

# STATE of WISCONSIN 4-H TRACTOR OPERATOR'S CONTEST

Revised 03/2010

This contest is designed for 4-H members to compete against other 4-Hers in the safe operation of farm equipment. Your knowledge of parts, history and maintenance will also be tested. Safety will be stressed throughout the contest.

This contest will consist of 2 groups:

**JUNIOR** group: grades 6-8      **SENIOR** group: grades 9-13 on Jan 1<sup>st</sup> of contest year.

The timed contests will include:

1. Written examination – 25 questions (*20 minutes*)
2. Parts Identification – 20 parts (*10 minutes*) [*on or off tractor, computer pictures or photo's min. size 5x7"*]
3. Tractor Safety
4. Two-Wheel Driving Event (*8 minutes*)
5. Four-Wheel Driving Event (*8 minutes*) [**Senior only**]

The contest is designed to be a practical demonstration and an attempt has been made to simulate actual farm operation conditions.

Designated judges will preside over the event and their decisions will be final.

## **Tractor Selection**

New or late model tractors in the 30-120 hp range will be provided. They will be as similar as possible.

## **Practice Period**

A practice period will be provided at which time the dealers or other persons may give instructions in correct and safe operation of the tractor and for the contestant to acquire the "feel of the tractor." Practice must be limited to not more than four minutes so as not to monopolize the tractor. The contestant will **NOT** drive through any part of the contest course.

Contestant's Number \_\_\_\_\_ County \_\_\_\_\_

### STATE 4-H TRACTOR OPERATOR'S CONTEST

<u>EVENTS</u>	<u>SCORE</u>
Written Examination	_____
Parts Identification	_____
Safety	_____
Driving: Two-Wheel	_____
Driving: Four-Wheel	_____
Total Penalty Points (Low score wins)	_____

#### Event No. I. Written Examination

Will consist of questions pertaining to the tractor operation, maintenance and safety.

**25** Questions may be true-false, multiple choice, and/or completion types taken from the project literature and general tractor reference manuals.

*Rules:*

1. Twenty penalty points will be given for each question answered incorrectly.
2. Time limit 20 minutes. Max. penalty points 500

*Scoring:* Questions missed \_\_\_\_\_ x 20 = Total Penalty Points \_\_\_\_

#### Event No. II. Parts Identification

Will consist of **20** parts that must be identified.

*Rules:*

1. Each part to be identified will be numbered.
2. Time limit 10 minutes. Max. penalty points 400

*Scoring:* Parts missed \_\_\_\_\_ x 20 = Total Penalty Points \_\_\_\_\_

Contestant's Name \_\_\_\_\_ County \_\_\_\_\_ # Missed \_\_\_\_\_

### Event No. II Tractor Parts Identification

Parts to be identified have numbers attached to them. Select the most correct part name from this list. Write the corresponding number beside the name.

