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Propagation Safety

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As we strive to meet the needs of our nurseries and customers, we focus on production issues that directly affect our success. Production timing, efficiency, labor, supplies, climatic conditions, and inventory all demand attention. But how often do we consider safety or give it the attention, time, and resources deserved? After all, the most valuable asset of any operation is its people. Work related accidents and illnesses can rob the employee, his/her family and the nursery of health, livelihood, and productivity.

Health and safety issues are often perceived as time-consuming, costly, and nonproductive. This perception can become reality for the propagator/manager that adopts it with a negative attitude. However, for the nursery person who embraces a proactive approach, the rewards are significant and long-lasting.

This paper is not intended to be an instructional "how-to guide". It is, however, intended to encourage a second look at safety conditions in our nurseries and to reconsider the importance of safety issues and their impact.

Every type of business has its inherent safety risks and propagation facilities are no exception. Although the hazards may be all around us, they may be invisible to the untrained eye or preoccupied person. When safety awareness becomes a priority, safety issues seem to lurk everywhere.

OBSTACLES

Conditions in and around greenhouses offer hazards in the form of trips and falls from wet, slippery, and uneven surfaces, or improperly stored hoses. Greenhouse construction and maintenance many times requires a person to climb ladders or work from lifts to change poly, often under difficult weather conditions. Thus, ladder safety and proper use of restraints are important.

Many overhead obstacles are also present in the form of greenhouse bracing, heaters, traveling booms, and even hanging baskets.

ELECTRICAL

Electricity powers a wide range of items in a propagation facility from fans and heaters to mist systems and lighting. As with the construction of greenhouses, much of the wiring may be handled by the nursery. This work is not always “to code” and may pose potential hazards. Such issues are further accentuated by the presence of wet conditions inside such structures. Extension cords are sometimes utilized as a “short term” solution and remain in place for lengthy periods of time, becoming shock and trip hazards. Consideration should also be given to utilizing electrical systems with low voltage relays and solenoids instead of 110-volt systems.

LIFTING

Although we have devised equipment to assist with the movement of materials, there are still many tasks that require lifting by employees. Using the proper technique for lifting and knowing when to seek assistance can make the difference between completion of the job and a back injury. Repetitive lifting of items like bales of peat moss, bags of fertilizer, and flats of liners are all potential problems if handled improperly. Training employees how to lift and cautioning them about tackling excessive weights go a long way toward reducing painful injuries.

HAND TOOLS

A propagation facility is loaded with hand tools. Many of them hold the potential to cut people as well as plants. Knives and pruners used for budding and grafting, making cuttings, or pruning stock are used thousands of times each day. Regular sharpening and maintenance can reduce problems as will proper storage in scabbards and cases when they are not in use. Protective gloves and properly applied tape on fingers also reduce cuts. Many other types of tools are used as well. Proper maintenance of handles, grips, and blades is critical to effective use as well as safety.

EQUIPMENT

Equipment comes in many forms and sizes and is a critical element of any propagation facility. However, along with usefulness and efficiency, there are also potential hazards. Fans, fan jets, heaters, mowers, and bandsaws equipped with high speed blades, belts, and pulleys are everywhere. Guarding of this type of equipment is critical. Many of our sprayers, tillers, mowers, and harvesters are powered units. Unguarded power take-off (PTO) shafts are a leading cause of farm-related injuries and they are usually of a serious nature. Although we consider new machinery to be “ready to use”, it is not always the case. Close inspection may show that additional guarding is needed to make it “safe for use”.

Also associated with machinery is noise. A single incident or exposure seems harmless, but the long-term cumulative effect can lead to permanent hearing loss. Ear protection goes hand in hand with equipment operation.

Operation of trucks, tractors, buses, forklifts, and trailers requires skilled and trained personnel. The operators must know the details of the equipment from pre-use inspection to equipment capabilities and potential hazards. The personal responsibility of an “authorized operator” goes beyond their own safety to that of employees around the equipment they are operating.

CHEMICALS

Chemicals have a wide range of usefulness to the propagator. Without them, sanitation would be difficult as would rooting of plants without rooting hormones. Chemicals are also utilized to fumigate soil, treat pests and disease, and as seed treatments. An attitude of caution and respect is prudent when working with chemicals. It is an area where personal protective equipment is essential. Education and training of personnel to become certified applicators is another safety tool.

