Lecture 12
Soil Erosion cont…

Best Management Practices: that are used to control erosionfactors of both wind and water are

- ***Crop rotation-*** improves the overall efficiency of nitrogen uptake and utilization in the soil. If certain cover crops are planted in the winter, erosion and runoff is prevented when the ground thaws, and nutrients are trapped in the soil and released to the spring crops.
- ***Contour cultivation-*** On gently sloping land, a special tillage practice carried out on the contour of the field can reduce the velocity of overland flow. Contour cultivation should not be carried out on steep slopes because it will merely make the erosion situation worse.
- *Strip cropping-* It is a technique in which alternate strips of different crops are planted in the same field. There are three main types: contour strip cropping, field strip cropping, and buffer strip cropping. If the strips are planted along the contour, water damage can be minimized; in dry regions, if the strips are planted crosswise to the contour, wind damage is also minimized.
- ***Terraces-*** Constructing bench-like channels is otherwise known as terraces, enables water to be stored temporarily on slopes to allow sediment deposition and water infiltration. There are three types of terraces: bench terraces
- contour terraces, and parallel terraces. It will control erosion in wetter areas by reducing the length of the slope.
- ***Grassed Waterways*** **-** They force storm runoff water to flow down the center of an established grass strip and can carry very large quantities of storm water across a field without erosion. Grass waterways are also used as filters to remove sediment, but may sometimes lose their effectiveness when too much sediment builds up in the waterways. To prevent this, it is important that crop residues, buffer strips, and other erosion control practicesand structures be used along with grass waterways for maximum effectiveness.
- ***Diversion structures-*** These are channels that are constructed across slopes that cause water to flow to a desired outlet. They are similar to grass waterways and are used most often for gullycontrol.
- ***Drop structures*** **-** Are small dams used to stabilize steep

waterways and other channels. They can handle large amounts of runoff water and are effective where falls are less than 2.5 meters

- ***Riparian strips*** **-** These are merely buffer strips of grass, shrubbery, plants, and other vegetation that grow on the banks of rivers and streams and areas with water conservation problems. The strips slow runoff and catch sediment. In shallow water flow, they can reduce sediment and the nutrients and herbicides attached to it by 30% to 50%.
- ***No-till planting-*** This planting system prepares a seedbed 2 inches wide or less, leaving most of the surface undisturbed and still covered with crop residues. The result is a wetter, colder environment that protects the seed and soil with its insulating effect of the surface residue.
- ***Strip Rotary-*** Tillage A strip four to eight inches wide and two to four inches deep is prepared by a rotary tiller, while the rest of thesoil is left undisturbed. The soil is conserved because of the crop residues between the tillage strips
- ***Till Planting*** **-**This plowing technique sweeps the crop residues into the area between the rows of crops. Soil density betweenthese rows remains relatively high because of the absence oftillage. This soil is difficult for raindrops to detach and runoff to move.
- ***Annual Ridges*** **-** Also known as permanent ridges or ridge tillage, the annual ridges are formed by using a rolling disk bedder, and planting is done after only minor spring seedbed preparation. The extent of soil conservation depends on the amount of residue left and the row direction. Planting on the contour plus increasedsurface residues greatly reduce soil loss.
- ***Chiseling***- This system does not turn the soil over, but rather leaves it rough and cloddy with plenty of crop residue remaining. The soil density and amount of covering depends on the depth, size, shape, spacing, and so on of the chisel blades. The residue and rough, cloddy surface of the soil reduces raindrops impact and reduces runoff velocities thus reducing erosion.
- ***Disking***- This system pulverizes the soil and gives great soil density The effect is similar to that of chiseling with results also depending on the depth, size, spacing, and so on of the diskblades. The deeper the disking, the fewer the residues that remain on the surface.