On Public Roadways

When you operate a tractor and other farm equipment on public roads, you must obey all traffic rules. When pulling an implement that blocks your view of traffic, ask another worker to escort you with a truck with flashing lights. An escort warning other drivers is especially important around bayous and turns where trees grow up near the road and on heavily traveled roadways.

Make sure no one is passing before making a left turn. Turning left is particularly dangerous if a driver attempts to pass you from behind at a high speed. Look again, just before you turn, to avoid a serious crash. If necessary to be able to see behind you, slow and pull over to the right road shoulder, then cut back sharply; look for passing and oncoming traffic before pulling into the left lane. Fasten a "Slow Moving Vehicle" emblem securely to the rear. Keep the emblem and flashing lights clean and bright.

Don't speed. Towed equipment can "fish tail" or swerve back and forth. Extra weight on the toolbar may cause you to lose control of the tractor and crash or turn over. Poorly hitched equipment can come loose and crash into other people or vehicles. If implements swing from side to side, you are traveling too fast! Slow down using gradual braking to regain control.

Hard braking often whips the trailed implement forward like a jack-knifed trailer truck. A tractor should never tow a trailer or other trailed implement weighing more than the tractor.

Electrical Hazards

Electricity burns as it enters the body and may tear flesh as it leaves. The human body is a better conductor of electricity than air, tires, soil, grass or trees. Electricity will take the easiest path to the ground which could be through your body. Know what you are doing, be purposeful, always being very cautious when working around power lines or any electrical wires.

Live Power Lines

High voltage power lines are extremely dangerous. Make sure that you maintain at least 10 feet of clearance when working near or passing under power lines. This is a federal law that is for your safety. If you are unsure of power line clearance, always ask a helper, standing where he has a good angle to judge whether clearance is adequate, to guide you.

Do not leave the boom truck or tractor if it contacts a live wire. Move the vehicle or equipment out of contact with the electric wire if it isn't hooked. Never move electric lines with a pipe or pole. Wood and PVC pipe will conduct electricity, especially when damp and dirty.

Tires may be the only insulator that prevents you from becoming electrocuted.

Do not step down to the ground. Don't touch the soil and the equipment at the same time or you may be electrocuted.

Leave only if the equipment is entangled in the electric lines and a fire or explosion is likely. The only acceptable escape is to jump clear of the vehicle, landing with your feet equally far from the vehicle, or if possible, jump and roll away from the equipment.

Downed Power Lines

Always assume downed power lines are hot. Soil can transmit voltage and you can be electrocuted by a downed "hot" wire without even touching it. Stay at least 20 feet from a downed wire.

Call your electric supplier to disconnect power and fix downed lines or storm-damaged transformers and service entrances before working near them.

If you are in a pond when a power line is contacted or knocked down, leave the pond immediately and remain as far away from the line as possible.

Always report broken or poorly insulated wires to your supervisor or an electrician. If in doubt about electrical circuit safety, turn off the electricity or disconnect the circuit breaker controlling the line. Always make sure that all circuits and equipment you are using are properly grounded and in good working order.

Damaged Power Lines & Wires

Lightning often damages outside electric control devices and motors. Many times there will be no apparent damage visible to the outside of the device, yet the control box or motor may be energized and/or shorted, posing a serious electrical shock. Always be extra cautious following lightning storms and test with a circuit tester before touching a control box.

Equipment used to cut grass and weeds may also destroy ground wires. If you have doubts about a control box, contact your supervisor.

Always make sure the electricity is off at the circuit breaker and padlocked before entering the pond to work on electric wires, pumps or aerators. Never assume the electricity is off. Make a check with a circuit tester before beginning other maintenance. If an electric motor doesn't start, notify your supervisor immediately or call an electrician.

Never disengage and hold the clutch with the engine running and transmission in gear. Before starting a tractor engine where any co-workers may be near, sound out a loud “CLEAR?” and wait a few seconds for a response from anyone who may be out of visibility. Do the same before raising or lowering implements or moving the tractor if other workers may be present.

PTO Safety & Setting Aerators

Do not operate machinery without first replacing all power takeoff, or PTO, guards and shields following maintenance. Make sure rolling PTO shields have not been damaged and operate freely. If equipment was delivered without proper shielding, you can sometimes construct relatively inexpensive shields out of sheet metal or pipe. The time and expense is well worth the knowledge that someone will not get caught in a sprocket and chain, belt and sheave or a revolving shaft.

