



Cutting and clearing vegetation

This data sheet was designed to train employees using tractor mowers, power hand mowers, brush-cutting tools and chemical sprayers. Its objective is to protect employees and the public and to prevent damage to equipment and property, both public and private, in the vicinity of such work.

PERSONNEL

Selection of workers

2. The qualities needed on the job by a prospective employee should be considered. The employees, especially the operators of heavy equipment such as tractors, must have good vision and reflexes, be able to make decisions, and be capable of work in hot and uncomfortable situations. It is advisable to have a basic medical review to discover if the employee is allergic to bees, dust, poisonous plants or similar conditions.

3. In some operations, the employee may have to work with minimal control or supervision. These cutting and clearing jobs require dedicated employees who are well trained. Day laborers, part-time college students, or similar temporary workers should not be assigned without serious consideration of employee and public safety.

4. All employees should be informed of the hazards of the work environment.

Personnel protection

5. OSHA and state safety and health codes explain that management is responsible for ensuring that employees use appropriate personal protective equipment. Every job should be analyzed to determine exactly what equipment is needed. Once that has been established, make certain that

employees are informed of requirements for wearing PPE.

6. PPE should be selected by management according to the specific need. All equipment should meet regulatory standards. Employees should ask their supervisor if they have questions. Some states and some contracts require that some or all equipment be provided to employees.

- *Eye protection.* Provide appropriate safety glasses with side shields or a face shield.
- *Head protection.* Employees should be provided with and wear approved safety hats. Do not permit the use of bump caps because they are not designed to resist impact and penetration.
- *Hearing protection.* Employees should wear earplugs or muffs where excessive noise is present.
- *Respiratory protection.* Respirators should be selected based on the potential hazard or chemical handled. Provide properly fitted dust or chemical respirators, when needed, to protect against nuisance, toxic or chemical materials that may result from the mowing operation or chemical application. Approved respirators weighing less than one ounce are available.
- *Brightly colored safety vests or jackets.* Select the same color as worn by flaggers in your operation. Ensure that employees know wearing this equipment is mandatory. Make certain that vests or jackets are replaced when they lose high visibility.
- *Shin guards.* Provide comfortable well-fitted plastic guards or high boots for use in operating hand power mowers. These will protect the operator from flying objects hidden beneath the grass or weed surface.
- *Foot protection.* Rubber, neoprene, plastic or leather boots with steel toes and



metatarsal protection are recommended when operating hand power mowers and weeders. Foot protection can be provided by use of add-on protective devices that fit over regular work boots and shoes. Some operations may require use of steel insoles to protect against nails and other foreign objects.

- *Other protective apparel.* Provide leather or coated fabric gloves as needed to protect employees from lacerations or chemical contact. Operations involving chemicals may require boots, chemical-resistant clothing, and chemical hoods or face shields. Barrier creams may be effective for protection against certain chemicals or sunburn.

Operations

8. Public employers should develop a complete Job Safety Analysis outlining the requirements for each type of trimming or spraying operation.

Tractor mowing

9. Many roadside hazards make patience and constant attention to hazard potentials critical job requiring skills; thus the operator of mowing equipment must be properly trained. Training also is needed because of the potential for lawsuits and other complications resulting from injury to people or damage to their vehicles. The following considerations are important for protecting the operator and the public:

- Use standard flagging and signing to warn the public well in advance of a mowing and trimming operation interfering with traffic.
- All mowing vehicles should display the standard slow-moving vehicle emblem front and rear.
- Observe state regulations concerning use of flags and/or flashing lights. The

National Safety Council recommends the use of flashers for all tractor-type vehicles.

