticides.

GENERAL INFORMATION
• Pesticides are toxic chemicals and require cautious use.
• Pesticides may cause serious illness and even death to persons, animals and plants if used incorrectly or irresponsibly.
• Only apply pesticides when necessary.
• Select pest-specific formulations and use appropriate Personal Protective Equipment (PPE).
• A pesticide applicator must be appropriately trained in the proper and safe handling, transportation, calculation, application, storage, and/or proper disposal of pesticides. Only a certified pesticide applicator may apply restricted-use pesticides.
• Follow all pesticide label instructions, restrictions and precautions exactly. Not following these directions is illegal and can result in dangerous situations.
• Store pesticides in their original containers with their labels intact. Pesticide containers should be stored separate from food or clothing and in a locked storage site that is inaccessible by animals and unauthorized persons.
• Always apply pesticides using the correct dose and at the appropriate intervals to prevent excess residue that could cause toxicity to plants and animals. Never apply pesticides under windy conditions.
• After applying pesticides, the worker should shower thoroughly.
• Clothing exposed to pesticides must be washed separately from all other laundry.

TERMS TO KNOW
HAND SPRAYERS are the most commonly used pesticide application equipment. They are simple to use, may be used to apply small quantities of pesticides, and are easy to clean and store. Most hand sprayers operate on a low pressure, compressed air supply by a hand pump.

BACKPACK SPRAYERS are those that operate on compressed air with a harness and a knapsack that allows it to be carried on the pesticide applicator’s back. The air can be compressed by either a hand-operated hydraulic pump or a motor pump that is driven by a small gasoline-powered engine.

The 3 C’s are: CONTROL the spill by first wearing the proper PPE, remain at the site, isolate the spill site by keeping people and animals away, and immediately notify the supervisor. CONTAIN the spill by preventing its spread to a larger area or getting worse. Cover the spill with appropriate material. CLEAN-UP of the spill involves removal of the spill and cleanup of the area. Collect all spill debris and place within heavy-duty containers or bags for proper disposal. Caution – NEVER hose down the site with water. The supervisor will manage the necessary neutralization of the spill site.

WORKER PROTECTION STANDARDS (WPS)
The Worker Protection Standard (WPS) was revised in 1992 by the EPA and it requires employers to provide agricultural workers and pesticide handlers with protection against possible harm from pesticides.

PESTICIDE LABELS
• A pesticide label is one of the most important safety features available for insuring safe pesticide handling and application.
• Before using or re-using a pesticide, always read the label since relying on memory alone may lead to mistakes.
• Always carefully follow the instructions of pesticide labels.
• The pesticide label has 3 main functions:
  1. Fulfill federal and state laws that regulate pesticide sales, use and storage of pesticides.
  2. Inform pesticide handlers of proper use.
  3. Inform medical personnel of treatment regimen.
PARTS OF PESTICIDE LABELING

CLASSIFICATION
- The Environmental Protection Agency (EPA) classifies pesticides as either general use (not designated) or restricted use, which are plainly identified on the label as a “Restricted Use Pesticide”.

A “Restricted Use Pesticide” is a pesticide that is highly toxic to humans, animals and/or the environment and therefore requires extreme precaution, and may only be legally sold to certified applicators, and only used by certified applicators or persons under their direct supervision.

TYPES OF PESTICIDE
- Each pesticide label clearly identifies what the product will control, for example:
  - insecticide to control insects
  - fungicide to control fungi
  - herbicide to control weeds

EPA REGISTRATION NUMBER
- Each pesticide is assigned specific numbers by the EPA.
- The registration number on the pesticide label identifies the manufacturer and the product.

EPA ESTABLISHMENT NUMBER
- The Establishment Number on the pesticide label or container is assigned by the EPA and identifies the facility where the pesticide was made.

SIGNAL WORDS AND SYMBOLS
- Pesticide label precautionary signal words and/or symbols represent the degree of toxicity level, for example:
  - DANGER (PELIGRO) high toxicity
  - WARNING (AAVISO) moderate toxicity
  - CAUTION (PRECAUCION) low toxicity

DIRECTIONS FOR USE
It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

The use, directions and instructions are not advice. They are requirements. The labeling also provides the following information:
- pests that the product controls
- plants, animals, or sites that the product protects
- Formulation in which the product should be applied
- correct equipment to be used
- quantity and mixing instructions of the product to be used
- timing and frequency of application

FIRST AID
- Most pesticide labels include First Aid instructions on how to respond to an emergency exposure to that product.