Setting an aerator is the only time you should leave the tractor seat while the PTO is engaged.

Always put the tractor in park, lock both brakes, and if necessary, put substantial blocks behind the rear wheels when parking it. When you dismount, stay well clear of a powered aerator; walk around the front of a tractor, not the back. Never try to cross over a rotating PTO shaft! The route around the front of the tractor is much shorter than a trip to the hospital or funeral home.

Remember – do not get too close to a moving PTO shaft. Your clothes can get caught and cause a serious, permanent injury!

Preventing Tractor Runovers

Many people are killed or seriously injured each year when run over by tractors or equipment. A driver or rider may slip and be run over by his tractor and crushed or cut up by a disc or mower. A victim is often in the driver's blind spot and may be run over. Or you may start a tractor that someone unintentionally left in gear and be run over and crushed.

A driver need only use common sense and safe driving practices to prevent these accidents.

- Wear your seat belt.
- Never allow passengers.
- Start the tractor only from the seat. If it won't start from the seat, make repairs.
- Never try to start a tractor by bypass starter or jump-starting without an operator in the seat.

Incorrect jump start: Driver not in seat.

Correct jump start: Driver seated, with foot on brake.

Never remove a roll-over protective structure, seat belt, lights or other safety devices.

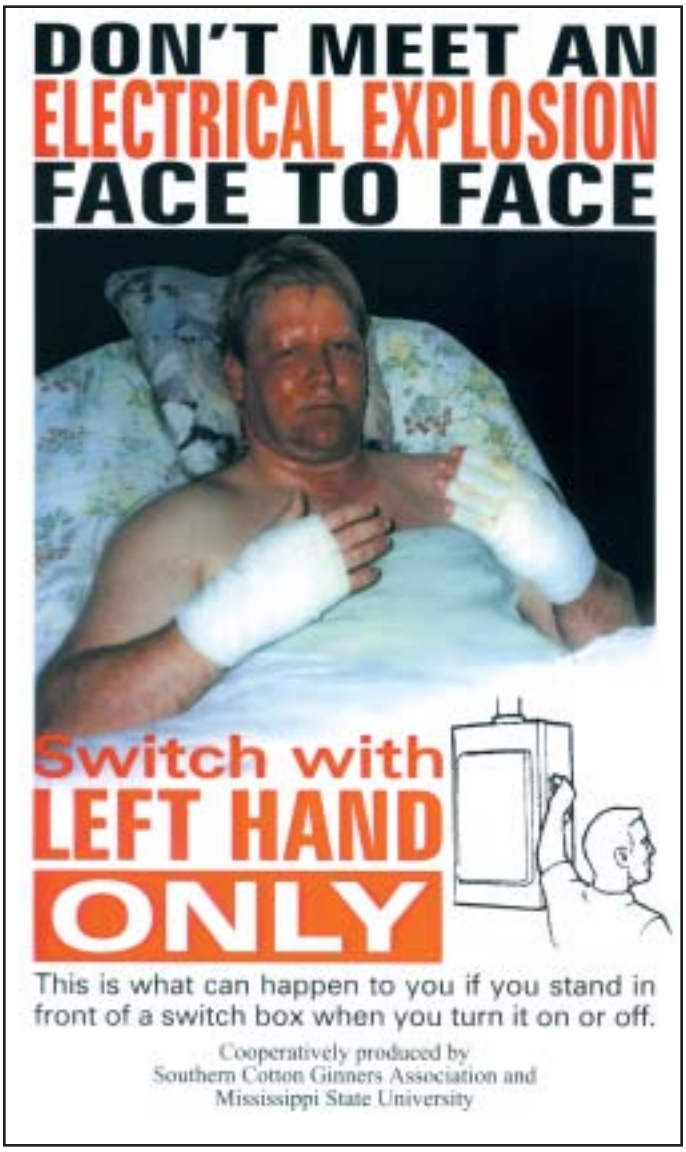
Removing safety devices could result in an accident and cause injuries or potential lawsuits. Some ROPS telescope or fold to allow operation inside of low-ceiling buildings and under limbs. If it is necessary to fold a ROPS, always return it to its upright position immediately when that operation is completed.

