

## **SAFE TRACTOR DRIVING CDE**

CDE Chairperson - Curt Turner  
Central Columbia High School

### **CDE Participation Rules**

Four contestants from each of the four regions may compete in this career development event (16 total contestants). A region may only send a maximum of 4 contestants (if a quota of four is not reached by a region, then that region sends less than 4 participants—there is also to be no “trading” of contestants between regions to fill quotas). Prior to a contestant competing in the State Tractor Driving CDE, they must have competed in a tractor driving cde **above the chapter level**. If a contestant resides in an area of Pennsylvania that does not offer a tractor driving cde, then the participant must travel to a neighboring area/region to compete prior to qualifying for the state cde.

**ALL Drivers, regardless of age**, will be required to provide evidence that they have completed a safe tractor and machinery operation program curriculum. This curriculum should have been administered by an agricultural education instructor, cooperative extension agent, or any other certified instructor (completion of this curriculum will be verified by the signature of the instructor). The attached State Tractor Driving CDE Entry Form must be completed and will serve as the verification for this procedure. Final contestants must be identified and verified through the Regional FFA Coordinator. The Regional FFA Coordinators will be notified by the event chair to verify all participants after entry forms have been received.

Advisors and participants will be notified if a participants' application has been approved or rejected (upon verifying with the regional coordinator). All completed applications will be compiled by the event chairperson and a “waiting” list will be developed if necessary.

## Event Rules and Regulations

1. **Work shoes are required.** Students wearing sneakers or open toed shoes will not be permitted to compete on the driving course.
2. Only members with previous tractor driving experience will be permitted to compete in the event.
3. All personnel will be barred from the course during the contest, except the judge, the scorers and their assistants, the runner and the operating driver.
4. **All participants must complete a signed waiver form and a state entry form prior to participating in this event. NO FORMS = NO DRIVE! For the state level event, participants' waiver and state entry forms must be received by May 1<sup>st</sup> of the current year by the CDE chairperson. These completed forms can be mailed or scanned and emailed to the chairperson with all applicable signatures. In the event that these forms are not received by the May 1<sup>st</sup> deadline, there will be 300 points added to the contestant's score!**
5. An instructional meeting for all participants will be held on the morning of the driving event at FFA Activities Week. At this time, instructions should be given to the drivers, scorers, and assistants.
6. A tractor will be assigned to each driving area. Drivers will not have a choice of tractors.
7. A head judge will preside over the event. He/She will select all judges and scorers.
8. The contestant with the lowest deductions will be declared the winner.
9. The judge's duties are:
  - a. To see that the score sheets are assembled and scores computed.
  - b. To announce the winners of the event. Only placings will be announced-no scores will be made public.
  - c. To stress safety. To observe all drivers and their compliance to rules of safety.
  - d. To disqualify any driver whom the judge thinks is not qualified to operate a tractor. (A disqualified driver will not be permitted any additional driving and will not be ranked in placings among drivers.)
  - e. Set time limit if needed.
  - f. To be the final authority in all matters relating to this career development event.

## Event Format

This Career Development Event will consist of 5 parts (All information pertaining to this cde is contained in the latest version of the PA FFA Handbook and can be accessed at [www.paffa.state.pa.us](http://www.paffa.state.pa.us)).

- a. Tractor Inspection
- b. Two wheeled manure spreader event
- c. Four wheeled wagon event
- d. Written Test (These questions will be obtained from the National Safe Tractor and Machinery Operation Program curriculum. This is the Tractor Safety curriculum used by Penn State University to certify instructors and students. A copy of the entire curriculum can be viewed and/or downloaded from [www.nstmop.psu.edu](http://www.nstmop.psu.edu).)
- e. Tractor Tools/Parts Identification

## DRIVING COURSE LAYOUT

The normal clearance for the manure spreader is three (3) inches on each side while for the wagon a clearance of six (6) inches on each side is normally used. If the total side clearance for the manure spreader is either more or less than four (4) inches or if the total side clearance for the wagon is either more or less than twelve (12) inches (front or rear), the driver will still be required to center the equipment. Scorers should measure both sides to determine if the equipment is centered.

Fault points will be awarded if the front wheels of the tractor are turned while the tractor is not moving forward or backward.

**Riding the clutch** is defined as controlling ground speed with the clutch rather than reducing throttle setting. Having a foot on the clutch in order to be prepared to stop quickly if necessary is not necessarily riding the clutch.

Drivers may dismount one time to check rear clearance when backing either the wagon or manure spreader into the stall.

A time limit may be imposed by the head judge.