- |                                     |  |
|-------------------------------------|--|
| _____ Air Intake, Engine            | _____ Oil Drain Plug, Crankcase                  |
| _____ Alternator                    | _____ Oil Filler Cap, Crankcase                  |
| _____ Ammeter/Indicator Light       | _____ Oil Filter, Crankcase                      |
| _____ Axle Carrier, Rear            | _____ Oil Pan, Crankcase                         |
| _____ Battery                       | _____ Oil Pressure Gauge/Indicator Light, Engine |
| _____ Bearing, Ball                 | _____ Oil Pump Screen                            |
| _____ Bearing, Crankshaft           | _____ Parking Brake Control                      |
| _____ Bearing, Roller               | _____ Piston                                     |
| _____ Brake Pedal                   | _____ Piston Rings                               |
| _____ Camshaft                      | _____ Piston Wrist Pin                           |
| _____ Clutch Pedal                  | _____ P. T. O. Shield                            |
| _____ Clutch Plate                  | _____ Radiator                                   |
| _____ Clutch Pressure Plate         | _____ Radiator Cap                               |
| _____ Connecting Rod                | _____ Seal, Grease/Oil                           |
| _____ Crankshaft                    | _____ Starter                                    |
| _____ Diesel Fuel Tank              | _____ Steering Tie Rod                           |
| _____ Dipstick, Crankcase Oil Level | _____ Tachometer                                 |
| _____ Drawbar                       | _____ Temperature Gauge/Indicator Light Coolant  |
| _____ Engine Stop Control           | _____ Thermostat                                 |
| _____ Exhaust Manifold              | _____ Throttle                                   |
| _____ Fan                           | _____ Throttle Rod                               |
| _____ Fan Belt                      | _____ Tire Valve Stem                            |
| _____ Flywheel, Engine              | _____ Valve, Engine                              |
| _____ Fuel Tank Cap                 | _____ Valve Cover, Engine                        |
| _____ Fuel Filter                   | _____ Valve Cover, Gasket                        |
| _____ Fuel Injector Pump            | _____ Valve Push Rod                             |
| _____ Fuel Injector                 | _____ Valve Rocker Arm                           |
| _____ Fuel Pump                     | _____ Valve Spring                               |
| _____ Fuel Tank                     | _____ Warning Light, Rear                        |
| _____ Governor                      | _____ Water Hose                                 |
| _____ Head Gasket, Engine           | _____ Water Pump                                 |
| _____ Hydraulic Hose                | _____ Weight Carrier                             |
| _____ Hydraulic Reservoir           | _____ Weights, Front                             |
| _____ Hydraulic Valve Control       | _____ Weights, Wheel                             |
| _____ Intake Manifold               |  |
| _____ Muffler                       |  |

Contestant's Name \_\_\_\_\_ County \_\_\_\_\_

### Event No. III Tractor Safety

**Procedure:** Each contestant will be scored on safety throughout the contest.

**Scoring:** for both 2 & 4 wheel events!

#### Starting Safely

1. Failure to check transmission for neutral or park position x 25 \_\_\_\_\_
2. Failure to disengage clutch while starting engine x 50 \_\_\_\_\_
3. Failure to check P. T. O. for disengagement prior to starting engine.\* (May be scored once on the two-wheel and once on the four-wheel event.) x 50 \_\_\_\_\_

#### Driving Safely

1. Failure to engage clutch gently x 50 \_\_\_\_\_
2. Skidding or spinning tractor wheels (Scuffing of inside wheel on turning does not count as skid; skid of the front tractor wheel will not count until the skid equals or is greater than the width of the tire.) x 50 \_\_\_\_\_
3. Sliding or skidding implement wheels x 100 \_\_\_\_\_
4. Turning too short and fouling implement (includes jack left down) x 50 \_\_\_\_\_
5. Operation of tractor at unsafe speed or engine at excessive rpm x 100 \_\_\_\_\_
6. Moving tractor with brake set x 10 \_\_\_\_\_

#### Mounting and Dismounting Safely

1. Failure to set both brakes before dismounting (transmission set in park or locked position counts as brakes locked.) x 50 \_\_\_\_\_
2. Failure to bring tractor to complete stop before dismounting x 100 \_\_\_\_\_

#### Other Safety (Score for each offense.)

1. Smoking x 100 \_\_\_\_\_
2. Extra riders x 100 \_\_\_\_\_
3. Seat belt on tractor not used x 50 \_\_\_\_\_
4. Running over post x 100 \_\_\_\_\_
5. Other / tractor walk around x 50 \_\_\_\_\_

**TOTAL PENALTY POINTS, EVENT III** \_\_\_\_\_

\*Physically move levers, etc. so that the judges can observe checking for correct position. Safety will be judged and scored on both 2 and 4 wheel courses.

## **Event No. IV Two-Wheel Driving Event**

(See course outline.)

### **Procedure**

1. Three scorers should be available - one for timing and two for measuring and observing operation.
2. Tractor walk around to check for safety problems.
3. The contestants start and warm-up tractor and on signal from official drive tractor to starting line (rear wheels on line).
4. Time starts when tractor moves forward.
5. Drive to implement shed, spot drawbar, and attach implement (a two-wheel implement with 8 x 12 foot frame will be used).
6. Pull out and back implement down alley. Back of implement must go past end of alley.
7. Drive the implement through gates 1 and 2, around the end, and back through 3 and 4.
8. Line up implement and back into shed.
9. Unhitch, return tractor to start/stop line, and stop engine (time stops when engine fan stops).