When approaching an operating tractor, approach from the front and side at about a 45 degree angle to the direction of travel so that the operator can see you. Never approach through tall weeds or from behind equipment that obstructs the operator's view. Stand beside the rear wheel when talking to the operator; never in front of or behind the wheels, between the tractor and implements or between the wheels.

If you are approached while operating a tractor, stop the tractor, disengage power to and lower any implements that you are operating, place the tractor in park or neutral and stop the engine.

Distribution and circuit breaker boxes are extremely dangerous when hot. Power may be available at 120, 240 or 480 volts.

Waders or farm boots and rubber gloves will not insulate you from those voltages.The contacts can arc and flash with enough force to blow the door off the box and burn your face.



Make it a habit to stand off to the side of the box, facing away from it, and switch the power on or off with the hand nearest to the power disconnect on the box.

Be especially careful when moving tall ladders, pipes, antennas and other objects around overhead power lines.

Disconnect electrical power and locate buried lines before digging. Any electrical cables near or below ground level should be inside electrical conduit for their protection.

Never use temporary cables that are not protected with conduit.

Always be careful not to damage equipment or break a ground when cutting grass and weeds near power poles, ground and guy wires. Never try to drive or mow over an electric cord or line, unless it is protected in conduit and buried to a sufficient depth.

Night Operation

Nighttime operation in bad weather can result in serious accidents like the one above.

Operations become more hazardous at night. Vision and judgment may be poor. Stay off narrow, slick levees at night. Become familiar with feeding levees and the best pond access routes during the day. Check all lights at the shop before dark. All tractors need good rear and front lights in order for one person to safely move equipment and spot aerators at night. When possible, work in pairs when moving aeration equipment at night.

If you are having problems, don't wait – GET HELP!

Practice backing aeration equipment into the pond during the daytime until you can do it well. When backing an aerator into a pond at night be sure to:

- Use the tractor lights and, if possible, have someone assist with a hand-held light.
- Go slowly to make sure you do not damage the drive shaft.
- Position the tractor with the PTO shaft joints as straight as possible.
- Put the tractor in park and apply the brakes.
- Idle the tractor down, engage the PTO and slowly increase the throttle until the aerator is turning at the proper speed.
- Do not get too close to a moving PTO shaft. Your clothes can get caught and seriously injure you!!

It is always a good idea to keep extra lights, chains, booster cables, a mobile phone and first aid supplies in your truck

Do not be in a hurry! Go slow, arrive safely and complete your task.

Routines to Stay Alert

Get plenty of sleep when not on the job. Drink hot drinks, take frequent breaks, walk or exercise to keep alert and awake during night work periods.

When possible, use the buddy system and establish regular check points. It is always best to check regularly with someone working elsewhere on the farm or at home. Know the procedure and who to call for extra help during critical times.

Mobile phones and radios are for business. Don't tie up a means of communication with personal or frivolous chatter!

If tall grass must be cut on the slope away from the pond, choose a slow gear first and then continue, driving slowly while watching ahead for holes, ditches and obstacles.

Hitching to the Tractor

Tractors can pull heavy loads without a backward overturn – if used properly. Always hitch to the drawbar and keep it at the height recommended by the manufacturer. When the hitch point on a tractor is too high, the risk of rear overturn is great.

If equipment gets stuck or the front end of the tractor begins to leave the ground, stop until sufficient front weights are added! The tractor can flip backwards in less than three-fourths of a second.

Never stand between a tractor and implement while the driver backs up to hitch. The slightest distraction – a foot slipping on the clutch or brake pedal or a jerky clutch – may cause you to be run over or crushed.

Before hitching to the tractor's 3-point hitch, ensure that the lift arm extensions are working well. Before hitching, adjust the stationary drawbar to the short, high position, swing it to the extreme left side and pin it in place. Align the tractor squarely with the implement to be hitched. Back the tractor so that the lift ends are within 2 to 3 inches of the implement hitch pins. Raise or lower the lift arms and adjust the lift height with the lift adjustment crank as needed for good alignment. Release the lift arm telescoping locks, extend the lift arm extensions and fasten both swivel ball sockets to the implement with the proper pins. Back the tractor while raising and lowering the hitch until the lift arm extensions lock firmly in the operating position. Then attach the top link, adjusting its length to attach the implement.

