

Land Measure

291-01

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Measures of Area

Measures of Length

ACRE — The unit of land area in the United States is the acre. An acre contains 43,560 square feet. Have you ever wondered why an acre is 43,560 square feet instead of a round number like 40,000 or 50,000 square feet? 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. An eighth of a mile therefore became known as a furrow-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 (about 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 $16.5 \times 4 = 66$ feet across by 1/8 mile (660 feet) long and was considered a good days work with a walking plow. The area plowed was therefore 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)! Actually, the Webster's New Collegiate Dictionary states that the name comes from the Old English 'acer'; akin to Old High German 'ackar' (field), Latin 'ager' (field), Greek 'agros' (field), or Latin 'agere' (to drive).

HECTARE — In the metric system the standard unit of land area is the hectare. A hectare is 10,000 square meters. Ten thousand square meters to a hectare is an intuitive quantity. It is easily remembered, measured and computed.

CONVERSIONS — To convert from hectares to acres multiply hectares by 2.47. To convert from acres to hectares multiply acres by 0.4047.

ROD — On the American prairie where fences were constructed of posts and wire, farmers would place fence posts a rod (16.5 feet) apart. In addition to being about the right distance to support a wire fence, this helped them quickly estimate the number of posts needed (80 rods is a quarter mile). It also was useful when plowing a field. By spacing posts a rod apart, the farmer had permanent markers to use when setting up lands. Farmers took great pride in being able to plow a straight furrow. If the field was level, the farmer could use the post on the far 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 still comes in 80 rod spools.

Much of Nebraska was settled by homesteaders. In eastern Nebraska, the Homestead Act awarded each homesteader one-quarter section (160 acres). When posts are spaced a rod apart on the perimeter fence of a quarter section, the space between each fence post represents an acre, if measured across the full width of the quarter section.

CHAIN — Another unit used in land measure is the chain. A chain is equal to four rods or 66 feet. Modern surveyor's chains are not made of chain but are actually a flexible steel tape that can be wound on a spool. Chain measures are stamped with a die or marked with a brass tag every rod and every 1/10 of a chain, with the final section marked at 1/100 chain increments.

A standard acre as described above was one chain (66 feet) wide by ten chains (660 feet) 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. The length and width of a rectangular tract of land could be measured using a chain measure with the area expressed in square chains. Since there are ten square chains to an acre, the conversion from square chains to acres could be done mentally. Odd shaped tracts of land could be divided into smaller parcels each representing a standard shape (a rectangle, a triangle, a trapezoid, and full or part circle) and each parcel could be measured using a chain-measure. The area of each parcel, in square chains, could be added and then divided by ten to report total acres in the field.