

Green and Growing

Written by D. Bruce Bosely, CSU Extension Agent/Cropping Systems
Tuesday, 20 March 2012 22:27 -

Last Sunday's winds had an average wind speed exceeding 25 mph, with gusting winds over 60 mph in many locations in northeast Colorado. The winds were responsible for a severe dust storm and a serious wildfire in Yuma County.

Blowing soil can be an unpleasant nuisance, a serious safety hazard, or a costly disaster depending on one's perspective and the intensity and duration of the windstorm. The public response to blowing soil has led to such legislation as the Colorado Dust Blowing Law and provisions of the 1985 Food Security Act.

Blowing soil or soil erosion by wind is a complex process. It involves detachment, transport, sorting, abrasion, avalanching, and deposition of soil particles. Turbulent winds above a threshold velocity (13 mph at one foot above the ground) blowing over erodible soils can cause erosion or blowing. At selected locations and dates in Colorado, average wind speeds may exceed 5-9 mph.

Wind transports soil particles in three ways.

—Saltation: Individual particles are lifted off the soil surface by wind; then they return and the impact dislodges other particles. Fifty percent to 80 percent of total transport is by saltation.

—Suspension: Dislodged particles, small enough to remain airborne for an extended period of time, are as visible as dust but generally make up less than 20 percent of the total soil transported.

—Surface Creep: Sand-sized particles are set in motion by saltation. These sand size particles creep slowly along the surface. Up to 25 percent of total transport may be from surface creep.

The following are suggested means to control or reduce erosion or damage from wind:

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—Vegetative barriers reduce erosion from wind by reducing unsheltered distance across fields.

—Barriers can protect young, sensitive, high-value crops from damage by blowing soil particles.

—Combinations of barriers and ridges can reduce residue requirements in conservation compliance plans.

—Fall-planted cover crops can prevent soil erosion by wind after harvest of low residue crops such as beans, beets or potatoes.

—Covering the soil surface with crop residues is the most effective means to control soil erosion.

Contact Bruce Bosley for additional information on this or other cropping systems topics at 970-768-6449 or bruce.bosley@colostate.edu.

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