ENVIRONMENTAL HAZARDS
- This section of the label gives general and specific instructions on how to protect the environment and wildlife while using that pesticide.
PHYSICAL OR CHEMICAL HAZARDS
• This section of the label indicates any special fire, explosion or chemical hazard the product might possess.

STORAGE AND DISPOSAL
• All pesticide labels contain the following instruction or warning: Keep out of reach of children and pets.
• This section gives specific storage requirements including safe closure and stacking of containers, as well as temperature, lighting and ventilation requirements of storage sites.
• This section of the label provides information on acceptable ways to dispose of excess pesticides, rinsates and containers.
• This section of the label includes how to handle accidental spills.

EQUIPMENT
The three most important factors regarding pesticide equipment safety are:
1. Careful equipment selection for a successful pest control program.
2. Study and strict following of the manufacturer’s equipment instructions.
3. Appropriate equipment maintenance, cleaning, and storage.

Sprayers
1. Hand Sprayers
   Hand sprayers are the most commonly used pesticide application equipment. They are simple to use, may be used to apply small quantities of pesticides and are easy to clean and store. Most hand sprayers operate on a low pressure, compressed air supply by a hand pump. The most frequent worker hazard that may occur is during the cleaning of a clogged nozzle, or from a leaking/cracked hose.

2. Backpack Sprayers
   This type of sprayer operates on compressed air with a harness and a knapsack that allows it to be carried on the pesticide applicator’s back. Either a hand-operated hydraulic pump or a motor pump that is driven by a small gasoline-powered engine can compress the air. These sprayers have greater capacity than the hand-held models, can operate under high pressure and can use many types of nozzles. The major hazard that may occur tends to be due to hose malfunction (i.e. leaking or burst pressure hoses).

Granule Applicators
• This equipment can distribute granular pesticides by different methods that may include forced air, spinning disks, gravity spreaders and injectors.
• They are simple to use and easy to maintain, with low risk of drift hazard and low exposure hazard to applicator.
• They require calibration for each use and for each formulation to insure even distribution and correct amount of pesticide application.

PESTICIDE APPLICATION
• Never let your guard down when working with pesticides. Always read and follow the label instructions, even if familiar with the product because products change as do their label instructions.
• Be sure to place signs that identify that pesticides have been applied in the area. Avoid the area for (number of hours') as label recommends.
• Do not eat, drink or smoke while applying pesticides.
• Always use the appropriate equipment (PPE), even when working with products that appear to be safe.
• To prevent avoidable exposures to pesticides, prior to pesticide application remove all homeowner/pet objects (i.e. tools, toys, etc.).
• Do not allow people or pets near the pesticide application site.
• To avoid spills, inspect all pesticide equipment to be used prior to application: visually inspect for broken hoses, leaky fittings and clogged nozzles.
• Do not allow untrained or unauthorized persons to apply pesticides.
• Make sure that the pesticide application has available cleaning and rinsing supplies (i.e. towels, water and soap).
• Make sure that pesticides do not drift or run off target area to prevent unnecessary exposure to persons, animals or the environment. Apply pesticides only during calm and not windy or rainy days, early in the morning or late in the afternoon and not during periods of drought or high temperature.
• If adjustments or cleaning of equipment are necessary during pesticide application, utilize the following precautions:
  1. Turn off the equipment.
  2. Vent or release the pressure.
  3. Move to a clean (no pesticide), well lit and ventilated area.
  4. Be sure to utilize the proper PPE.
• Carefully calculate pesticide amount to be used to prevent leftovers.
• Always place appropriate signs following pesticide application.

RE-ENTRY
• The pesticide label contains information specifying the proper waiting time period before re-entering a pesticide treated area.

EQUIPMENT CLEANING
• Make sure to wear the appropriate PPE.
• Equipment should be cleaned after each use.
• Rinsate must be disposed of by following label instructions.
• Make sure to prevent contamination of ground water by washing equipment at a minimum distance of at least 100 feet from surface water or wells.