If exposure should occur, having an emergency shower and eyewash in close proximity can be of great assistance. Posting of chemical application under the "Worker Protection Act" also warns other workers of potential hazards.

TEMPERATURE EXPOSURE

Temperature extremes can cause illness in workers regardless of whether under natural or manmade conditions. In winter, hypothermia is a concern. People working within cold storage facilities or outdoors can become wet and cold losing body heat. Monitoring working conditions and the use of proper clothing will reduce risk. Summer heat can take greenhouse temperatures to 10⁰oF plus. Field temperatures in the 9⁰oF range can quickly dehydrate people and raise body temperature where heat exhaustion or stroke can occur. Sunburn can also be a health issue, particularly when it becomes frequent. Several practices can reduce these risks: wearing proper clothing, adjusting work schedules, shading work areas, providing plenty of cold fluids for drinking, using sunscreen, sunglasses, hats, and monitoring workers closely for signs of over-exposure are all helpful.

ALLERGIC REACTIONS, DERMATITIS, AND RESPIRATORY PROBLEMS

This is an area where each individual's body responds differently. However, there are issues common enough to most of us to be mentioned. Chemical exposure to even common household cleaners will cause rashes for some people. Pesticides, rooting hormones, disinfectants, and fuels are others. But plants themselves can be problematic as with the fuzz from *Platanus* and *Elaeagnus* leaves that send people into sneezing fits. Sap from other plants like *Dieffenbachia* and *Euphorbia* can cause burning and rashes. Spines on *Berberis*, *Caragana*, *Ilex*, and other plants are also uncomfortable when encountered.

Respiratory concerns come in the form of microscopic particles from media components such as peatmoss, perlite, and bark dust. Another nursery activity that encompassed all of the concerns previously mentioned is that of seed collection, cleaning, and treatment. Exposures range from contact with spines and thorns to breathing microscopic dust and seed particles to stained and burned hands as a result of removing seed pulp and tissues. Seed treatments with sulfuric acid and boiling water have hazards as well. Respirators and gloves go a long way toward mitigating the discomforts previously mentioned.

REPETITIVE MOTION

Numerous activities within a nursery require repetitive activity. Those such as pruning, tying, sticking cuttings, and potting involve the critical area of hands and wrist. This sometimes leads to a condition called Carpal Tunnel Syndrome, which can be quite painful and debilitating. Factors to be considered are force, repetition, and duration.

SAFETY MANAGEMENT

Safety management is a complex issue requiring a multifaceted approach involving numerous resources.

Primary to any program is attitude and commitment. If management is not dedicated in principal and resources, don't expect anyone else to be serious about safety. Safety is also a long-term commitment and there are very few quick fixes with long-term results. Options available to the propagator fall into several categories: prevention, education, training, maintenance, preparedness, and organized response. The following is a description of these elements. Prevention can take the form of protective clothing such as safety glasses, ear protection, gloves, aprons, spray suits, rubber boots, and respirators. Or, it could be daily exercises, safety inspections, hearing tests, flu shots, signage, and guarding of machinery. Education through newsletters, safety committees, job safety analysis, accident investigation, or reminders in paychecks are all educational options.

Training, both initial and follow-up, are at the core of a viable safety program. With training you are not only showing the person right and wrong, but also reinforcing the issue that safety is important to the company as well as fulfilling some legal obligations. Some forms of training are CPR/first aid, tractor operation, pesticide application, hazard communication, respirator use, forklift use, and worker protection training. Maintenance is essential to stopping accidents before they occur. When something is worn or broken it has the potential to get worse causing damage to equipment and people. Preventative maintenance more than pays for itself when lost time and down time are eliminated.

When there is an accident, being prepared and responsive can be vital to mitigating damage and saving lives. Basic elements would be first aid kits, fire extinguishers, exit lighting, Material Safety Data Sheet (MSDS) forms, and posting of critical phone numbers. More comprehensive would be an emergency response plan that is coordinated with key people within the company and local emergency agencies.

Other sources of detailed information include OSHA, workers compensation insurance carrier, safety engineers and professionals, safety equipment suppliers, industry organizations, and employees.

I hope that as you review these ideas and examples it stimulates action toward providing a safer working environment for you and your employees. The rewards may not be identifiable initially, but will become evident with a long-term program.