

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

---

January 1919

## Rules for Tractor Demonstrations

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

---

Nebraska Tractor Test Lab, "Rules for Tractor Demonstrations" (1919). *Nebraska Tractor Tests*. 108.  
<https://digitalcommons.unl.edu/tractormuseumlit/108>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

11-306  
24

# Rules for Tractor Demonstrations

BY THE

AMERICAN SOCIETY  
OF  
AGRICULTURAL ENGINEERS

CLASS "A"

FOR

County Agricultural Agents, Agricultural Institutions,  
Dealers' and Manufacturers' Demonstrations



## OBJECT:

The object of these rules, instructions and data is to make all tractor demonstrations of this kind comparable and of the greatest educational value. Anyone who has conducted tractor demonstrations in the past has realized the necessity of some standard rules to follow and those who afterwards have referred to the results, deplore the lack of uniformity in the demonstrations and the data. For those who have not had this experience will find that it is a great help to have satisfactory rules to follow.

The value of these demonstrations depends largely upon the accuracy of the data reported on both the conditions and results. The fuel consumption per acre, for instance, is much more interesting when the condition of the soil is known, and this varies so often in the same field that the conditions for each tractor should be carefully considered and specified in the data.

Fuel tests should not be undertaken unless the work is under the direction of a competent engineer and preferably representatives of the Agricultural Engineering Department of the State Agricultural College.



## DATA SHEET

Place of test..... Date .....

### TRACTOR DATA

Name and model of tractor..... Serial No. ....

Owner's name and address (if owned by individual) .....

Make of plow..... No. of bottoms..... Size ..... Type { Stubble .....  
Gen. Purpose.....  
Sod .....

### FIELD DATA

Kind of soil..... Conditions { Wet .....  
Moist .....  
Dry .....

Character of land..... { Level ..... } Previous crop grown.....  
Rolling .....

### TEST DATA

Length of field (headland to headland).....ft. width (edge to edge of furrow).....ft.....

Average depth of plowing..... Total area plowed.....

Total time of plowing..... Rate of travel M. P. H.....

Gallons of kerosene used..... Gasoline used..... Total water used.....

Fuel used per acre.. { Gasoline .....Gal. } Cost of fuel per gal. { Gasoline .....  
Kerosene .....Gal. } Kerosene .....

Observers .... { ..... Cost of fuel per acre.....  
..... Manager of demonstration.....

## CLASS "A"

### Rules for Tractor Plowing Demonstrations

**RULE 1. ENTRIES**—Only one tractor of each model of the same make may be entered, except where all tractors are owned and entered by farmers.

(a) All tractors entered to be stock machines as regularly sold.

(b) Each tractor should have a prominent placard not over 22" in height and 30" in width. If smaller size is used, the dimensions should be of similar proportions.

**RULE 2. TIME OF PLOWING**—Public demonstrations to be from 1:00 noon to 3:00 p. m., or a total of three hours. (See instructions.)

**RULE 3. POSITION ON FIELD**—Each land should be numbered as soon as measured and each entry should draw for position on the field. The number drawn entitles the entrant to the plot bearing that number.

**RULE 4. MEASURING LAND AREA**—For calculating final results, all land to be measured from outside to outside of furrow in each case.

**RULE 5. OBSERVERS**—Two observers are to be provided for each tractor in the field—one to keep account of fuel used and time elapsed; the other to check the depth and width of plowing.

**RULE 6. DELAY**—A stop of more than 30 minutes in the aggregate, due to tractor trouble, disqualifies any single entry.

**RULE 7. DEPTH**—To be very carefully checked every 10 rods. The A. S. A. E. (Heylman) depth gauge, described elsewhere, is recommended for this purpose.

**RULE 8. WIDTH**—The width of the inside plow should be checked frequently by the observer and the operator should be made to maintain a uniform width of cut.

**RULE 9. FUEL**—The test should be made on one fuel. If it is desired to make the run on some other fuel, the change should be made just before starting the test which will eliminate the necessity of including a small fraction of gasoline in the final results.

**RULE 10. WATER**—The total water used in the radiator, air washer and with fuel should be measured by the same method as used for getting the amount of fuel.

**RULE 11. TRAVEL**—The observer who checks the depth and width of plowing will also check the speed at which the tractor travels. Allowance to be made for stoppage due to trouble.