TRANSPORT
• The applicator is responsible for the safe transport and storage of pesticides used with purchase and use.
• Never transport pesticides in the passenger section of the car, van or truck.
• Never allow passengers (i.e. co-workers, children, other persons, or pets) to ride in a vehicle used for transport of pesticides prior to thorough cleaning of the vehicle.
• Never transport pesticides with food, clothing or animal feed.
• Never leave the vehicle unattended when transporting pesticides.
• Safely secure and anchor all pesticides during transport to prevent rolling or sliding.
• Protect pesticides against extreme temperatures and direct sunlight.
• Always transport pesticides in their original and undamaged containers to insure that labels are
• Upon arrival to the application site, inspect vehicle prior to unloading any pesticides to insure that no spills have occurred.

PESTICIDE HANDLING
• Pesticide mixing and loading are among the most hazardous aspects of the job
• Select the most appropriate area for mixing and loading of pesticides. The area should be outdoors, well-ventilated and away from unprotected people, animals, clothing, food and any other objects that might become contaminated.

• Never work alone during the mixing and loading of pesticides in case of accidents or emergencies.

• By law, all recommended PPE that the labeling requires must be used.
• It is important to always read and understand thoroughly all pesticide label instructions prior to any handling.
• To prevent an excess of pesticide mix, it is important to calculate and measure precisely.

SPILL MANAGEMENT
A spill is an accidental release of any pesticide. The best way to remember how to manage a spill emergency is by remembering the 3 C’s = Control, Contain, and Cleanup

• Control the spill by first wearing the proper PPE, remain at the site, isolate the spill site by keeping people and animals away, and immediately notify the supervisor.
• Contain the spill by preventing its spread to a larger area. Cover the spill with appropriate material.
• Cleanup of the spill involves removal of the spill and cleanup of the area. Collect all spill debris and place within heavy duty containers or bags for proper disposal. Caution – NEVER hose down the site with water. The supervisor will manage the necessary neutralization of the spill site.

WORKER PROTECTION STANDARDS (WPS)
The Worker Protection Standard (WPS) was revised in 1992 by the EPA and it requires employers to provide agricultural workers and pesticide handlers with protection against possible harm from pesticides.
The basic requirements that the WPS establishes for the employer include the following:
• Display information about pesticide safety, and emergency procedures.
• Train workers and handlers about pesticide safety.
• Provide employees with medical assistance in case of a work-related pesticide emergency.
Set up decontamination sites for washing pesticide residues off hands and body.
• Enforce strict compliance with restricted-entry intervals.
• Notify workers in an understandable way (verbal and written warning) about areas where pesticide applications are taking place.
• Allow only trained and equipped pesticide handlers to be present during pesticide application.
• Provide all PPE for handlers and workers who need to enter the pesticide treated area.
• Provide training for pesticide handlers on the safety and correct use of PPE during mixing, loading and application of pesticides.
• NEVER use leather or cloth gloves.
• NEVER wear clothing for pesticide application for more than 1 day.
TEST YOUR KNOWLEDGE

Instructions: Please circle the correct answer for each question.

UNIT III – PESTICIDE SAFETY

1. Pesticides should be transported
   a. in the truck cab to avoid spillage
   b. secured in the truck bed
   c. any place in the truck
   d. none of the above

2. What is allowed to be stored with pesticides?
   a. food
   b. cleaning products and medicines
   c. animal feed
   d. none of the above

3. What is the most dangerous time for being exposed to pesticides?
   a. at beginning of the work day
   b. at the end of a work day
   c. during loading and mixing of pesticides
   d. none of the above

4. To achieve an adequate pest control, the pesticide dosis should be
   a. less than recommended
   b. 100% more than recommended
   c. what is recommended on the label
   d. 50% less than recommended

5. What type of gloves should NOT be used when handling pesticides?
   a. polyethylene
   b. chemical resistant (butyl or nitrile)
   c. natural rubber
   d. leather or cloth

6. Work clothing for pesticide use should not be worn more than ___ days
   a. 2
   b. 1
   c. personal preference
   d. 5
APPENDIX