### Start and Finish Position

This can be any area near the actual driving course. The tractor inspection (Score Sheet #1) is conducted in this area.

### Two-Wheel Event

Locate the obstacle course and lay it off using twine or tape on the ground between the stakes or risers (shaded squares). Stakes or risers are used at corners and to define openings only. The stakes or risers should be high enough to permit easy sighting along them by the scorers. After laying out overall size and checking diagonal measurement to assure squareness, establish gate openings for spreader used. (Spreader width to outside of wheels plus 3 feet works satisfactorily).

Locate and lay out spreader stall fitting size to the spreader being used. Allow three (3) inches of clearance on each side. Use a panel or two stakes or risers with tape or twine for sides. Use a single stake or riser at the rear of the stall. All stakes or risers should be visible above spreader.

Establish a start-stop line near the stall using twine or tape on the ground.

To break a tie score, the drivers shall back the tractor and manure spreader through the obstacle course. The contestant will be scored using Score Sheet #2 including the timing of the event. A temporary start-finish line shall be established for this tie-breaking event. On tractors equipped with both seat belts and ROPS the drivers shall be required to use the seat belts at all times, except as noted on Score Sheet #2, Procedure #1 (Spotting).

### Four-Wheel Event

Locate and lay out the 28 ft. by 50 ft. area, identify it with tape or twine on the ground and check for squareness. Locate 40 ft. end (start-stop) line and identify with a tape or twine on the ground and two stakes or risers high enough for convenient sighting. Lay out the stall area either individual measurements or cumulative dimensions (dashed arrows). Use twine or tape on the ground for identification. Locate a stake or riser, high enough for convenient sighting, about six inches from both front and rear of stalls (13 ft. apart) and between stalls. Use a single stake or riser at the rear of each stall.

## **INSTRUCTIONS FOR SCORING TRACTOR INSPECTION AND STARTING**

### **Scorer's Duties**

Check uniformity of display of each driver's name or entry number card on driver's name or entry number on tractor.

Enter driver's name, school, and region on each score sheet.

### **Scoring Procedures**

1. Scoring will be a weighted "Fault Points" system. Low score wins.
2. The scorers and assistants will do the scoring according to the attached score sheets. They shall be provided with the necessary equipment as outlined on the back of each score sheet.
3. Score sheets will be passed from one scorer to the next as the driver moves from one event to the next.
4. The committee has the option to make obstacle course adjustments to accommodate equipment provided.

### **Tractor Inspection.**

The operator must tell the scorer the condition of the items found on score sheet #1. Failure to tell scorer results in awarding of fault points. The fuel check will be made by observing the fuel gauge. The oil check will be made by identifying the location of the engine oil dipstick and observing oil level on the dipstick. Brakes will be checked by a visual inspection to see if they are engaged and by a "pumping" action to determine if they are in a safe and working condition. Tires will be inspected by a visual check only.

The operator must tell the scorer about any hazards or safety concern prior to starting the tractor (these may be dirt, grease, tools, improper attachments, etc). The operator must identify the safety belt and ROPS to the scorer.

### **Starting Tractor.**

Before starting the tractor, the transmission must be in neutral and both brakes set. On tractors equipped with a "park" position, transmission should be in "park". Clutch must be disengaged during starting. Disengagement of PTO needs to be checked only one time during contest. It is not necessary to check it each time tractor is started. Throttle should be set to an appropriate position for starting - not wide open. Operator must tell scorer the condition of above items.

### **During Operation.**

The operator must tell the scorer if any inspected conditions of the tractor change during operation.

Note. If operator forgets to perform any of the above checks before mounting the tractor, then remembers, operators may dismount, complete the checks, and remount. Scorer will erase the fault previously committed. Observe safety in all of these operations.

## **INSTRUCTIONS FOR SCORING** **TWO-WHEEL EVENT**

### **Scoring Procedures**

#### **Obstacle Course.**

Observe operation closely. Strict attention should be paid to any part of the equipment swinging out over any line - front weights, tires, axle hubs, spreader beaters, etc. When five attempts have been made, the fence shall be moved to allow exit of equipment (score accordingly) and driver shall proceed to spreader stall. Assistants will reset fence for next driver.

#### **Backing Manure Spreader Into Stall.**

When three attempts have been made, driver shall be stopped and distance from center of beaters to rear center post of stall measured. No measurements are taken until driver has safely stopped. Strict observance of this rule is necessary to assure everyone's safety. When driver stops with spreader wheels in stall, clearance on both sides will be measured to arrive at off-center distance. If driver is not successful in backing spreader into stall (score accordingly) only rear measurements will be used (no side measurements unless both wheels are started into stall). Assistants will re-center spreader for next driver.

