



Agricultural Education Teacher Facility Management & Risk Assessment Guide

Legal Responsibilities as an Agricultural Education Teacher..... Page 2
Teacher and School Liability..... Page 3
Managing Health and Safety, and Risk Assessment Page 4
The Teachers’ Responsibility..... Page 5
Shop/Laboratory Checklist Page 6

Andy Seibel, Ed S., Associate Extension Specialist, Virginia Cooperative Extension
Phil Fravel, Ph.D., Associate Professor of Agricultural Education, Clemson University

Disclaimer: *The aim of this guide is to assist in the prevention and reduction of injury and disease in school agricultural education shops and farms. However, this guide cannot and does not warrant the accuracy or the completeness of this instructional guide and materials, and as a result, we will not be liable to any person or organization for any loss or damage of any nature, whether arising out of negligence or otherwise, which may be occasioned as a result of the use of this instructional guide and materials.*

Based on the: Safety Guidelines for Technology Education & Elementary Science / Technology Education. Pennsylvania Department of Education, Bureau of Curriculum and Academic Services, Division of Curriculum and Instruction

Legal Responsibilities as an Agricultural Education Teacher Relating To Negligence

The **LEGAL DEFINITION** of “negligence” is important for every teacher to know. Negligence, as defined by the courts today, is conduct that falls below a standard of care established by law or profession to protect others from an unreasonable risk of harm, or the failure to exercise due care. It should be noted that in the absence of specific laws or local policies, the profession sets the standard of care expected. The teacher has three basic duties relating to the modern concept of negligence:

- ***Duty of instruction.***
- ***Duty of supervision.***
- ***Duty to properly maintain facilities and equipment.***

Failure to perform any duty may result in a finding that a teacher and/or administrator within a school system is/are liable for damages and a judgment awarded against him/them.

DUTY OF INSTRUCTION: includes adequate instruction before a laboratory activity (preferably in writing) that:

- is accurate, is appropriate to the situation, setting, and maturity of the audience, and addresses reasonably foreseeable dangers.
- identifies and clarifies any specific risk involved, explains proper procedures/techniques to be used, and presents comments concerning appropriate/inappropriate conduct in the lab. Instruction must follow professional and district guidelines. A teacher who sets a bad example by not following proper laboratory procedures may be held liable if injury results from students following the teacher’s bad example.

DUTY OF SUPERVISION: includes adequate supervision as defined by professional, legal and district guidelines to ensure students perform properly in light of any foreseeable dangers. Points to remember:

- Misbehavior of any type must not be tolerated.
- Failure to act or improper action is grounds for liability.
- The greater the degree of danger, the higher the level of supervision should be.
- The younger the age of students or the greater the degree of inclusion of special population students, the greater the level of supervision should be.
- Students must never be left unattended, except in an emergency where the potential harm is greater than the perceived risk to students. Even then, risk should be minimized or responsibility transferred to another authorized person if the situation allows.

DUTY OF MAINTENANCE: includes ensuring a safe environment for students and teachers.

- Never use known defective equipment for any reason.
- File written reports for maintenance/correction of hazardous conditions or defective equipment with responsible administrators.
- Establish regular inspection schedules and procedures for checking safety and first aid equipment.
- Follow all safety guidelines concerning proper labeling, storage and disposal of chemicals.

By keeping files of all hazard notifications and maintenance inspections, teacher liability in the event of an accident is minimized in cases where no corrective actions were subsequently made

Teacher and School Liability

We live in a litigious time. Even the most conscientious teacher may have an accident involving a student injury and a suit may be filed. Teachers are most at risk when they are negligent in providing safety instruction and a safe environment. A safe environment includes the condition of the facilities and equipment as well as appropriate supervision.

In 2005 John Kessell et. al. reviewed case law in regards to career and technical education. They comment:

“When litigation issues are discussed in education, the possibilities of right and wrong are endless. One of the key issues of any litigation factor is the aspect of liability. This is often defined and litigated as a tort action. Tort liability can be defined as a wrongful doing. The area of tort that concerns agricultural education the greatest is negligence. These actions of litigation can occur from conditions of facilities to the condition of equipment being used during labs and hands-on activities. Actions under this topic also include travel with students for professional conferences, international experiences, career development opportunities, and other state and national FFA activities. An additional area of concern lies on the liability of the institution with student teaching, internships and job shadowing.

Four main questions must be asked during a tort liability charge. (Kaplin & Lee, 1995).