### **Rules**

1. No assistance will be allowed in spotting. The tongue will be on the ground or a jack. The operator will make hitch without moving implement forward more than one foot. The operator will dismount to connect and disconnect the trailer.
2. Whenever dismounting tractor, the parking brake must be set and the gear shift lever must be in the neutral or park position.
3. Riding clutch - Using excessive throttle and controlling ground speed with clutch. May be scored once in each of: shed, alley, and obstacle courses.
4. Time begins when tractor moves forward at start/finish line and stops when contestant reaches start/finish line and the engine fan stops.
5. Brakes will be locked together. The use of steering brakes will not be allowed.

Name \_\_\_\_\_ County \_\_\_\_\_

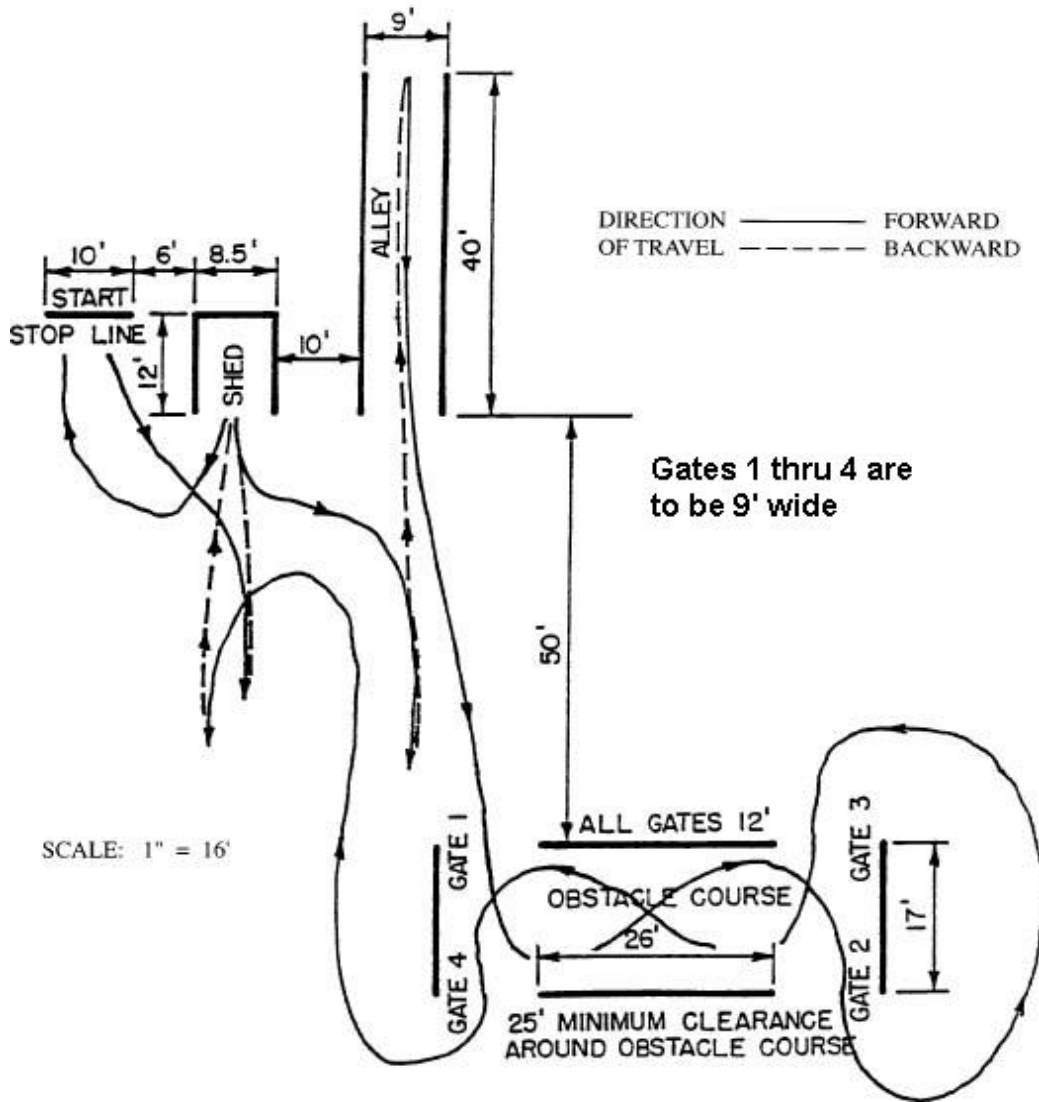
## 2-Wheel event

### Scoring:

	<u>Penalty Points</u>	<u>Score</u>
1. Number of complete changes of direction other than necessary in travel		x 10 _____
2. Markers or lines		
o Touches		x 40 _____
o Stakes knocked over or lines crossed		x 50 _____
3. Tractor Operation		
o Stalled		x 10 _____
o Grated gears		x 10 _____
o Riding clutch (Note rule 3.)		x 10 _____
4. Measurement in the shed (nearest ½ inch)		
o Inches off center at front		x 10 _____
o Inches off center at rear		x 10 _____
o Inches greater than one from center-rear post (within 1 inch is perfect)		x 10 _____
5. Time		
o minutes _____ seconds _____ total seconds ( 1 point per 5 seconds )		x 1/5 _____
o Time in excess of 8 minutes, 100 points		_____
6. Missed Gate	x 200 penalty points	
7. Missed Alley	x 500 penalty points	
8. Brakes unlocked	x200 penalty points	

**TOTAL PENALTY POINTS, EVENT IV**

TWO WHEEL DRIVING COURSE