**RULE 12. PLOWS**—The same plows with the same hitch and adjustments to be used throughout the demonstration without alterations.

Any breach of these rules should disqualify the entrant.



# Instructions for Conducting Demonstrations

(Numbers refer to corresponding number in rules)

1-A—It is thought to be best and most fair to all concerned to allow but one tractor of the same make and model in these demonstrations.

Each tractor should carry a placard giving the following information:

Name .....Rating .....  
No. of Cylinders.....Bore .....Stroke .....  
Normal Engine R. P. M.....Travel.....M. P. H.....  
Fuel .....Travel.....M. P. H.....

The rate of travel at which the tractor is entered in the demonstration should be given in bold figures in the upper space, the other speed (if the tractor has two speeds) in smaller figures in the lower space.

This placard is recommended but may be dispensed with at the discretion of the committee.

Only one operator should be allowed on each outfit and no one aside from the operator should be permitted to ride on or handle any part of the outfit.

2-A—To obtain reliable information and comparable data, it is believed that a three-hour run is necessary.

The hours here given have been found to be the most satisfactory to get the best interest of the public.

3-A—The fields for the demonstration should be as nearly typical of the local conditions as can be obtained. The soil is to be as nearly uniform as possible.

*Laying out the land:* It is recommended that the land be laid out with headlands at least 40' wide at each end of the field. Land allotted to each entrant to be based upon the size and speed of tractor used. Be sure to allow sufficient land for each entrant.

All lands should be of uniform length as far as possible.

Entrants should not be required to finish lands as a part of the test but may do so at the completion of the three-hour test.

Proper marking of lands should be provided by stakes at each end and each land should be numbered. The entrant may use any number of intermediate stakes for striking out the back furrow. Sufficient time should be allowed the entrants to scour and adjust their plows before the three-hour run. This should be done, if possible, in the same field in which the demonstration takes place, or under similar soil conditions. The outfit should be adjusted and made ready before the actual demonstration is started.

4-A—All land will be measured alike to obtain the area plowed. The width should be checked in several places and the average taken.

5-A—Two observers should be provided for each entry. Local men usually may be secured for observers. They should be carefully instructed beforehand about the work they are to do. One should check the time and fuel used and the other the depth and width cut by plows.

6-A—The time of all stops during the three-hour run should be taken and if such stops total more than 30 minutes, due to tractor trouble, the entrant should be disqualified.

7-A—The A. S. A. E. Heylman depth gauge is recommended for measuring the depth of plowing. This is illustrated on the other side of this page and may be made by any carpenter.

8-A—The width cut by the inside plow should be very carefully measured and the operator should be made to maintain a uniform width of cut throughout the run. The distance between the rolling coulter and the furrow wall of the inside plow when in the ground should be equal to the distance between the rolling coulters of the other plows.

9-A—Arrangements should be made to supply all fuels for the demonstration from a common source. When the tractors arrive in the field, all tanks should be drained and refilled from this source. This precaution is necessary because of the difference in fuels.

After tractors are warmed up the fuel to be used in the three-hour run should be turned on just before starting the demonstration. This will eliminate the small fraction of gasoline which would otherwise have to be accounted for.

*Apparatus:* It is recommended that the local committee provide the following measuring apparatus: two 5-gal. cans; two 1-gal. cans; two ½-gal. measures, graduated; two 1-pint measures.

*Method:* The tractor should be set level and both fuel tanks filled to the lower edge of filler hole flange. The fuel to be used in the three-hour run should be turned on at this time.

At the completion of the test both tanks should again be refilled to the same level, keeping accurate count of the quantity of fuel put in. This, then, represents the amount of fuel used during the run.

10-A—Any water used, whether for fuel or in radiator, should be recorded.