- 1) Does the institution possess a custodial relationship to the student?
 - 2) Was there a duty to protect from harm?
 - 3) Was there a duty to anticipate and intervene on any wrong doing?
 - 4) Is this the reasonable person standard, did the faculty member do what should have been done.
- (Kaplin & Lee, 1995).

The majority of tort liability negligence proceedings in vocational and agricultural education occur within classroom and laboratory activities.... The effects of tort liability are great on an institution which has been found to be negligent. It is critical to document the instruction and use of materials and procedures to minimize the threat of negligence within the educational setting in secondary and post-secondary institutions.”

Generally Kessell found that teachers minimized their risk of being found negligent when they provided safety instruction and their teaching facilities were properly maintained (e.g. guards in place).

A Historical Review of Tort Liability Verdicts Impacting Secondary Agricultural Education. John Kessell, Justin Scott, David Lawver, Steven Frazee, Texas Tech University (2005).

Disclaimer: The aim of this guide is to assist in the prevention and reduction of injury and disease in school agricultural education shops and farms. However, this guide cannot and does not warrant the accuracy or the completeness of this instructional guide and materials, and as a result, we will not be liable to any person or organization for any loss or damage of any nature, whether arising out of negligence or otherwise, which may be occasioned as a result of the use of this instructional guide and materials.

Based on the: Safety Guidelines for Technology Education & Elementary Science / Technology Education. Pennsylvania Department of Education, Bureau of Curriculum and Academic Services, Division of Curriculum and Instruction

Legal Defenses for an Agriculture Teacher

Vis Major (an act of God) – Where an act of God or an uncontrollable act of elements occurs there is no liability. On the other hand, where an act of God would not have caused the injury had prudent precautions been taken, the act of God would not necessarily be permitted to defend the liability to the injured person.

Assumption of Risk – A student assumes normal risk for the operation of some machinery, but this does not mean that they necessarily assume the risk from working with unsafe equipment.

Contributory negligence – if a student fails to measure up to the standards of a reasonably prudent person under existing circumstances the conditions are not responsible but if students might have been injured regardless of their action, then contributory negligence cannot be declared.

Comparative negligence – This states that in case both student and instructor contributed to the negligence, the damages are pro-rated. Thus an instructor might be held partly responsible for damages.

Unavoidable accident – There was nothing the instructor could have done to prevent the accident.

Based on Management of the Agricultural Laboratory

Managing Health and Safety, and Risk Assessment

Managing health and safety – you need to manage it to ensure that you, and your students and others are kept safe. The main elements to consider are:

Policy – setting a policy and making sure everyone knows and understands it;

Organizing – to promote a positive health and safety culture to implement the policy, and train and consult students and other workers;

Planning and implementing – systems to assess and control risks;

Measuring performance – systems to monitor whether standards are being met;

Learning from experience – systems to review what actually happens and using any lessons learned as the basis for improvements.

Safety is everyone’s responsibility. Engage your students in the process of creating a safe environment in your school setting. This promotes personal responsibility and builds a culture of safety.

Communication of Safety to Parents/Guardians

For years, technology education teachers have used “permission slips” that were sent home and signed by the parents/guardians permitting their child to participate in the laboratory. Many teachers believed that these “policy statements” relieved them of some or all of their responsibilities and liability should an accident occur. ***IT DOES NEITHER OF THESE.***

The purpose of this type of communication is to:

- **Inform** the parent/guardian of his/her child’s participation in the activity.
- **Outline** the safety instruction and procedures followed by the teacher and the district.
- **Obtain** from the parent/guardian relevant information regarding any health problems having a bearing on the child’s performance. • List the parent/guardian’s telephone number(s) where he/she can be reached.

Based on the: Safety Guidelines for Technology Education & Elementary Science / Technology Education. Pennsylvania Department of Education, Bureau of Curriculum and Academic Services, Division of Curriculum and Instruction

The Teachers' Responsibility

The **major** responsibility for laboratory safety instruction and accident prevention falls on the teacher. The following are considered to be part of the responsibilities of the teacher in a comprehensive accident prevention program for agricultural education.