## **Event No. V Four-Wheel Driving Event (See course outline.)**

### **Procedure**

1. Three scorers should be available - one for timing and recording scores and two for measuring and observing operation.
2. Tractor walk around to check for safety problems.
3. The contestants start and warm-up tractor and on signal from official drive tractor to starting line (rear wheels on line).
4. Time starts when tractor moves forward.
5. Drive to implement shed, spot drawbar, and attach implement (a four-wheel wagon with 8 x 14 foot frame will be used).
6. Pull out to the left, go through the two gates, and back wagon into the shed. The tractor and wagon tongue (but no part of the 8' x 14' frame) may cross the 20' start-stop line without penalty.
7. Unhitch, return tractor to start/finish line, and stop engine (time stops when engine fan stops).

### **Rules**

1. No assistance will be allowed in spotting. The tongue will be on the ground. The operator will make hitch without moving wagon forward more than one foot. The operator will dismount to connect and disconnect the trailer.
2. Whenever dismounting tractor, the parking brake must be set and the gear shift lever must be in the neutral or park position.
3. Riding clutch - Using excessive throttle and controlling ground speed with clutch. May be scored once in four-wheel event.
4. Time begins when tractor moves backwards at start/finish line and stops when contestant reaches stop/finish line and the engine fan stops.
5. If contestant cannot get wagon in shed, measure from rear of wagon to back post of shed and score accordingly.
6. Brakes will be locked together. The use of steering brakes will not be allowed.