Always use hardened hitch pins of the correct size and secure them with quick lock pins, not bolts or wire that may break or slip out! Don't forget to return the jacks and jack stands to a safe position for operating the implement.

Reverse this procedure for unhitching. Never lift or drag an implement by hand in order to hitch or unhitch the tractor. Always use implement jack stands and tongue jacks to keep the implement in the proper position for easy hitching and unhitching. If the implement does not have jack stands built in, set the implement on good solid wooden blocks when unhitching.

Operating on Slopes

If a tractor begins slipping sideways or feels unstable on a pond bank, turn toward the bottom of the slope. A sliding tractor can suddenly hit a hole or abruptly regain traction and turn over.

Steering in the direction the tractor is moving will regain control. It is better to nose a tractor into a pond than turn it over in water.

Avoid overturns by driving forward down a steep grade or levee. Back the tractor up steep slopes to prevent rearing and flipping the tractor backwards. Remember that 3-point hitched implements change the balance of the tractor. If the front end is light, add weights to improve control.

Mowing Levees

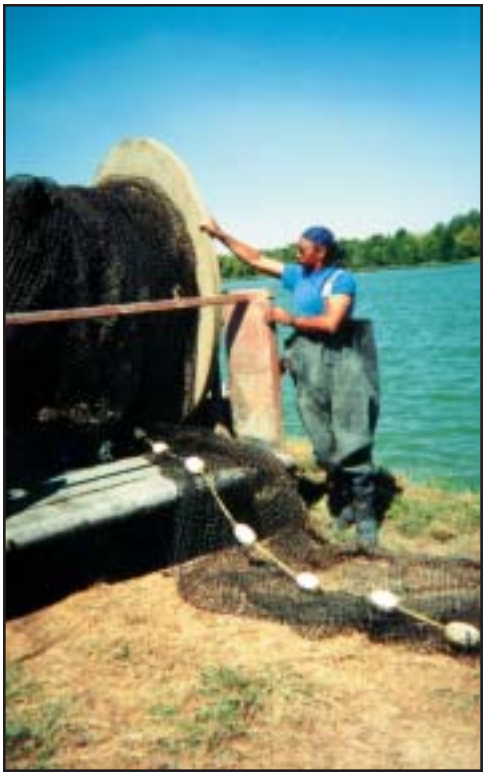
Stay off slopes too steep for safe operation. If available, use a tractor with a wide wheel base and dual wheels. When mowing levees, set wheels as wide as possible and start on the levee, working toward the pond bank.

Do not cut where you cannot see. If there are spots that may hide a hole or unstable bank, walk and inspect the area, flagging dangerous sites before mowing. Pond banks may cave in from the tractor weight, especially when passing over animal burrows or areas where wave action has undercut the bank.

Keep your tractor away from the edge of the pond. Side-mounted rotor or sickle bar mowers are best for cutting grass near pond edges or on slopes away from the pond. Watch for holes or ruts caused by erosion in the tractor path.

A good rule of thumb is to keep the tractor a distance of at least the depth of the ditch or pond away from the edge of the bank or water. With the mower extended, the weight of the tractor can be kept a safe distance from an unstable bank or steep slope.

Whenever it is possible, cut slopes with a side-mounted mower, keeping the mower on the uphill side. Bumps or unused equipment hidden in grass may cause an overturn if the upslope wheels strike them.



Do not use drugs or alcohol during work hours. If you must use prescription drugs, notify your manager so he understands your needs and limitations and supports you.

Working Safely Around Seine Reels

Working around a seine reel tractor can be dangerous. The tractor must be backed and repositioned often. All crew members should be alert to assure that the driver does not back over or into someone. Keep hands and arms clear of the net and reel while pulling in the seine. You could easily get caught and pulled into the reel or crush your hand or arm between the reel and its metal frame.

Boom Truck Safety

Always set the truck up on dry, level ground. Place thick oak blocks under each outrigger and put the outriggers down prior to swinging the boom off the truck.

When working in the loading area, always wear a hard hat! Never stand under or in the path of the boom while loading. The boom could break, dropping the boom, basket, scales and fish.

The loading basket door can come open dropping the 1,200 to 2,400 pounds of fish on workers below. The basket might swing into workers on the ground. Workers dumping the basket into the hauling truck can be knocked off the truck.