A. IMMIGRATION RESOURCES

INS Information
www.ins.usdoj.gov
800-375-5283

INS Washington
US Department of Justice
Washington, D.C. 20536

Atlanta INS
Martin Luther King Jr. Federal Building
77 Forsyth Street, S. W.
Atlanta GA 30303

Texas INS Service Center
P.O. Box 10821
Mesquite TX 75185-3062

California Service Center
Attn: TPS
P.O. Box 10821
Laguna Niguel CA 92607-0821

Catholic Social Services
680 West Peachtree NW
Atlanta GA 30308
(404) 885 - 7487

Latin American Association
2750 Buford Hwy.
Atlanta GA 30324
(404) 638 – 1800
B. TEST YOUR KNOWLEDGE

Instructions: Please circle the correct answer for each question.

UNIT I - HEALTH SAFETY ISSUES

1. Acute toxicity is illness or injury that occurs within ___ hours of exposure to a pesticide.
   a. 12 hours
   b. 48 hours
   c. 24 hours
   d. 18 hours

2. The most common route of pesticide exposure is by the
   a. mouth
   b. eyes
   c. skin
   d. nose

3. Which signal words are used to classify pesticide toxicity?
   a. Danger
   b. Warning
   c. Caution
   d. All of the above

4. Which is a good example of correct body mechanics?
   a. use legs for lifting, not back
   b. bending
   c. lifting heavy loads
   d. twisting

5. What is sun screen/sun block?
   a. insect repellant
   b. hand soap
   c. protect skin against harmful sun
   d. shampoo

6. What could cause a repetitive motion injury?
   a. shovel
   b. vibrating tool
   c. hoe
   d. rake

7. What could cause heat stroke or heat exhaustion?
   a. drink plenty of fluids
   b. work during hottest time of day
   c. wear light color clothing and hat
   d. no rest

8. What is the best way to prevent insect bites?
   a. dark clothing
   b. cologne and perfume
   c. insect repellant
   d. mow over yellow jacket nest

9. What is the most common characteristic of Poison Ivy/Poison Oak?
   a. one leaf
   b. yellow color
   c. shrub-like
   d. 3 leaf clusters

10. What might be included with PPE?
    a. safety goggles, ear plugs, gloves
    b. sandals or sneakers
    c. T-shirt and shorts
    d. belts and key rings
UNIT II – EQUIPMENT AND TOOL SAFETY

1. At the beginning of the work day you should
   a. speak with the supervisor about the status of the equipment
   b. make sure that you are trained to use the equipment
   c. inspect all equipment
   d. all of the above

2. When working on a busy street, you must observe the following:
   a. face the traffic
   b. use a safety traffic vest (fluorescent colors)
   c. be aware of traffic
   d. all of the above

3. When equipment is broken, you should
   a. dispose of the equipment
   b. purchase new equipment
   c. advise the supervisor
   d. repair the equipment

4. What is the safe operating distance (Danger Zone) between operating motorized equipment and people/animals?
   a. 21 feet (3 M)
   b. 99 feet (33 M)
   c. 45 feet (15 M)
   d. 6 feet (2 M)

5. The use of loose or baggy clothing and jewelry chains or pendants is not safe because they could
   a. get entangled in the equipment
   b. reflects a non-professional appearance
   c. may cause worker injury or equipment damage
   d. all of the above

6. When operating a riding mower, all the following are true except one
   a. mow downhill
   b. do not make sudden direction changes
   c. do not allow passengers
   d. mow on a steep slope greater than 15° angle (27%)

7. While re-fueling be sure to
   a. smoke a cigarette
   b. keep engine hot and running
   c. turn engine off and allow to cool down
   d. fill the tank on turfgrass

8. When operating a weed eater/edger, you should NOT
   a. store with full tank
   b. work without safety shields
   c. work near people/animals/vehicles
   d. all of the above

9. When working with the leaf blower, you should NOT operate
   a. in a confined space
   b. without the discharge chute
   c. without appropriate safety gear
   d. all of the above
UNIT III - PESTICIDE SAFETY

1. Pesticides should be transported
   a. in the truck cab to avoid spillage
   b. secured in the truck bed
   c. any place in the truck
   d. none of the above

