NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

CONTOUR ORCHARD AND OTHER FRUIT AREAS

(Ac.)

CODE 331

DEFINITION

Planting orchards, vineyards, or small fruits so that all cultural operations are done on the contour.

PURPOSE

1. Reduce soil erosion
2. Reduce water loss
3. Allow for the efficient use of farm equipment

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on sloping land where orchards, vineyards, small fruit or nut crops are to be established. This practice is most effective on slopes between 2 and 10 percent. It will be less effective in achieving the stated purpose(s) on slopes exceeding 10 percent and in areas and in areas exceeding a 10-year, 24-hour rainfall of above 6.5 inches. The practice is not well suited to rolling topography having a high degree of slope irregularity because of the difficulty of meeting the row grade criteria.

CRITERIA

General Criteria Applicable to All Purposes

Temporary erosion control measures shall be applied as necessary to disturbed or cleared land until the planting is established.

Any farm roads installed in conjunction with this practice shall meet the criteria for Access Road, code 560.

Overland flow from adjacent fields shall be diverted as necessary to ensure the proper functioning of this practice.

For sprinkler or trickle-irrigated plantings, the maximum row length of orchard crops shall not exceed the maximum allowable lateral line length.

Row Grade. The row grade will be aligned as closely as possible to the contour to achieve the greatest erosion reduction, but shall not exceed one percent.

The row grade shall not be less than 0.2 percent on soils with slow to very slow infiltration rates (hydrologic soil group C or D) or where the crop to be planted will be damaged by ponded water conditions for periods of less than 48 hours.

Up to 3 percent row grade is permitted within 150 feet of the approach to a grassed waterway, field border or other stable outlet.

Critical Slope Length. This practice shall not be installed on a hill slope that is longer than the critical slope length.

The critical slope length shall be determined using approved erosion prediction technology.

Stable Outlets. Stable outlets shall be established as necessary where runoff results in concentrated flow erosion. Acceptable stable outlets include *grassed waterways, field borders, filter strips, water and sediment control basins*, or *underground outlets* for *terraces and diversions*.

CONSIDERATIONS

A topographic survey will usually be needed to see if the desired planting pattern will fit the slopes.

Fields that are cut by gullies or have strongly undulating topography are not well suited for this practice.

Avoid applying this practice on areas that have evidence of mass movement or have the potential for landslides.

Following the level contour may not be desirable where slow drainage may increase disease problems or where furrows could fill with water and overtop.

To minimize the potential for washouts, avoid driving on farm roads as much as possible during the rainy season.

Planting orchards and fruit areas on the contour generally requires a bench or terrace to be constructed to provide access to the growing trees or shrubs. The bench or terrace may reduce surface runoff and increase the opportunity for infiltration. Either inward sloping or outward sloping benches may be appropriate.

Inward sloping benches reduce runoff. The reduction depends on the amount of surface storage and the intake rate of the soil.

Where outward sloping benches are constructed for drainage purposes, runoff may be more or less than from the unbenched condition. The degree of runoff reduction will depend on the angle of the outward slope, the amount of cover on the bench at the time of runoff, the amount of storage available, the intake rate of the surface soil, and the amount of water received (either rainfall or irrigation).

Reduced surface runoff may increase the opportunity for increased infiltration. Soil moisture may be increased, providing additional water for transpiration. Where transpiration is less than available soil water, excess infiltration may percolate below the orchard root zone. Excess irrigation water may increase the percolating water supply.

Contoured orchards and fruit areas may reduce erosion, sediment yield, and nutrient and pesticide concentration in surface runoff. Where inward sloping benches are used, potential contaminants will be trapped against the slope. With some rainfall events, the bench can provide 100 percent trap efficiency.

The amount of potential contaminants retained on outward sloping benches depends on the slope of the bench and the amount of cover. In addition, outward sloping benches are subject to erosion caused by runoff from benches immediately above them.

Contouring improves access to fields and facilitates maintenance.

Follow NRCS policy on cultural resources.

PLANS AND SPECIFICATIONS

Plans and specifications are to be prepared for each field. List the planned grades for tree or vine rows and the allowable deviation from the contour for the planting pattern on each field.

Specify the location of water disposal practices.

OPERATION AND MAINTENANCE

Maintenance needed for this practice includes:

- Performing all cultural operations on the contour between tree or vine rows
- Periodic inspection and repairs to runoff water outlets
- Protecting uphill and downhill farm roads from erosion, and
- Maintaining adequate vegetative cover to control erosion