

Tractor & Machinery Operations: Science of Stability



Photo Credit: Penn State Agricultural Safety and Health Team

Outline

- Pre-operation Checks
- Tractor Controls
- Obstacle Course



Pre-operation Inspections

- Review
 - ground conditions, terrain, obstacles
 - Complete visual inspection of equipment
 - Lights
 - Brakes
 - Steering
 - Tires
 - Fluids
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Mounting and Dismounting

- Face the operator platform
- Use three points of contact
- Secure seatbelt



Photo Credit: Penn State Agricultural Safety and Health Team

Start-up and Controls

- Know your engine
 - Fuel type
- Controls color code
 - Black- position and adjust controls
 - Red- shut down
 - Yellow-Power engagement
 - Orange-Ground motion (gear shift pattern, etc.)
- Monitor Gauges



Operating the Tractor

- Roll-overs hazard
 - Side
 - Rear
- Run-overs hazard
 - Bystanders
- Falls
- Noise
- Eye Injury
- Entanglement



Safe Operations

Always face the tractor for mounting and dismounting. Use three points of contact. Never jump from the tractor.

Fasten Seat Belt
(ROPS equipped tractor)

Avoid ditches, embankments, and holes

Reduce speed when turning, crossing slopes, and on rough, slick, or muddy ground

Stay off slopes too steep for safe operation



Safe Operation

Watch where you are going

No riders

Avoid jerky turns, starts, and stops

Hitch properly (Drawbar and three-point)

Set brakes securely when stopped
(parking brake)



Obstacle Courses

- Instructor selection
 - Knowledgeable and safe
 - Tractor selection
 - 40-70 hp
 - ROPS
 - Cabs are not necessary
 - Safety features
 - Driving course selection
 - Slope
 - Weather
 - Space
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Obstacle Course Layout

- Level surface area, free of ruts and obstacles
 - Minimum distance of 50 ft. between tractor/machinery training stations
 - Traffic cones, stakes, straw bales, etc. as course markers
 - Twine or rope to form a line or artificial barrier in the course
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