2. What is allowed to be stored with pesticides?
   a. food
   b. cleaning products and medicines
   c. animal feed
   d. none of the above

3. What is the most dangerous time for being exposed to pesticides?
   a. at the beginning of the work day
   b. at the end of a work day
   c. during loading and mixing of pesticides
   d. none of the above

4. To achieve an adequate pest control, the pesticide dosis should be
   a. less than recommended
   b. 100% more than recommended
   c. what is recommended on the label
   d. 50% less than recommended

5. What type of gloves should NOT be used when handling pesticides?
   a. polyethylene
   b. chemical resistant (butyl or nitrile)
   c. natural rubber
   d. leather or cloth

6. Work clothing for pesticide use should not be worn more than ___ days
   a. 2
   b. 1
   c. personal preference
   d. 5
PRE TEST
Instructions: Please circle the correct answer for each question

1. The most common route of pesticide exposure is by the
   a. mouth
   b. eyes
   c. skin
   d. nose

2. Which is a good example of correct body mechanics?
   a. use legs for lifting, not back
   b. bending
   c. lifting heavy loads
   d. twisting

3. What might be included with PPE?
   a. safety goggles, ear plugs, gloves
   b. sandals or sneakers
   c. T-shirt and shorts
   d. belts and key rings

4. What is the safe operating distance (Danger Zone) between operating motorized equipment and people/animals?
   b. 21 feet (3 M)
   c. 99 feet (33 M)
   d. 45 feet (15 M)
   e. 6 feet (2 M)

5. When operating a riding mower, all the following are true except one
   a. mow downhill
   b. do not make sudden direction changes
   c. do not allow passengers
   d. mow on a steep slope greater than 15° angle (27%)

6. The use of loose or baggy clothing and jewelry chains or pendants is not safe because they could
   a. get entangled in the equipment
   b. reflects a non-professional appearance
   c. may cause worker injury or equipment damage
   d. all of the above

7. When operating a weed eater/edger, you should NOT
   a. store with full tank
   b. work without safety shields
   c. work near people/animals/vehicles
   d. all of the above

8. What is the most dangerous time for being exposed to pesticides?
   a. at beginning of the work day
   b. at the end of a work day
   c. during loading and mixing of pesticides
   d. none of the above

9. To achieve an adequate pest control, the pesticide dosage should be
   a. less than recommended
   b. 100% more than recommended
   c. what is recommended on the label
   d. 50% less than recommended

10. Work clothing for pesticide use should not be worn more than ___ days
    a. 2
    b. 1
    c. personal preference
    d. 5
POST TEST

Instructions: Please circle the correct answer for each question.

1. The most common route of pesticide exposure is by the
   a. mouth
   b. eyes
   c. skin
   d. nose

2. Which is a good example of correct body mechanics?
   a. use legs for lifting, not back
   b. bending
   c. lifting heavy loads
   d. twisting

3. What might be included with PPE?
   a. safety goggles, ear plugs, gloves
   b. sandals or sneakers
   c. T-shirt and shorts
   d. belts and key rings

4. What is the safe operating distance (Danger Zone) between operating motorized equipment and people/animals?
   b. 21 feet (3 M)
   c. 99 feet (33 M)
   d. 45 feet (15 M)
   e. 6 feet (2 M)

5. When operating a riding mower, all the following are true except one
   a. mow downhill
   b. do not make sudden direction changes
   c. do not allow passengers
   d. mow on a steep slope greater than 15° angle (27°)

6. The use of loose or baggy clothing and jewelry chains or pendants is not safe because they could
   a. get entangled in the equipment
   b. reflect a non-professional appearance
   c. may cause worker injury or equipment damage

7. When operating a weed eater/edger, you should NOT
   a. store with full tank
   b. work without safety shields
   c. work near people/animals/vehicles
   d. all of the above

8. What is the most dangerous time for being exposed to pesticides?
   a. at beginning of the work day
   b. at the end of a work day
   c. during loading and mixing of pesticides
   d. none of the above

9. To achieve an adequate pest control, the pesticide dosis should be
   a. less than recommended
   b. 100% more than recommended
   c. what is recommended on the label
   d. 50% less than recommended

