

# Limited Tillage Can Cut Costs

## Don't Overwork Your Farm Land

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Limited tillage practices not only give higher yields because of better soil aeration and moisture penetration, but can save the grower approximately \$8 per acre in seedbed preparation.

Although increased yields are not always obtained from rough-tillage practices the first year, excess tillage or poor practices do decrease yields the first year and continue to further decrease them in succeeding years. This results from the progressive build-up of puddled layers from year to year.

### "Open" the Soil

In general, any practice which tends to keep the soil open, permitting the ready movement of air and water through it, is most desirable. On the other hand, any practice which inhibits the movement of either air or water through the soil is not good. Every tillage operation either helps or retards this movement of air and water.

In growing a crop, normal tillage and irrigations cause a certain amount of compaction of the surface soil. Even a limited amount of compaction will cause a decrease in the water intake rate and inhibit normal root growth.

Breaking up this compact layer and airing it out is the first essential of good seedbed preparation. To accomplish this requires that the land either be plowed, knifed or chiseled. Just disking under the plant residue and not plowing, generally results in a poor moisture penetration with a resulting poor yield.

### Leave It Alone!

After plowing, the less work done on the land before the pre-planting irrigation, the better. If the land is

disked and floated before irrigation, it is much more difficult to get a deep penetration than if the irrigation is given in a rough state. When tillage is practiced to the extent of powdering the soil to a dusty texture, irrigation water will tend to puddle the soil, making it difficult to prepare a good seedbed or get good plant growth.

There are some tillage practices now used in the irrigated areas of the state that have little or no value, and there are others which may be harmful. The purpose of this article is to point out cultural practices in seedbed preparation which have proved beneficial, as well as those which have doubtful value.

It has been demonstrated on the clay loam soils of Mesa and the silty clay soils of Safford that a very satisfactory seedbed can be made by going over the ground with a drag or a spiked-tooth harrow, approximately 10 to 15 days after the pre-planting irrigation has been given. (See picture on the cover which illustrates rough tillage before pre-planting irrigation.)

### DO

**Practices which tend to keep the soil open allowing ready movement of air and water through it.**

1. Plow below compacted layer.
2. Air out after plowing as long as possible before giving pre-planting irrigation.
3. Return all possible organic matter to soil.
  - a. Plant residue
  - b. Animal manure
  - c. Green manure
4. Crop rotation
  - a. Legumes
  - b. Cash crop
  - c. Fiber-root crops
5. Give only one heavy pre-planting irrigation instead of 2 or more light ones.
6. Do minimum amount of work on land between plowing and pre-planting irrigation.
7. After irrigation, reduce work on seedbed preparation to absolute minimum. Leave cloddy.
8. After crop is planted give minimum cultivation. Cultivate only for weed control.

### DON'T

**Practices which tend to retard movement of air and water through the soil.**

1. Plow the same depth year after year.
2. Give the pre-planting irrigation soon after plowing.
3. Burn off all stubble and other plant residue.
4. One crop system, especially row crops.
5. Give several light pre-planting irrigations.
6. Work surface soil up into dusty mulch by excessive working with disk, float or land plane.
7. After irrigating, make a powdered seedbed by use of disk and float or land plane.
8. Cultivating to maintain dust mulch which may require two cultivations between each irrigation.