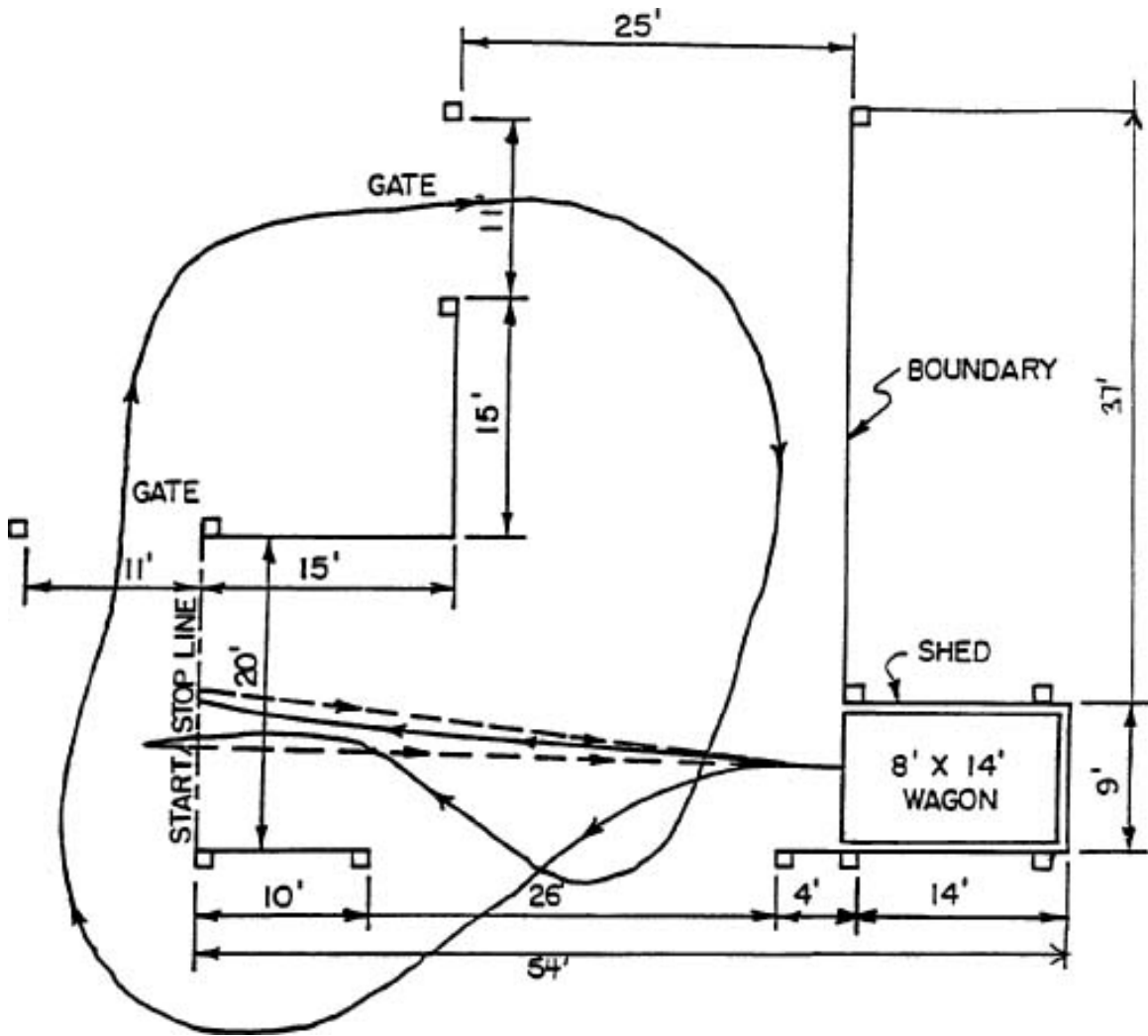
Name \_\_\_\_\_ County \_\_\_\_\_

### 4-Wheel event

#### Scoring

	<u>Penalty Points</u>	<u>Score</u>
1. Number of complete changes of direction other than necessary in travel	x 10	_____
2. Markers or lines		
o Touches	x 40	_____
o Stakes knocked over or lines crossed (Score again each time.)	x 50	_____
3. Tractor Operation		
o Stalled	x 10	_____
o Grated gears	x 10	_____
o Riding clutch (Note rule 3.)	x 10	_____
4. Measurement in the shed (nearest 1/2 inch)		
o Inches off center at front	x 10	_____
o Inches off center at rear	x 10	_____
o Inches greater than one from center-rear post (within 1 inch is perfect)	x 10	_____
5. Time		
o minutes _____ seconds _____ total seconds	x 1/5	_____
o ( 1 point per 5 seconds )		
o Time in excess of 8 minutes, 100 points		_____
6. Missed Gate	x 200	
7. Brakes unlocked	x 200	