If you are working a critical job like dumping the basket into the truck or filling the basket in the pond, arrange hand signals with the boom truck operator to permit good communication. Do not distract the operator with unnecessary signals or horseplay.

Keep the boom truck in good operating shape. Keep the tires properly inflated, check the hydraulic oil and lines regularly and check the boom and truck bed for signs of strain such as fractured paint, hairline cracks or bows. Report any unsafe conditions to your supervisor.

Harvesting With a Boat

Serious boating accidents can occur during fish harvesting.

Never place your hands between the boat and net when pushing on the seine with the boat. Always shut the motor off when untangling net from the propeller.

Accidents often occur as boats are loaded onto trailers. Your fingers, hands, legs or back can be injured if you stand by the trailer trying to pull a moving boat up to the winch. Select a position where your footing is firm. Don't climb on the boat trailer frame while loading a boat. Wet grass and mud become slick, resulting in serious injury when you slip and fall.

Every new boat operator should be taught boat and motor safety before being allowed to run a boat during harvesting. Never refuel a hot engine. Extinguish all cigarettes before handling gasoline. Clean up any gasoline spills immediately for your safety.

Always keep the boat and motor clear of other workers who may be in the water. If you fall out of the boat, do not panic, remember that the pond is only 3 to 5 feet deep!

Handling Catfish

Catfish barbs can cause serious injuries.

Handle fish carefully. Do not kick a fish back into the pond or off a truck. Barbs can pierce your shoe or boot and lodge in your foot. Because catfish fins have serrated edges, they are difficult to remove and can leave large lesions.

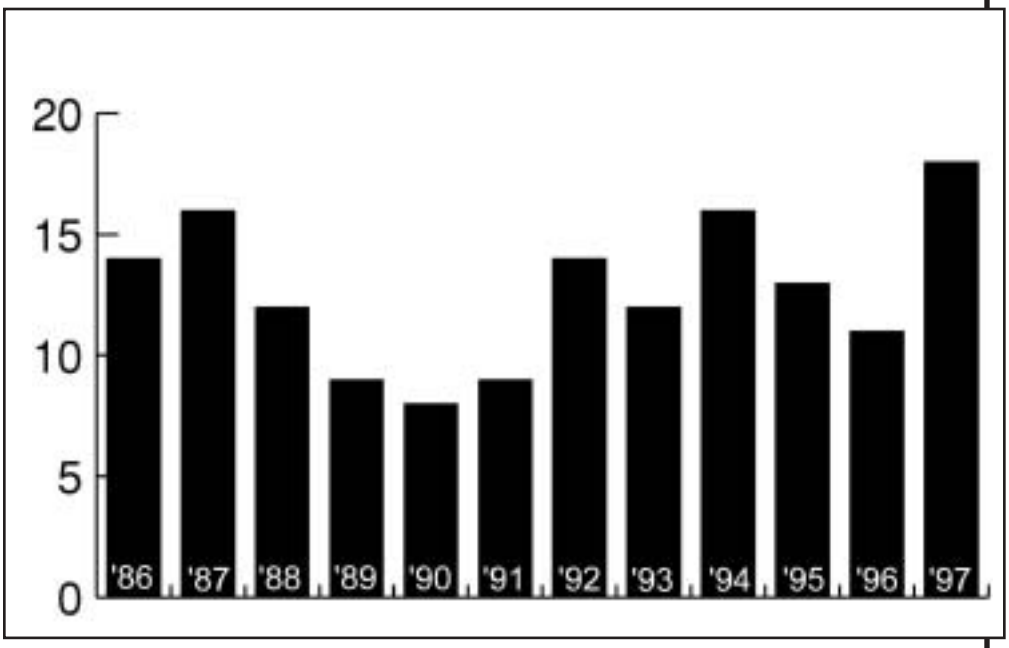
Fingerlings have small, sharp fins that break off easily like a wood sliver. Removal may require minor surgery. If left untreated, they can cause serious infections, including blood poisoning.

If you get stuck, remove the fin as soon as possible, wash the wound with soap and water and apply a disinfectant. See a doctor if you have any swelling, fever or other symptoms of infection.