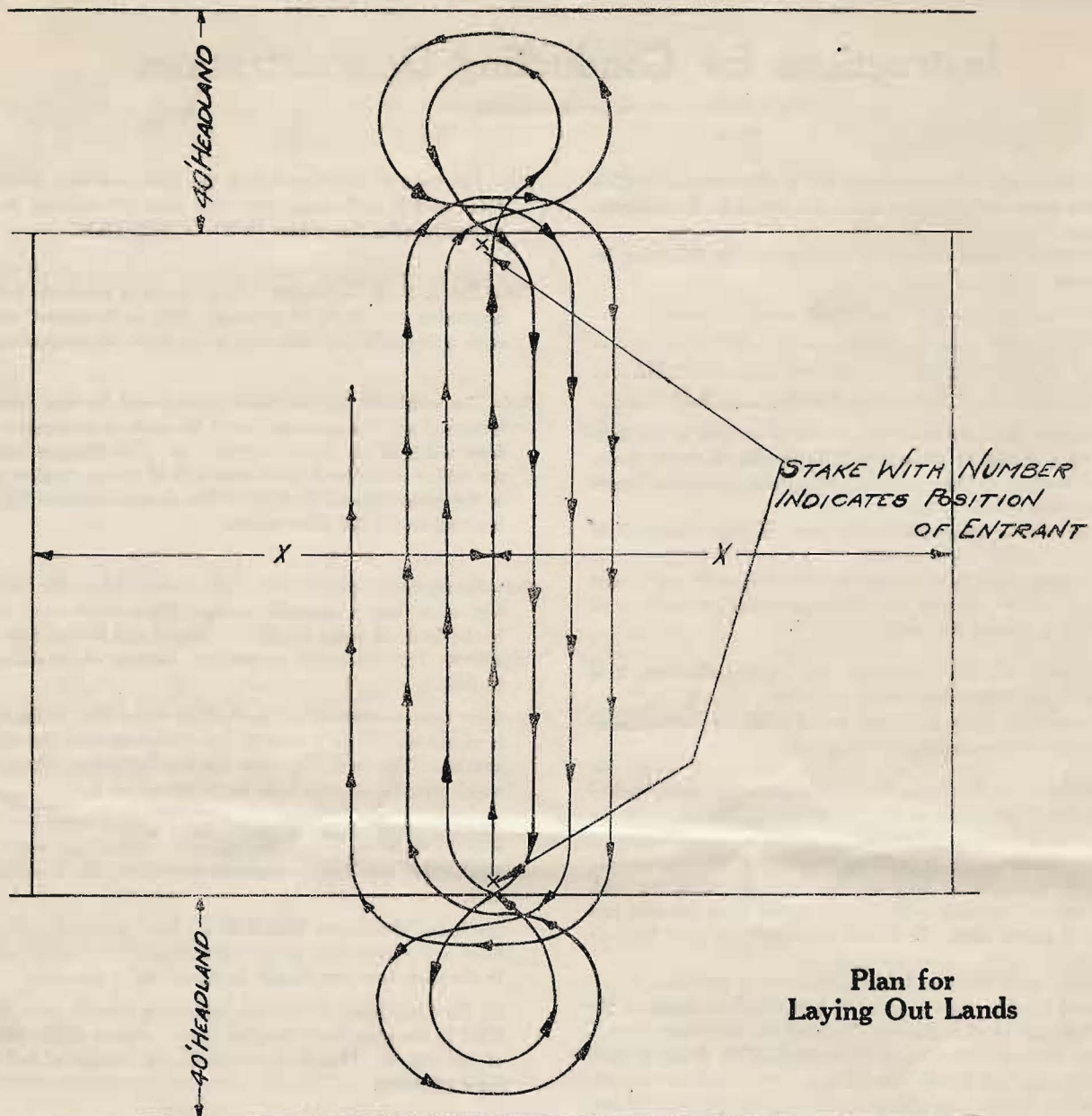
11-A—The rate of travel of the tractor will be obtained by the observer every other round and the average from these observations will be the plowing speed. The time required for making one trip across the field between headlands, discounting all stops, will give this when the length of the field is known. The rate of travel while turning at ends will not be taken, although this should be included in the time of plowing.

12-A—The same plows with the same hitch and adjustments to be used throughout the run except in case of breakage and then care should be used that adjustments are not disturbed.

*NOTE—If it is desired to do other work, such as discing, harrowing, seeding, etc., separate demonstrations should be arranged, either preceding or following the plowing demonstration. The success of any tractor demonstration depends very largely upon the care used in the management and the accuracy of the observers in recording the results.*

*No demonstration should be undertaken by anyone unless he has become thoroughly familiar with the rules and regulations that are to be followed and has the facilities to execute them.*





*X = DISTANCE, DEPENDING ON SPEED AND NUMBER OF PLOWS USED BY ENTRANT.*