**TOTAL PENALTY POINTS, EVENT V**

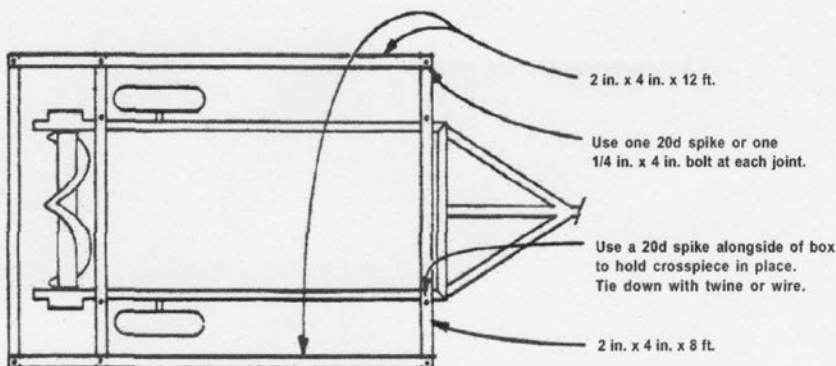


### FOUR WHEEL DRIVING COURSE

Use the 20' line for start and finish. If necessary, the outer post of the two 11' gates may be moved to adjust the "degree of difficulty." Be sure tractor and wagon can negotiate through gates and turns without fouling the implement.

DIRECTION \_\_\_\_\_ FORWARD  
 OF TRAVEL ----- BACKWARD

Image 2: Suggested Two-Wheel Implement



- Need:
- 1 - 2-Wheel Spreader (100-125 Bu. Size)
  - 3 - 2 in. x 4 in. x 8 ft. boards
  - 2 - 2 in. x 4 in. x 12 ft. boards

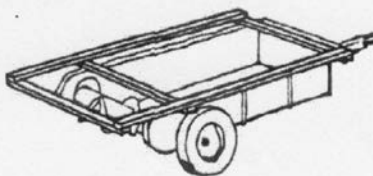
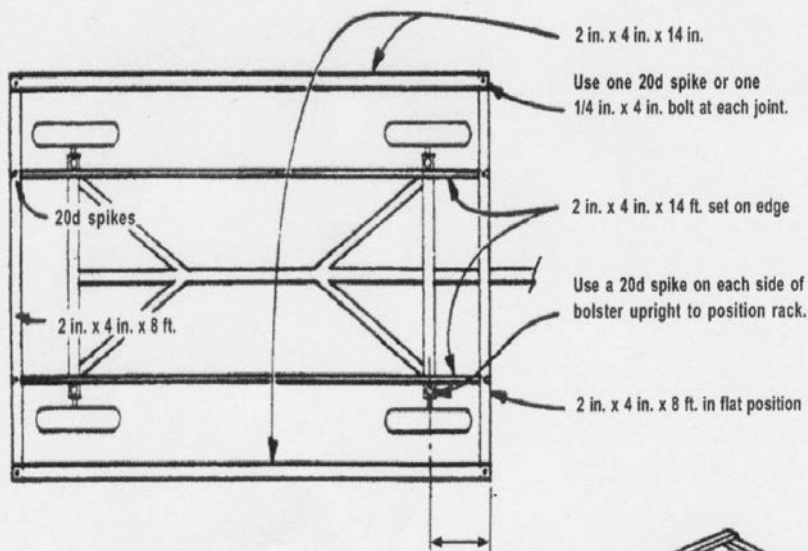


Image 4: Suggested Four-Wheel Implement



- Need:
- 1 - New Running Gear
  - 4 - 2 in. x 4 in. x 14 ft. boards
  - 2 - 2 in. x 4 in. x 8 ft. boards

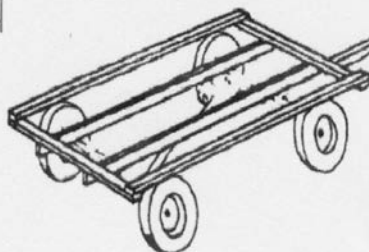


Image 1: Suggested Stakes To Use