10. Work clothing for pesticide use should not be worn more than ___ days
    a. 2
    b. 1
    c. personal preference
    d. 5
C. DAILY SAFETY CHECKLISTS

DAILY SAFETY CHECKLIST OF EQUIPMENT

PLACE_____________________________________DATE_________________________TIME__________

<table>
<thead>
<tr>
<th>ITEM</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speak with supervisor about equipment condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect working condition of equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check equipment fuel levels after unloading truck</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trained to use the equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wearing appropriate clothing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required PPE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety goggles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ear plugs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gloves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free of alcohol and drugs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment malfunction reports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work-site weather conditions (rainy, windy, lightning)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turfgrass conditions (wet, dry, muddy, steep slopes)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Observations

Worker

Supervisor
DAILY SAFETY CHECK-LIST OF PESTICIDES

PLACE_____________________________________DATE_________________________TIME________

<table>
<thead>
<tr>
<th>ITEM</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speak with supervisor about selection of pesticide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speak with supervisor about work site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trained to use pesticide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety goggles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long pants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubber boots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical resistant gloves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free of alcohol and drugs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job-site visibility conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weather conditions (rainy, windy, lightning)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turfgrass condition (wet, dry, muddy)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct storage of pesticide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report any incident</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change of clothes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Observations

Worker

Supervisor
D. WORKER SAFETY RECORD FORM

WORKER SAFETY RECORD FORM
(INTERNAL CONTROL)

Report # ________

Name of Employee __________________________ Telephone ______

Address ___________________________________

Sex M__________ F__________

Employee title
Experience
Length of employment

Date of Accident Day Hour

Place of Accident

Description of accident

When was the last time safety training received?

Supervisor__________________________ Date____________________
E. HOW TO CALCULATE THE SLOPE OF AN AREA

INTRODUCTION

It is important to be able to calculate the slope of a terrain in order to avoid accidents due to overturning of equipment. Landscapes with a slope of greater than 15 degrees (27%) present a high risk of vehicle overturn. Therefore, it is unsafe to operate any type of motorized landscape equipment on this or greater degree of slope.

MATERIALS

- Hand Level
- String
- Measuring tape

PROCEDURE

Select 3 different sites along the slope to measure the angle
Sites should be representative of the slope
Place the string first on ground at the top of the slope (point A)
Place the other end of the string on ground at the bottom (point B) of (10 feet) string, for easy calculation use multiples of 10 of the slope (point B)
Place level on the string
Level the string
Measure the height from point B to elevated string (point C)
Use the height (H) measurement (B to C) with distance measurement (A to B) to calculate slope angle or degree

Slope is calculated by measuring the distance down a slope (a to b = 100) by the distance from b to the ground (b to c = 15). Then dividing b to c distance (15) by a to b (100). Thus 15/100 is 0.15 x 100 = 15%
F. CALCULATIONS

• To calculate the correct amount of pesticide to be applied, it is important to be able to determine the size of area to be treated.
• The following are some simple formulas to calculate areas for the most common shapes to be found in landscapes (rectangles, squares, triangles, circles).

Formulas for calculating surface areas

Rectangle

The area of a rectangle or square is obtained by multiplying length by width.

Area = length x width (square units)

Example: Calculate the area of a rectangular site with the following dimensions:

\[
\text{length} = 40 \text{ feet} \\
\text{width} = 20 \text{ feet}
\]

\[
\text{area} = \text{length} \times \text{width} = 40 \text{ feet} \times 20 \text{ feet} = 800 \text{ square feet}
\]

Circle

The area of a circle is calculated by multiplying the constant pi (3.14) times the square of the radius (r²).

\[
\text{Area} = \pi \times (3.14) \times r^2 \quad \text{pi} = \pi = 3.14
\]

Example: Calculate the area of a circular site with the following dimensions:

\[
\text{radius} = 20 \text{ feet}
\]

\[
\text{Area} = 3.14 \times \text{radius squared} (r^2) = 3.14 \times 20 \text{ feet} \times 20 \text{ feet} = 1256 \text{ square feet}
\]
REFERENCES