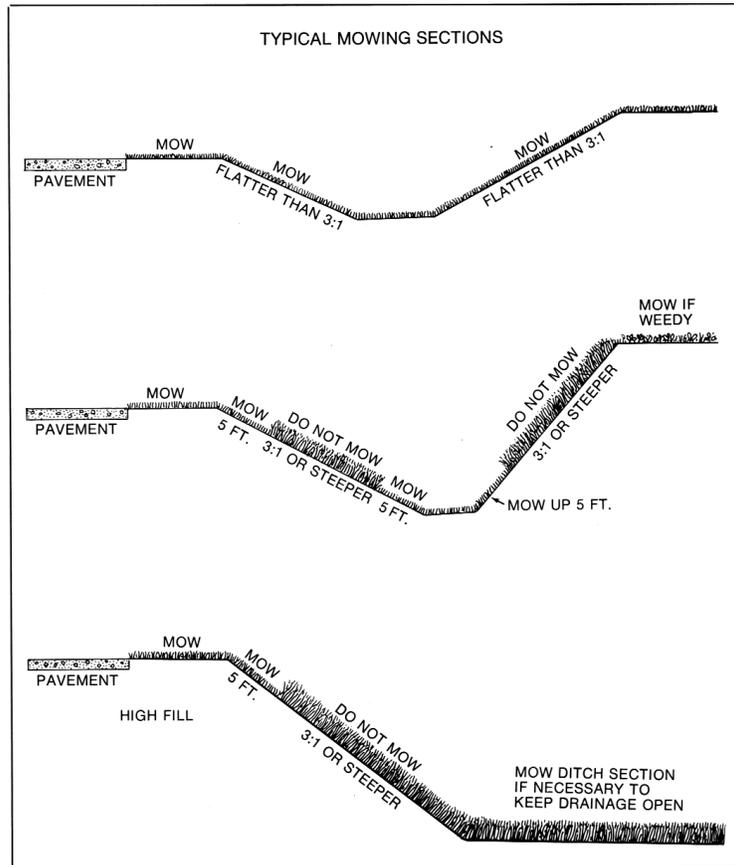
- Before starting work, inspect all areas for loose objects that may be thrown into the path of moving vehicles.
- Take necessary steps to ensure safety when mowing inclines (Figure 1).
- When crossing roads or using roads shared with the public, observe all traffic regulations and principles of defensive driving.
- Be alert to the potential for trespassing on private property. All mowing operations should be assigned by supervisors who are familiar with the area.
- Do not park tractors or hand mowers where they can endanger the public.
- Use additional caution when mowing in the vicinity of schools or parks where children may be at play.
- Do not leave a tractor or power mower unattended unless the power is off and the ignition key removed. In the case of a hand power mower, always disconnect the spark plug wire if you must leave the mower unattended.
- Never leave a mower up in the air; it should be placed on the ground.
- Use caution around pale gray wires.

Hand mowing

10. Hand mowing has its limitations, but is essential for areas that cannot be served by tractors and large equipment. Generally, this method is selected for flat lawn areas located in street islands, heavily landscaped areas and small parks. In some situations, even the hand power mower cannot be used, and the crew must resort to use of string weeders, trimmers, hand scythes or small chain saws. The following considerations are important for hand mowing operations:

- Mower operators should be provided

Figure 1. This guide may be used to help determine the degree of a slope. To avoid turnover, a slope of more than 3-to-1 should not be mowed except as shown in this diagram.



with eye, foot, hand, head and shin protection (Figure 2). Employees mowing lawns near heavy traffic also should wear high-visibility colored vests.

- When mowing steep areas, use power mowers with geared clutch-controlled wheels.
- Do not mow slopes or surfaces that are too slippery for the mower or operator.
- Do not let the mower run unattended unless close enough to maintain control.
- Never refuel the mower while the engine is running or hot.
- Store gasoline only in approved safety cans for gasoline. Similarly, fill mowers only from such cans. Gasoline cans should be equipped with flexible spouts and flash screens.
- Disconnect the ignition wire whenever cleaning the blade or chute. Simply turning



Figure 2. This properly dressed hand-mower operator wears boots, gloves, safety glasses and a helmet. The addition of a brightly colored vest makes him highly visible to motorists.



the blade can start the mower.

