



## Farm Views

# The Origin of an Acre and Other Land Measures

Have you ever wondered where they came up with the unit of land area called an acre? An acre is 43,560 square feet. Have you ever wondered why they didn't use a nice round number like 40,000 or 50,000 square feet to an acre?

The story goes like this. When plowing with a yoke of oxen, it was standard practice to rest the animals (and the farmer) after plowing a furrow 1/8 mile long. This measure of distance therefore became known as a furlong-long or furlong; (a furlong is a nearly forgotten term for distance, except at horse racing tracks where it remains in common use).

The usual practice after plowing a furlong was to then turn the team around on a "land" and plow the other direction. Lands were laid out so the farmer would be able to finish a land every 10 rounds with a 10 inch plowshare (16.5 feet). One could imagine that perhaps farmers used a pole or rod that was 16.5 feet long when laying out lands because this measure of distance is still called a rod today.

By starting early in the morning, two lands could be finished before noon with a good yoke of oxen. At noon, the farmer stopped for his noon meal and to feed, water, and rest his animals. After the noon break, another two lands could be finished before quitting time. Four lands, or forty rounds (80 furrows) measured 16.5 x 4 = 66 feet across and was considered a good days work with a walking plow. The area plowed was therefore 1/8 mile (660 feet) long by 66 feet wide or 43,560 square feet and became the standard unit of land area we call an acre. By the way, a

farmer who plowed 80 furrows an eighth of a mile long would have walked ten miles while wrestling with the hand guided walking plow. Is it any wonder this measure of land area became known as an acre (ache-er)!

### Other Units of land measure.

On the American prairie where fences were constructed of posts and wire, farmers would place fence posts a rod apart. This helped them set up a land and gave them a point of reference on the other side of the field to site to when breaking out a new land. Fence posts are still commonly spaced a rod apart and barbed wire typically comes in 80 rod (1/4 mile) spools.

As stated above, on a field an eighth of a mile (a furlong) across, four rods wide equal an acre. On fields a quarter mile long, two rods equal an acre. On fields one-half mile across (a quarter section is a half-mile square), each rod wide is an acre and therefore the space between each fence post spaced a rod apart represents a acre.

Another unit used in land measure is the chain. A chain is 4 rods or 66 feet. A standard acre as described above was one chain wide by ten chains long, or ten square chains. Before the age of pocket calculators and computers, surveyors used chain measure to measure land because it simplified the calculations. A tract of land of any configuration could be divided into parcels, each representing a standard shape (a square, a rectangle, a trapezoid, or a circle) and each parcel could be measured using a chain-measure. The area of each parcel, in square chains, could be added together and the sum divided by ten to report acres in the field. (TD)

# Calibrating Farm Sprayers

Producer question: *How do you decide how much chemical and water to put in the tank when spraying herbicides or insecticides on the farm?*

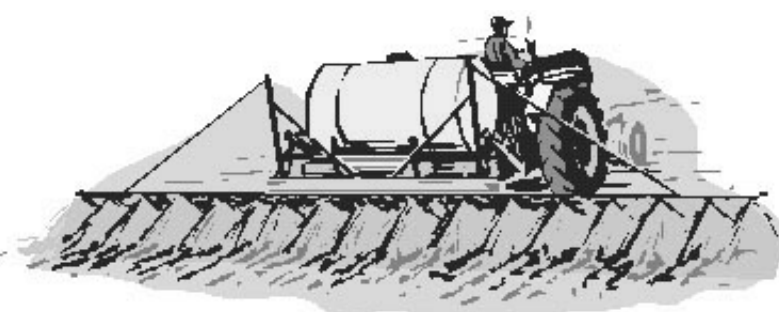
When calculating the amount of chemical needed per tank, one must know the label recommendation for the amount of chemical per acre and the land area that a tankful of solution will cover. The area covered per tankful depends on the sprayer output and tank volume. For example, if a farmer knows that he/she has a tank volume of 200 gallons and is putting out 20 gallons of spray per acre, each tankful of spray will cover 10 acres. If the label recommends one quart of product per acre, 10 quarts (or two and one-half gallons) of chemical should be added to a full sprayer tank.

There are times when a full tankful of spray is not required. Continuing our example, if the field size is 38 acres, the farmer will need three full tanks (3 x 10 acres = 30 acres) plus enough spray to cover the remaining eight acres (20 gallons per acre x 8 acres = 160 gallons of spray). At one quart per acre, eight quarts (two gallons) of chemical would be added to the last load of 160 gallons. The total product needed for the 38 acre field is 38 quarts (9.5 gallons). The total spray volume needed for the field is 38 acres x 20 gallons per acre = 760 gallons.