Tractor Accidents

Many farmers are killed or injured in tractor accidents each year. Improper operation of a tractor or equipment causes most of the accidents. The most important point of tractor safety is to know your tractor. Know how the tractor handles and be alert to avoid an accident. Always drive at a moderate speed and pay attention to what you are doing and where you are going.

Mississippi Tractor Deaths 1986-1997



Overturns

To avoid accidents, less-experienced drivers should get training in safe practices from more-experienced drivers. Always ask questions if you are not sure. If you are not familiar with the operation of a machine, say so! Select a good, safe, experienced driver to imitate and work hard to eliminate bad driving habits. Remember, your life and limbs are at risk!

Tractor overturns are the leading cause of fatalities and serious injuries. All tractors used on fish farms should have roll-over protective structures (ROPS or roll-bars) and seat belts. You should always fasten your seat belt when using a tractor with a roll-bar. Don't use a seat belt if the tractor doesn't have a roll-bar.

Fish farm workers must be particularly careful mowing levees, driving in and out of ponds or ditches, working close to ditches or pond banks and making fast turns. Doubling your forward speed increases your chance of overturning four times.

Introduction

Each year fish farm workers have serious accidents, resulting in equipment damage, injuries and even death. These accidents often involve tractors and machinery; electric shock and burns; feeding, harvesting and handling fish; pond levee maintenance and night and limited visibility operation.

Carelessness is the No. 1 cause of farm accidents. Many accidents occur when a risky task is attempted because "I am good enough to get away with it." You may get away with it – most of the time. The time you don't may cost you your life or limbs. Taking such chances, even if you are very good at what you do, is not worth the risk to you or to your employer. Even if you don't get hurt, a co-worker may copy your actions and be injured.

Most accidents can be prevented if you will take a few seconds to think about the whole task, plan your actions, get needed equipment or help and exercise good judgment every day.

Equipment Maintenance

Mower blades, PTOs, fans, chains, gears, belts and other moving parts can be very dangerous.

Hands, fingers, hair and loose-fitting clothes can snag and pull you along into the machine with them. Pinch points of gears, chain and V-belt drives, rollers, crimpers and augers are fast, powerful and may be impossible to stop once you get caught.

You can easily lose a limb or your life. Always stop the equipment, lower it and kill the engine to avoid contact with moving parts or pinch points. Always replace shields after removing them for maintenance.

Battery Service

Batteries can explode in your face. Charging and discharging a lead-acid battery generates hydrogen and oxygen gas. It can be very explosive, especially in a confined area where hydrogen gas can reach an explosive concentration. A spark can cause an explosion that ruptures the battery and sprays acid. Never use an open flame for a light source near a battery because it might cause an explosion.

If battery acid splashes on you, flush your skin or eyes with plenty of water. See a doctor.

When removing the battery, always disconnect the grounded terminal first. When replacing the battery, connect the grounded terminal last. Always turn a battery charger off before connecting or disconnecting it from a battery.

Never short across battery terminals. Remember “Red Is Positive” on all automotive equipment. If in doubt about the polarity of the post, look for a “+”, red cable or the larger of the two posts.

When boosting a battery, connect first to the positive terminal of the charged battery; then connect the other end of the booster cable to the positive terminal of the battery to be boosted. Then, connect to the negative terminal or the equipment frame of the vehicle with the charged battery, followed by the last connection to the equipment frame of the vehicle with the battery to be boosted. Allow the battery to charge for a few minutes before attempting to start the engine.

Once the engine is operating, disconnect the booster cables in the reverse order; ground first, followed by the positive cable. Never allow cable clamps to contact each other if they are connected to a battery.

Cooling Systems

Scalding and severe burns can result from taking the cap off a hot radiator. Always allow radiator liquid to cool first. Place several layers of thick cloth over the cap, stand to the side and slowly turn the cap until pressure begins to escape. After pressure is released, you can safely remove the cap.

Hydraulic System Servicing

Remove or relieve the pressure from hydraulic system components before servicing them. Never break a hydraulic coupling or line while it is under pressure.

Use a piece of cardboard or stiff paper to check for leaks by holding near the suspected line or fitting. Do not use your hand. High-pressure hydraulic oil may be injected under the skin and could result in the loss of the hand.

Prolonged exposure to hydraulic oils, gasoline or diesel fuels may cause skin irritations and rashes. Always wash with soap and water or a good hand cleaner on any areas of skin that might come in contact with petroleum products.