#### **Fouling Equipment.**

Fouling equipment has been defined as sliding the front tires of the tractor; turning too short so that the tractor tire contacts the spreader tongue; turning too short so that the tractor drawbar and spreader tongue exert side pressure on each other; or striking equipment with the tractor at any time.

## **INSTRUCTIONS FOR SCORING** **FOUR-WHEEL EVENT**

### **Scoring Procedures**

Wagon tongue will be on the ground. The operator must successfully back up and align the tractor drawbar to the tongue of the wagon. When the tractor is so placed, the operator should place the transmission into park/neutral, set the brakes (if applicable), and hold both hands in the air (the tractor may remain running) while the judge measures the distance that wagon has to be moved (forward or backward) to complete the hitch. All rules about touching or knocking over fences and crossing lines apply.

### **Wagon Handling**

Driver must pull wagon out of one stall and back it into the adjoining stall. The front axle of the wagon may not cross the 40' end line. The driver will be told when three attempts are made, at which time he/she will be asked to shut off and dismount the tractor. The distance from the center of the rear wagon frame to the rear post will be measured. Side measurements will not be used unless the wagon is partially in the stall. When wagon is successfully backed into the stall, the distance from the rear post and the side clearance at both the front and rear of the wagon frame will be measured. Measure both sides to determine side off-center distance. All rear measurements should be made before driver pulls drawbar pin. Assistants will re-center wagon for next driver.

### **Fouling Equipment**

Fouling equipment has been defined as sliding the front tires of the tractor (Fault points will be deducted for brake steering); sliding the front wheels of the wagon; turning too short so that the tractor tire contacts the wagon tongue; or turning too short so that the tractor drawbar and wagon tongue exert side pressure on each other.

## Score Sheet #1- Tractor Inspection

Contestant \_\_\_\_\_

School \_\_\_\_\_ Region \_\_\_\_\_

**Participant is dressed appropriately for this CDE and is wearing work boots. (If box is not checked prior to the event starting, then the student may not participate on the driving course)**

TRACTOR INSPECTION RESPONSE (verbal response to Judges)	Faults	Points
Check fuel and oil gauges	_____ X 10	_____
Check brakes - depress brake pedal with engine running, tractor in gear	_____ X 10	_____
Check tires - by sight only	_____ X 10	_____
Check hazards - dirt, grease, tools, improper attachments, etc	_____ X 10	_____
Check safety belts	_____ X 10	_____
Check ROPS	_____ X 25	_____
 <b>STARTING</b>		
Transmission not in Neutral/ Park	_____ X 25	_____
Brakes not set	_____ X 25	_____
Clutch not disengaged	_____ X 15	_____
Check Throttle Setting	_____ X 15	_____
Check Disengagement of PTO	_____ X 15	_____
	<b>Subtotal of Deductions</b>	_____
	<b>TOTAL</b>	_____

## Score Sheet #2 – Two Wheeled Manure Spreader Event

Contestant \_\_\_\_\_

School \_\_\_\_\_ Region \_\_\_\_\_

**Participant is dressed appropriately for this CDE and is wearing work boots. (If box is not checked prior to the event starting, then the student may not participate on the driving course)**

<b>OBSTACLE COURSE</b>	<b>Faults</b>	<b>Points</b>
For touching line, stake, or twine	_____ X 50	_____
For each time tractor or manure spreader knocks down a stake	_____ X 100	_____
For each unnecessary change of direction (forward or backward)	_____ X 50	_____
For Fouling Equipment (touching spreader with tractor wheel)	_____ X 200	_____
For need to move fence/stake to allow entrance or exit of equipment	_____ X 300	_____
 <b>BACKING SPREADER INTO STALL</b>		
For each 1" over 2" from rear center stake	_____ X 15	_____
For each 1" off-center of stall		
Front Corners	_____ X 10	_____
Back Corners	_____ X 10	_____
For touching line, stake, or twine	_____ X 50	_____
For each time tractor or manure spreader knocks down a stake	_____ X 100	_____
For Fouling Equipment (touching spreader with tractor wheel)	_____ X 200	_____
For each unnecessary change of direction (forward or backward)	_____ X 50	_____
Not placing manure spreader into stall after 3 attempts	_____ X 600	_____
 <b>JUDGES OBSERVE SAFETY AT ALL TIMES DURING ABOVE OPERATIONS</b>		
Improper mount (on) / dismount (off) tractor	_____ X 50	_____
Failure to use seat belt	_____ X 25	_____
Failure to set brakes when getting off/or put in Park	_____ X 50	_____
Sliding or spinning tires, brake steering	_____ X 100	_____
Rough clutch engagement	_____ X 25	_____
Clashing of gears when shifting	_____ X 25	_____
Excessive engine speed	_____ X 25	_____
Excessive tractor speed	_____ X 50	_____
Excessively slow tractor speed	_____ X 25	_____
Standing while tractor is moving	_____ X 100	_____
Moving tractor with brakes on	_____ X 25	_____
Failure to put in gear or park when getting off with engine stopped	_____ X 50	_____
Any unsafe conduct while on or around tractor	_____ X 25	_____
Riding Clutch	_____ X 75	_____
Turning the tractor tires while not moving forward or backward	_____ X 75	_____