1. **DO NOT LEAVE THE FACILITIES UNSUPERVISED AT ANY TIME WHEN STUDENTS ARE PRESENT.**
2. The teacher should emulate (model) safe practices and techniques at all times.
3. Incorporate safety instruction in the course of study and maintain documentation as to who received instruction and when instruction was given. Safety tests should be filed and kept for four years post student graduation.
4. Present instruction on potential hazards and accident prevention specific to the particular school laboratory.
5. Instigate and develop a comprehensive safety program for your particular school laboratory.
6. Develop specific safe practices, rules and regulations relating to your facilities and provide for their enforcement.
7. Keep informed of new and accepted safe practices for accident prevention.
8. Provide proper instruction for the use of all tools, machines and equipment. Keep a record of each student's attendance, safety training and safety evaluation.
9. Require that a student be enrolled in the agricultural education program and receive the required safety instruction prior to working in the laboratory.
10. Insist that adequate eye protection be worn in all education laboratories at all times.
11. Insist on proper protective equipment in all laboratory areas and require students to wear proper clothing, eye protection and adequate hair guards while working in the laboratory. Generally leather closed toed shoes are required and have students remove and/or secure all jewelry while working in the laboratory.
13. Devise and enforce safe housekeeping procedures.
14. Insist that guards meeting accepted standards be provided and used whenever a machine is operated.
15. Establish and maintain the safest possible working environment.
16. Have set, pre-planned procedures in case of an accident or emergency.
17. Provide prompt and thorough reports of accidents including:
 - (a) Written report by instructor.
 - (b) Written accounts by witnesses.
 - (c) Photographs of accident scene and conditions.
18. Always provide for the supervision of students in the shop, school farm, or other laboratory setting in accordance with legal requirements.
19. Regularly review laboratory facilities to maintain safe conditions. Give special attention to these items:
 - (a) Layout
 - (b) Utilities and building services
 - (c) Equipment guarding
 - (d) Storage and conditions of tools
 - (e) Storage, labeling and handling of materials.
20. Submit written recommendations to the administration for improving safety conditions.
21. Review all IEP's on a regular basis to address the needs of all students enrolled in all agricultural education classes.
22. Criteria for scheduling special needs students into laboratory classes should be established by a team of counselors, technology/agricultural education teachers, special education teachers and school administrators. Aides or special equipment should be made available to the technology education teacher. This should also include the appropriateness of placement of the student.
23. Agricultural Education teachers need to have a current first aid certification.

***Disclaimer:** The aim of this guide is to assist in the prevention and reduction of injury and disease in school agricultural education shops and farms. However, this guide cannot and does not warrant the accuracy or the completeness of this instructional guide and materials, and as a result, we will not be liable to any person or organization for any loss or damage of any nature, whether arising out of negligence or otherwise, which may be occasioned as a result of the use of this instructional guide and materials.*

Based on the: Safety Guidelines for Technology Education & Elementary Science / Technology Education. Pennsylvania Department of Education, Bureau of Curriculum and Academic Services, Division of Curriculum and Instruction

Shop/Laboratory Checklist

General Shop – recommendations

- 1) Safety glasses are required.
- 2) Hearing protection is provided for use of tools exceeding 85 db.
- 3) Aisles are properly indicated, and aisles, passageways and corridors are free of obstructions.
- 4) Exit signs are visible and directional exit signs provided. Exit signs have letters 6" high, 3/4" strip and 5 candlepower illumination.
- 5) A fire alarm is provided.
- 6) Exit doors and access to exits are not locked from exit side.
- 7) Condition of floors maintained in a clean and dry condition and free from obstructions and debris.
- 8) Ventilation is proper and adequate for the lab.
- 9) Fire extinguishers of proper types, adequately located and maintained (tested yearly). Maximum height 5', if under 40#, 3 1/2' if over 40#.
 - Class A fire - wood, paper, cloth and rubber-foam and dry chemical recommended
 - Class B fire - flammable liquid, gas, and grease – dry chemical, CO2 and foam recommended
 - Class C fire - energized electrical – dry chemical & CO2 recommended
 - Class D fire - combustible metals specific for the chemical
- 10) Non-exit doors are clearly identified "not an exit" or otherwise labeled for use.
- 11) Every opening, floor or platform 4 ft. or more above ground level has a standard guard rail 42" high with an intermediate rail and a toe board of at least 4 in. above the floor. Rail must withstand 200# thrust.
- 12) All stairways having more than four (4) risers have a standard hand railing 30" – 34" high.
- 13) All gears, moving belts, chains, and shafts, etc., are protected by permanent guards.
- 14) All stationary power tools are anchored to the floor.
- 15) Illumination is adequate. Good shadow-free lighting is required – 30 foot-candles (fc) general area, 50 fc on work areas, 100 fc for delicate repair work.
- 16) A trained person (or persons) is available to render first aid.
- 17) First aid supplies approved by the health department and readily available.
- 18) Fire blankets are readily available.
- 19) Battery charging area will provide facilities for flushing and neutralizing electrolyte.
- 20) Respirators are provided in dusty areas.
- 21) Face shields are provided at every power tool.
- 22) Safety lanes are provided around power and non-powered stationary tools Non-skid surfaces provided at power tools on smooth floors.
- 23) Bump hats or hard hats are available for appropriate applications.
- 24) Toe guards are available for appropriate applications.
- 25) Washing facilities are provided and properly maintained.
- 26) Restroom facilities are provided if not readily available.
- 27) A keyed master disconnect switch for all power tools.
- 28) Safety areas are marked around stationary tools.
- 29) Stationary machines are arranged so that individuals are protected from hazards of other machines.
- 30) Tools are kept sharp, clean, and in good working order.
- 31) Drill presses are equipped with clamps or vises.
- 32) Shears are shielded.