- When possible, use rotary mowers with flail-type blades. Install all guards originally provided by the manufacturer.
- Do not place feet or hands in the blade area.
- When mowing on slopes, do so at right angles to the slope.
- Do not use mowers with missing chain guards, broken wheels or other defects that can interfere with safe operation.
- Check the area for rocks, bottles, wood stakes and other objects that can be picked up and thrown by the mower.

Trimming and brush cutting

11. Some areas require the use of chain saws, special tree hooks (Figure 3), machetes and axes. These are all dangerous devices and should be used only by trained personnel. The following precautions apply to employees engaged in trimming and brush cutting:

- Before using brush-chopping tools, thoroughly train employees. This involves instruction in tool inspection, proper gripping methods, proper swinging clearances and methods of holding and cutting various sized limbs.
- Supervise new employees using the above tools until they have demonstrated proficiency.
- When operating chain saws, wear leather protective chaps.
- In areas where brush fires are common, equip chain saws with spark arresters.
- Before starting to refuel a chain saw, allow at least five minutes for cooling.
- Keep machetes, axes and other chopping tools sharp and sheathed at all times when not in use.
- When carrying unsheathed chopping tools, grasp the handle close to the head. Sharp cutting tools should never be carried on shoulders.



Figure 3. This specially designed tree hook is used to control a tree being cut. The spear end is plunged into the tree trunk, and the other end is held on the ground. As the tree is cut, the trunk is guided away from the chainsaw operator.

(Courtesy Virginia Department of Highways.)

- Store chopping tools properly in vehicle racks so cutting surfaces are not exposed.

Chemical spraying

12. Chemical sprays may be used for destruction of vegetation and also to stimulate growth of trees, shrubs and lawns. Regardless of the intended use, the chemicals may affect employees through inhalation, ingestion or skin contact. Many of the chemicals are extremely toxic, and the responsibility to inform and protect employees rests with management.

13. The prevention of chemical accidents begins with the purchasing request. In all cases, the least hazardous chemicals should be purchased. Employers must be in compliance with all aspects of OSHA's Hazard Communication Standard (29 CFR 1910.1200). This would include having Material Safety Data Sheets available in the field. Also, train affected employees to be aware of the hazards and steps to take to protect themselves, and how to properly use chemicals.



14. The following spraying techniques should be followed:

- Use appropriate protective clothing and respiratory equipment for every job.
- Use spray equipment designed to deliver the chemical directly to the area to be treated. This may involve special extensions or even small hand-carried spray units.
- Use the lowest possible pressure that delivers the chemical to the area of need.
- Consider wind direction in order to protect passing vehicles, co-workers, private residences, business sites, farm crops and landscaped areas that could be damaged by the chemicals.
- Dispose of excess chemicals properly in accordance with all regulations (some chemicals may contaminate streams, irrigation or drinking water). The manufacturer can provide MSDSs and/or technical data sheets.
- Do not mix incompatible chemicals.
- Post warning signs if the chemical leaves a residue that can be harmful to the public.

Acknowledgment

This data sheet was revised by members of the Engineering Committee of the Public Employee Section, National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143.

Sources of information

29 CFR 1910.1030. "Bloodborne Pathogens."

29 CFR 1910.1200. "Hazard Communication."

Data Sheet 304. Poison ivy, poison oak, and poison sumac. Itasca, IL: National Safety Council, 2005.

Data Sheet 464. Power lawn mowers. Itasca, IL: National Safety Council, 2005.

National Safety Council. *Accident Prevention Manual for Business & Industry*, 10th ed. Volume 1: Administration & Programs. Volume: Engineering & Technology. Itasca, IL: National Safety Council, 1992.

Plog B. *Fundamentals of Industrial Hygiene*, 3rd ed., Chicago: National Safety Council, 1988.

Copyright ©2008 National Safety Council. All rights reserved.

Although the information and recommendations contained in this publication have been compiled from sources believed to be reliable, the National Safety Council makes no guarantee as to, and assumes no responsibility for, the correctness, sufficiency or completeness of such information or recommendations. Other or additional safety measures may be required under particular circumstances.