

right angle, the plow should run in soil, free from stones or other obstructions, even without holding, and maintain proper balance, and cutting a furrow of even depth and width. If it will not do this either the plow is a poor one, or, what is more likely, it is not correctly set up or adjusted. When at last the plow will run in any soil for some distance without holding, then the beam wheel should be moved down until it just touches the surface, rolling over it without much pressure. Thus adjusted the plow will do its best work, and the team will find the work as easy as it can be made.

Many farmers do not make use of the beam wheel, as mentioned. Experiments, however, have shown that when properly adjusted it lessens the draft on the plow. Sanborn has carefully investigated the effect upon the draft of some of the different parts of the plow, and he found that 55 per cent of the total power is taken up by the cutting of soil beneath and at the sides of the furrow slice; 33 per cent by the friction of the plow upon the bottom of the furrow and upon the land side; while the raising and turning over of the furrow takes up only about 12 per cent. The amount of power exerted by a team on the plow throughout the day without overstraining is about 300 pounds. From this, therefore, it can be seen that 165 pounds are consumed in cutting the furrow, 99 to overcome friction, and 36 to raise and turn the furrow. These figures, of course, will vary according to the kind and condition of the soil, but the proportion will remain about the same. In stubble land a furrow 6 inches deep and 12 inches wide will require about the above power. Sanborn found also that the draft per square inch of the cross section of the furrow slice decreases as the depth of plowing increases so long as the soil is the same and the plow is not worked beyond its depth. However, the total will be greater, therefore if the plowman is to turn a deeper furrow it is evident that he must either cut it in narrower or put on more power. By close observation of his team and careful adjustment of his plow, however, the teamster can arrange the width so that when turning a deeper furrow he will not be imposing on his horses by turning too wide a one also.

The practice of deep plowing to-day is not practised as much as it should be, and while some soils will not stand deep plowing all at once owing to the shallow surface layer of soil, yet there are others which will. By increasing

the depth a little each year any soil can gradually be brought into a state where it can be plowed deeply, and this is important, as it provides a larger area into which plants can send their roots for food and moisture. Along with deep plowing the addition of humus, as turning under of

green crops, should be practised also, as one helps the other in improving the soil.

There are also many other points which might be touched upon, but space will not permit. We would say in conclusion, make a careful study of your soil, the kind of crop plowed for, and

the arrangement of your plow and horses, because it is only when all these things are given thought that the best job can be done and the largest returns realized for your labor. Plowing is slow and expensive, therefore it is the man who makes his head save his heels and hands who comes out best.

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