Materials Storage

- 1) Pressure safety cans are used for flammable or combustible liquids.
- 2) Combustible wastes are kept in covered metal containers.
- 3) A fire resistive cabinet is used to store flammable liquids.
- 4) Stored wood and metal are stacked safely and solidly so they will not fall.

Ladders

- 1) All ladders are in good repair and stored properly. Ladders not exposed to elements, heat and dampness, hung horizontally.
- 2) All portable ladders have safety feet.
- 3) All fixed ladders meet design specifications. Rung to back clearance -7 in., maximum rung spacing - 12 in., caged if more than 20 ft. to a maximum of 30 ft.

Electrical

- 1) Electrical cabinets and power room is accessible only to authorized personnel.
- 2) Circuit breakers and disconnects are clearly labeled.
- 3) All electrical receptacles, junction boxes and switch boxes are properly covered.
- 4) All electrical outlets and fixtures are grounded.
- 5) All stationary power tools and equipment are grounded.
- 6) All extension cords and portable power tools are grounded or tools are double insulated.
- 7) All electrical disconnects are identified (circuit breakers, fuse boxes, etc.) in boxes.
- 8) The signal units for heating, ventilating and air-conditioning are operational.
- 9) Overcurrent devices are provided on all electrical loads.

Hoists

- 1) Safety hooks are used on all chains and lifting devices.
- 2) Rated load plainly marked on the side of lifting equipment.
- 3) Stands are provided to block raised equipment.

Compressed Air

- 1) Compressed air plumbing is steel or copper (L or M) not PVC.
- 2) Hoses are in good condition.
- 3) Air used for cleaning is regulated to not more than 30 psi and chip guarded.
- 4) Safety valve in the air line is in good working order.
- 5) There are pressure gauges on the air lines.
- 6) Air compressor is drained frequently.
- 7) Air compressor fans and flywheels within 7 ft. of the floor are guarded with a guard having holes not greater than 1/2 in. in width.
- 8) Compressor is placarded as "automatic equipment".

Woodworking Equipment

- 1) Saw blades and cutterheads are sharp and in good condition.
- 2) Push sticks or push blocks are available.
- 3) The table saw is equipped with a hood, guard, anti-kickback and spreader.
- 4) The band saw has an adjustable guard above the blade rolls and the blade wheels are covered.
- 5) The jointer has a working automatic guard covering all sections of the cutting head.
- 6) Power miter saw is in guards work smoothly. Saw is secured to a bench or stand.
- 7) The radial arm saw is equipped with hood guard, anti-kickback, rotation sign, automatic return, and table extension or stop.
- 8) All saws have roller units or stands to assist moving material to the saw and removal after cutting.

Grinders

- 1) The grinder has a safety guard at the point of operation.
- 2) The grinder has guards to cover the spindle ends, nuts and flanges.
- 3) The work rests are adjusted to within 1/8 inch of the grinding wheel.
- 4) The adjustable tongue guard or spark deflector on grinder is adjusted to within 1/4" of the grinder wheel.
- 5) Maximum periphery exposure for a stationary grinder is 65 degrees. (Exposed distance between tool rest and tongue guard or spark deflector.)
- 6) Grinding wheel of the right type and in good condition with no cracks, wheel diameter over half -of original size.
- 7) Cooling container nearby and filled.
- 8) Wheel dresser available.
- 9) All portable grinders and saws have proper shielding in position.
- 10) Power cords in good condition.

