

AGRICULTURAL GUIDE

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Soil and Water

Operating and maintaining grassed outlet terrace systems

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The proper operation of terrace systems depends on good farming practices and prompt correction of problems. Terraces should be inspected at least annually. Terrace ridge height and shape should be maintained as built. Occasionally, a modification may be required (for example, if you change basic machinery size from 6-row to 8-row).

Erosion and most tillage operations, besides plowing, tend to fill terrace channels and to reduce terrace height. Sediment deposits in the channel reduce the capacity of the channel to carry water off the field. Both effects increase the chances of water flowing over the terrace during heavy rains. Tillage operations performed over terraces (parallel to a field boundary instead of parallel to the terrace) are especially detrimental to terraces. Tillage tools should not straddle the ridge. The ends of the equipment should operate along the top of the ridge to prevent lowering of the terrace ridge.

For information on maintaining grassed waterways, refer to Guide 1504.

Conservation tillage and tillage and planting operations performed parallel to the terrace ridge decrease erosion and sediment buildup in terrace channels. Inter-terrace erosion and terrace channel deposition increase as terrace spacing is increased and as terraces deviate from the contour to achieve straighter and/or more parallel terraces. Using conservation tillage to reduce erosion becomes even more desirable in such situations. Your goal may be to use a plow only as required for maintaining terrace ridges



Terrace height can usually be maintained by routinely plowing the ridges.



Extremely erosive storms may necessitate removal of silt from the terrace channel with earth-moving equipment.

and not to plow the steeper backslope and the area between the terraces.

Terrace maintenance problems

Common terrace problems include reduced ridge height (can be local low spots or the entire terrace), decreased channel capacity, sediment bars and ponding of water in the channel. One or more of these problems may cause water from heavy rains to overtop the ridge, and this can cause rapid deterioration of the terrace system by reducing ridge height or



Utilizing conservation tillage to leave 30% or more of the field surface covered with crop residue drastically reduces inter-terrace erosion and siltation in terrace channels (and waterways).



Tillage operations should be done across the field slope using the terrace ridges as guidelines.

cutting a gully through the ridge and down to the next terrace. Frequently, water overtopping one terrace results in overtopping of terraces below.

Ponding may be caused by sediment bars or other channel irregularities. Usually, high areas require removal to restore channel grade. Occasionally, low areas may require filling. Channel capacity at the discharge into the waterway may be reduced by sediment deposits, tillage operations and/or crossing the terrace. Changing travel patterns to eliminate crossing terraces may be necessary.

Plowing terrace ridges

Plowing the ridge as part of each tillage/crop sequence normally maintains terrace height and shape, if it's properly done. Typically, moldboard plowing with a back furrow at the top of the ridge and leaving a single dead furrow in the terrace channel and at the toe of the backslope maintains proper height and shape. To decrease the furrow depth at the bottom of the backslope and/or in the channel, make the last trip with the plow with the rear of the plow cutting quite shallow.

To further increase the channel capacity on neglected terraces, leave a double dead furrow in the terrace channel. This may be achieved by using a two-way plow to throw all furrows uphill from the ridge top down to the next terrace channel. With a standard one-way plow, a second back furrow between terraces eases the creation of the double dead furrow in the channel. Place the second back furrow parallel to the terrace channel below, leaving the irregular areas on non-parallel terraces below the upper terrace.



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Ridge maintenance without plowing

If no-till or conservation tillage is used to reduce the erosion associated with plowing, sediment may have to be removed from terrace channels with earth-moving equipment such as a front-end loader, dozer, blade or scraper. Use any sediment removed to build up low spots on the terrace ridge or in the field.

Additional maintenance for narrow-base and steep backslope terraces

Since the steep slopes of the ridges of narrow-base and steep backslope terraces are vegetated and can not be farmed, additional maintenance may be required.

A vigorous stand of vegetation should be maintained on the steep slopes to help control weeds, trees and brush. This may require periodic application of fertilizer and herbicide. Trap and remove burrowing animals to prevent damage to the terrace ridge.

Maintain the front slope of steep backslope terraces by plowing as you would broad-base terraces. Sediment accumulation in narrow-base terraces may need to be periodically removed with a frontend loader or scraper.

Safety

Terrace ridges, especially those with steep backslopes, are potentially hazardous. Perform all farming and maintenance operations with caution and common sense to reduce the chance of damage to the machine and injury to the operator.