

## XIV. Measure the Slope of a Field

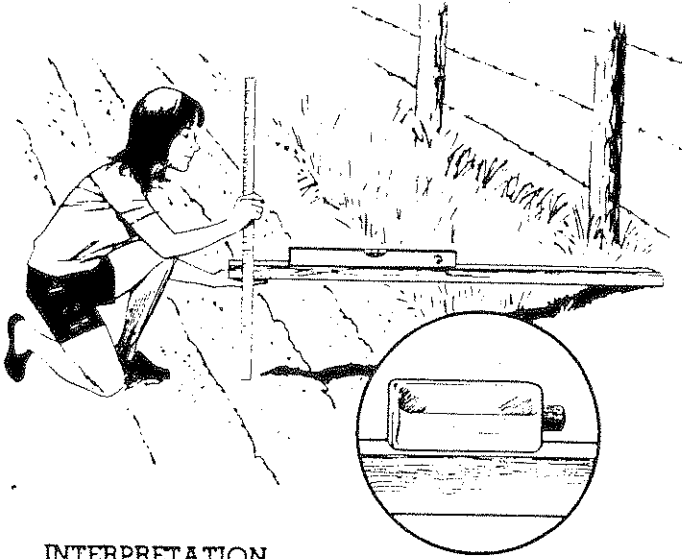
Slope is expressed in percent, meaning the number of units the land falls (or rises) in 100 units of horizontal distance. You can measure how steep a slope is with some simple materials.

You will need a yardstick, a straight stick exactly 50 inches long, and a carpenter's level or a flat bottle half full of a colored liquid. Go out on the schoolyard or to any place you would like to know how steep the slope is. Place the 50-inch stick horizontally on the ground (one end will be higher than the other because of the slope), as

shown in the drawing. Put the level (or the bottle) on the 50-inch stick, and move the free end of the stick up or down until the bubble (or the water) shows that the stick is level.

Read on the yardstick the distance from the ground to the bottom edge of the horizontal stick. This reading in inches, multiplied by 2, gives the percent of slope.

If you use a stick 100 inches long, then the reading on the yardstick would give the percent of slope and you would not need to multiply by 2.



### INTERPRETATION

Slope is a very important land feature. It often determines whether a piece of land should be used for grass, trees, or cultivated crops.

The size of particles moved by water ranges from the smallest clay particles, carried in suspension, to large stones and boulders that slide or roll along on steeply sloping stream beds.

Water flows slowly over a gentle slope and rapidly over a steep one. Since the slope of a field itself cannot be changed, a farmer needs to do what he can to slow the movement of water down his slopes. Growing grass or trees, or using conservation measures like contour farming and strip-cropping will help. Or he may shorten the length of slope by building terraces and diversions.

But reducing the speed of the water is essential.

Increasing the velocity of a stream increases its cutting or eroding power. The greatly magnified power of swift currents as compared with that of slow ones explains the work of streams at flood stage on steep slopes.



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Serious erosion on unprotected soil in foreground compared with grassed lawn that prevents soil loss.