Arc Welding

- 1) Adequate ventilation is provided for the dissipation of exhaust gases and welding fumes.
- 2) Arc welder cables are not worn or damaged.
- 3) Electrode holders are in proper condition to avoid exposure to electrical connections.
- 4) Electrode holders are hung up and so placed and fastened securely to the cable that they do not make electrical contact.
- 5) Arc welding helmets with tempered safety glass of the proper shade are in good condition.
 - Shielded metal-arc welding (SMAW) 1/16 - 5/32 electrodes No.10
 - TGAW 1/16 - 5/32 electrodes No. 11-12
 - Gas-shielded ferrous arc welding (GMAW) 1/16 -5/32 No.12
 - Carbon arc. No. 14
- 6) Fire resistant curtains or shields are used around arc welding areas or booths.
- 7) The floor in the welding area is kept dry and free of combustible materials.
- 8) Protective gloves are provided and are in good condition.
- 9) Protective clothing such as jackets, sleeves, or capes are provided for out of position welding.
- 10) Shade 3-5 goggle or face shields are provided for plasma cutting.

Compressed Gas Storage/Welding

- 1) Compressed gas cylinders are chained or OTHERWISED secured in place.
- 2) The protective cap is in place on all stored cylinders.
- 3) Combustible compressed gas and oxygen cylinders are separated by at least 20 ft. or a 5 ft. high wall of 1/2 hr. heat barrier.
- 4) Portable gas welding equipment has the cylinder valves turned off when not in use.
- 5) Oxyacetylene manifold welding systems have been installed according to the N.F.P.A. Shut off valves are working.
- 6) Gas welding goggles with tempered safety glass of the proper shade and are in good condition.
 - Torch brazing No.3 or 4
 - Light cutting to 1 in. No.3 or 4
 - Gas welding (light) up to 1/8 in. No.4 or 5
 - Gas welding (med.) 1/8 - 1/2 in. No.5

Dress

- 1) Rings and other jewelry are removed when working in the shop.
- 2) All clothing worn is free from loose sleeves, flopping ties, loose coats. etc.
- 3) Long hair is tied back.
- 4) Shoes cover feet (closed toe). Leather is required for welding.

Adapted from Planning, Organizing, and Teaching Agricultural Mechanics. Bear and Hoerner, Hobar Publications. 1986

Hazardous Chemical Storage Guidelines

Chemical storage is regulated by the Environmental Protection Agency (EPA), The Uniform Fire Code (UFC), The National Fire Protection Association (NFPA), and the Occupational Health and Safety Administration (OSHA). There are two major categories of stored materials - toxic materials and materials not classified as toxic. Within each of these categories, materials are segregated into seven other groups: acids and bases, flammable/combustible materials, oxidizers, organic peroxides, water reactive materials, explosives/unstable materials, and other. Chemicals should be stored in cabinets. In school shop settings common chemicals that fall under these regulations are fuels, paints, and solvents. NOTE: the MSDS will always identify the type of the chemical and its properties.

Cabinet Requirements

Cabinets should meet the following requirements:

- Each cabinet should be labeled with the contents of the cabinet.
- Each cabinet should be clearly labeled as to the hazard class of the materials stored within the cabinet (e.g., Acids, Flammables, etc.).
- Each cabinet must be rated for use with the hazard class of the most hazardous content stored.
- No paper products, office equipment, food, or any other non-hazardous material should be stored in any hazardous material storage cabinet.
- The cabinet must be listed with an approved testing laboratory (UL, FM, etc.) for the intended use.
- Cabinet capacities shall not exceed those given in the following table.

Storage Capacity Limits for Flammable Materials

Class I Flammable Liquid	Flash Point less than 100o F	60 gallons or less per cabinet
Class II Combustible	Flash Point less than 140 o F.	60 gallons or less per cabinet
Class III Combustible	Flash Point greater than or equal to 140 o F	120 gallons or less per cabinet
Combination		120 gallons (no more than 60 gallons of Class I or II)

No more than three flammable storage cabinets (60-gallon capacity) are permitted in one fire area unless extra cabinets are separated from the first group of cabinets by 100 feet or more.

***Disclaimer:** The aim of this guide is to assist in the prevention and reduction of injury and disease in school agricultural education shops and farms. However, this guide cannot and does not warrant the accuracy or the completeness of this instructional guide and materials, and as a result, we will not be liable to any person or organization for any loss or damage of any nature, whether arising out of negligence or otherwise, which may be occasioned as a result of the use of this instructional guide and materials.*

Based on the: Safety Guidelines for Technology Education & Elementary Science / Technology Education. Pennsylvania Department of Education, Bureau of Curriculum and Academic Services, Division of Curriculum and Instruction