### How do I check the sprayer output?

A simple method has been developed to check the output from a boom sprayer. The procedure is as follows:

1. Check nozzle output



uniformity. Catch the spray output (water only) from each nozzle along the boom for a given time and replace, then recheck any nozzles that vary more than five percent from the boom average.

2. Measure the distance between adjacent nozzles along the boom to find the nozzle spacing.

3. In the field to be sprayed, set markers at the distance indicated in Table 1 that corresponds to the nozzle spacing on the boom. With the tractor in the gear and throttle speed that will be used for spraying, pull the sprayer filled half-full with water through the course in two directions, recording the number of seconds it took to traverse the course, and then calculate the average time required for the two passes.

4. With water only in the tank and with the spray rig stationary, adjust the regulator to the desired boom pressure and catch the output from one representative nozzle on the boom for the average length of time that was required to travel the measured course. The output of the nozzle, measured in fluid ounces, will be equal to the output of the sprayer in gallons per acre.

For example: A sprayer is set up with XR8005VS nozzles.

1. Check nozzle uniformity:

With the sprayer adjusted to 20 pounds per square inch (PSI), the output of each nozzle is caught for 30 seconds. The average output was 22.5 ounces and each nozzle came within, plus or minus, one ounce (less than five percent variation from the average). All nozzles are acceptable.

2. Nozzle spacing: 20 inches.

3. Distance: Referring to Table 1, for 20-inch nozzle spacing, two marker flags are set up 204 feet apart in the field to be sprayed. The tractor and sprayer are run through the course in two directions. The average of the two runs was 28 seconds to traverse the course.

4. Nozzle output: With the tractor and sprayer not moving, but with the boom spraying water and set for a boom pressure of 20 PSI, 20 fluid ounces are caught in 28 seconds.

The sprayer will be putting out the anticipated 20 gallons per acre when operated in the field at this pressure and the travel speed used to traverse the measured course.

For more information on the Ounce Calibration Method, ask for NebGuide G-865 or point your browser to <http://www.ianr.unl.edu/pubs/farmpower/g865.htm> (TD)

Table 1. "Ounce" Sprayer Calibration

Nozzle Spacing (inches)	Distance (feet)	Nozzle Spacing (inches)	Distance (feet)
40	102	26	157
38	107	24	170
36	113	22	185
34	120	20	204
32	127	18	227
30	136	16	255
28	146	14	291

## Pesticide Container Recycling Dates Set

Producers are encouraged to recycle 2.5 gallon and smaller pesticide containers. Containers must be triple rinsed or pressure rinsed with caps and labels removed. The Lancaster County Extension office, in conjunction with local businesses, will be holding public collection days from 9 a.m. to 3 p.m. at the following locations:

July 13	Farmers Cooperative	Bennet
July 20	Firth Co-op	Princeton
July 27	S.E. Nebraska Co-op	Filley
Aug 3	Farmers Coop Elevator Co.	Fairbury
Aug 10	Farmers Coop Elevator Co.	Odell
Aug 17	Farmers Coop Elevator Co.	Wilber
Sept. 14	Otte Oil and Fertilizer	Wahoo

## Tips for Late Summer Alfalfa Planting



Is planting alfalfa in your plans next month? August is an excellent time to plant, if you have moisture and you do it right. Dr. Bruce Anderson, extension forage specialist, lists the following reminders on how to be successful.

Seedbed preparation is crucial for late summer plantings. Good seed-to-soil

contact and weed control are essential. Half-hearted seedbed preparation produces only half-decent stands. Two types of seedbeds work well in August. A fully tilled seedbed is best for many growers. With fully tilled seedbeds, weeds are eliminated and the field is smooth. But don't over-till. Conserve soil moisture whenever possible and put extra effort into getting a firm seedbed. You should be able to dribble a basketball on an alfalfa seedbed in August. Rolling, harrowing and waiting for rain or irrigating, all help make seedbeds firm.

Small grain stubble also makes a good seedbed. Many drills can place alfalfa seeds into

stubble soil very nicely. Just make sure you control weeds like foxtail, sunflowers, and volunteer grain before stubble seeding.

Use herbicides like Roundup or Gramoxone Extra before planting, to kill existing weeds, if needed. Remember, these preparations are useless without moisture. Planting into dry soil is discouraged, because we never know if fall rains will be good or bad. But if you have moisture, then plant—shallow for rapid emergence and early for seedlings to develop good cold tolerance. With help from Mother Nature, good hay is just a spring away. (TD)