**TOTAL** \_\_\_\_\_



## Score Sheet #3 - Four Wheeled Wagon Event

Contestant \_\_\_\_\_

School \_\_\_\_\_

Region \_\_\_\_\_

**Participant is dressed appropriately for this CDE and is wearing work boots. (If box is not checked prior to the event starting, then the student may not participate on the driving course)**

<b>STARTING (verbal response to Judges)</b>	<b>Faults</b>	<b>Points</b>
Transmission not in Neutral/ Park	_____ X 25	_____
Brakes not set	_____ X 25	_____
Clutch not disengaged	_____ X 15	_____
Check Throttle Setting	_____ X 15	_____
Check Disengagement of PTO	_____ X 15	_____
<b>HITCHING TRACTOR TO FOUR WHEEL WAGON</b>		
Failure to put transmission in neutral or park	_____ X 50	_____
Failure to set brakes	_____ X 50	_____
For each 1" over 1" the wagon is moved (forward or backward)	_____ X 25	_____
<b>WAGON HANDLING</b>		
For touching line, stake, or twine	_____ X 50	_____
For each time tractor or wagon knocks down a stake	_____ X 100	_____
For each unnecessary change of direction (forward or backward)	_____ X 50	_____
For Fouling Equipment (touching wagon tongue with tractor tire, sliding wagon wheels sideways)	_____ X 200	_____
Each time any part of front wagon axle crosses 40' end line	_____ X 400	_____
For need to move fence/stake to allow entrance or exit of equipment	_____ X 300	_____
<b>WAGON PLACEMENT IN STALL</b>		
For each 1" off center at the front of wagon	_____ X 10	_____
For each 1" off center at the rear of wagon	_____ X 10	_____
For each 1" over 2" from rear center stake of stall (Measure total inches over 2" from stake to back of wagon if wagon is not placed into stall)	_____ X 10	_____
Not Placing wagon into stall after 3 Attempts (Front wagon axle must be inside Of the front of the wagon stall)	_____ X 600	_____
<b>JUDGES OBSERVE SAFETY AT ALL TIMES DURING ABOVE OPERATIONS</b>		
Improper mount (on) / dismount (off) tractor	_____ X 50	_____
Failure to use seat belt	_____ X 25	_____
Failure to set brakes when getting off/or put in Park	_____ X 50	_____
Sliding or spinning tires, brake steering	_____ X 100	_____
Rough clutch engagement	_____ X 25	_____
Clashing of gears when shifting	_____ X 25	_____
Excessive engine speed	_____ X 25	_____
Excessive tractor speed	_____ X 50	_____
Excessively slow tractor speed	_____ X 25	_____
Standing while tractor is moving	_____ X 100	_____
Moving tractor with brakes on	_____ X 25	_____
Failure to put in gear or park when getting off with engine stopped	_____ X 50	_____
Riding the clutch	_____ X 25	_____
Any unsafe conduct while on or around tractor	_____ X 25	_____
Turning the tractor tires while not moving forward or backward	_____ X 75	_____

**TOTAL** \_\_\_\_\_

## **WRITTEN EXAMINATION**

### **500 Points**

The written examination will consist of 50 questions worth 10 points each. The questions will stress safety, however, will also cover various aspects of machinery and tractor uses and maintenance. These questions will be obtained from the National Safe Tractor and Machinery Operation Program curriculum. This is the Tractor Safety curriculum used by Penn State University to certify instructors and students. A copy of the entire curriculum can be viewed and/or downloaded from <http://extension.psu.edu/business/ag-safety/youth-safety/nstmop>

### **Tractor Tools/Parts Identification**

### **100 Points**

The tractor tools/parts identification test will consist of 10 items worth 10 points each. These items may be tools and/or engine parts.