When the outer coating on a hydraulic hose becomes damaged, replace the hose. Hose failure will probably soon follow.

Table of Contents

General Service Precautions

Think about what you are about to do. Try to anticipate dangerous situations and take precautions to avoid an accident.

Well-maintained equipment is more dependable, lasts longer and is safer to operate. Always check tires for breaks, knots and proper inflation. Blowing a tire at high speed is dangerous.

Check oil, fuel and water levels and bring each up to proper operating levels prior to starting the equipment.

The front end should not shake when a tractor is driven. If wheel bearings, ball joints or steering arms are worn, a loss of control, or possibly, a wreck, could occur. Check the wheel lugs periodically to be sure all are in place and tight. If you must repair a piece of equipment, especially in the field, be very careful and don't rush.

Consider ways to avoid serious accidents while servicing equipment.

- Before servicing, disengage electric power to paddle wheels, pumps, feeders and other equipment. Shut off the engines and disconnect PTOs when greasing or servicing.
- Use a lock on the electric disconnect or lock the tractor cab. Place the tractor key in your pocket to prevent anyone from accidentally powering equipment on which you are working.
- Lower any equipment, such as mowers, backhoe buckets and aerators to the surface so it cannot accidentally fall and crush someone. When handling heavy objects, wear steel-toed shoes.
- Use gloves to protect your hands from fish, heavy cables, sharp, rough or hot objects. Keep your work area clean and clear of obstructions, water or other liquids to prevent falls.
- Protect your eyes. Always wear shatterproof safety glasses when grinding, welding, cutting or using hammers, punches, chisels or power tools. When working around engines, blowers, guns and hammers, wear ear plugs to protect your ears from loud noises.
- When using compressed air through a blow nozzle or operating pressure washers or steam cleaners, wear safety glasses. Never direct compressed air or pressurized and/or heated water against your skin or in the direction of your eyes and ears.

Using Lifts, Jacks & Hoists

Improper use of jacks or the use of undersized jacks can cause crushing injuries or death. Handyman jacks are very useful and very dangerous. They can lift very heavy equipment which is low to the ground, but the handle can spring back and strike you in the face or head, causing serious injury. Equipment being raised can suddenly slip sideways off a jack.

Check hydraulic capacity and the weight of the machine. If the jack has the lifting capacity, position the jack under the machine on a thick piece of wood resting on a solid footing. If the jack leans or the equipment shifts, let the jack down slowly and start again. Lift no higher than necessary.

Put jack stands under the equipment as soon as it is raised to the desired height. Sometimes it is wise and possible to use a jack stand or blocks to crib as you lift the equipment. Never leave equipment supported by jacks alone. Never work under equipment that has not been securely blocked, even equipment that is raised on a hitch.

Hoists also can be very dangerous. Overloading a hoist or failing to secure the lifting chain to keep it from slipping are two common hoist-related accidents.

Use a grade 80 or System 10 alloy chain of adequate strength to lift the load for overhead lifting. Chains with deformed, stretched or welded links are not suitable for lifting.

Chain hooks should also match the chain's strength. Avoid using cables with clamps for lifting or towing. Never twist or knot a chain to take up slack.

Use a spreader bar to keep chains pulling in a straight line with the load and hoist. Don't overload the hoist. If possible, use a chain hoist instead of a cable "come-along." Keep your hands clear. Stand aside as you raise the equipment. Never stand under hoisted equipment unless it is securely blocked or on stands.

Remember: Be careful, be alert, be thoughtful, and above all, be safe!

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Author's end note:

The primary purpose of this booklet is to encourage those working on fish farms to work safely. Hopefully, we have provided information on many safety risks and methods of risk reduction. This booklet is not intended to be all-inclusive, but rather to highlight those practices which are responsible for most of the deaths and serous injuries around fish ponds. We hope that farm owners and managers find this booklet useful in working with their employees to help develop an effective safety program on their fish farms. – *C. Douglas Minchew*

Safety *for* Fish Farm Workers

By C. Douglas Minchew

Reviewers: Gary Huitink, H. Steven Killian, Michael H. Willcutt, Michael P. Masser, Jim Steeby, Gregory N. Whitis, David Bankston, Jr., and Greg Lutz.

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