

SOIL EROSION

- **occurs when soil particles detach and move due to wind and water**
- **removes part of the soil's make-up and can reduce the soil's fertility**
- **this exposure can result in the release of carbon dioxide**

SOIL EROSION

- **Wind buffers, shelter belts, plantings of pasture, grasses, trees and bushes, terracing and contour farming in hilly areas, and conservation tillage reduce soil erosion and preserve healthy soil structure.**
- **These and other techniques to reduce soil erosion also reduce the loss of carbon.**

SOIL EROSION

- **The proposal would be flexible in rewarding practices for results they yield in reduced erosion and decreases in overall pollution leaving the farm.**
- **Innovative approaches would be rewarded based on the environmental benefits they produce.**

SOIL EROSION

- **The current rate of soil erosion from water and wind on Minnesota cropland averages between 4-8 tons per acre per year.**
- **The proposal is to reward soil conservation practices so that soil erosion would be reduced by about a half.**

EFFECTS ON WATER QUALITY

- **Drinking water can be threatened**
- **create additional environmental and human health risks**
- **Intensive cropping systems and intensive animal agriculture can result in dangerous levels of nitrogen in groundwater**
- **Problems in groundwater can also flow into lakes, rivers and streams**

EFFECTS ON WATER QUALITY

- **Plantings (filter strips) can be very effective in trapping excess fertilizer, pesticides, and eroded soil so it does not runoff into streams**
- **Wetlands can also trap these materials**
- **A combination of practices may be needed**

- **Healthy soil structure not only reduces soil erosion but also traps excess nutrients and pesticides in the soil**

EFFECTS ON WATER QUALITY

- **The proposal is to reward farming practices to reduce runoff of fertilizers, pesticides and nutrients into groundwater and surface waters by about a half in most watersheds in the state.**

FLOODING EFFECTS

- **Farming practices that retain water can reduce flooding**
- **wetlands can also be effective for water retention**
- **Practices that help absorption of water also reduce flood risks**

- **Proposal to reward farming practices to reduce flooding from agricultural lands by about a fourth**

SWIMMING & FISHING EFFECTS

- **The ability to improve surface water quality varies across regions of Minnesota.**
- **Watersheds with most land in row crops, like western or southern Minnesota, need about a 50% reduction in sediment and nutrient load for noticeable improvement in stream water quality**

SWIMMING & FISHING EFFECTS

- **For more diversified landscapes like southeastern Minnesota, 25-30% reduction in sediment and nutrient load for noticeable improvement in stream water quality**
- **Would improve the quality of streams for swimming and increase the variety and abundance of game fish species**

- **As noted above, the proposal is to reduce the sediment and nutrient load by about a half**

BIRD AND WILDLIFE EFFECTS

- **Different agricultural practices result in different numbers and types of birds and wildlife, both game and non-game species**
- **Strips of grass and trees along waterways provide habitat for bird nesting and breeding**
- **Wetlands are important habitat for migrating birds**

BIRD AND WILDLIFE EFFECTS

- **Scientists have found that the types of birds can be five times as high in areas with diverse uses**
- **See figure illustrating 4 types of landscapes**
- **Increases in the diversity and abundance of other wildlife also result from diverse land uses**

- Many farms currently provide food and habitat for birds and wildlife
- Proposal would aim to increase these bird and wildlife benefits by about a half

CLIMATE CHANGE EFFECTS

Carbon

- Carbon is a major contributor to climate change and global warming
- Land management practices can increase or decrease the amount of carbon held in the soil

CLIMATE CHANGE EFFECTS

Carbon

- Intensive tillage exposes the soil and increases the release of carbon into the atmosphere
- Almost half of the cropland in Minnesota undergoes intensive tillage

- **No-till and ridge till and well-managed pastures have been shown to increase the carbon content of soils**

CLIMATE CHANGE EFFECTS

Carbon

- **Soils found in wetlands may have twenty times the carbon storage of other soils**
- **Drainage of wetlands exposes this organic material to the air and produces a burst of carbon**
- **Restoration of wetlands could trap carbon by keeping it in wetland soils**
- **Currently there are proposals to reward activities that trap carbon, including non-agricultural practices, at rates of \$20-50 per ton.**

CLIMATE CHANGE EFFECTS

Nitrogen

- **Nitrogen is a necessary nutrient for crops**
- **Nitrogen can be converted in the soil into nitrous oxide, which is a greenhouse gas**

- **Approximately 70% of the nitrous oxide released from human activity is derived from agricultural practices**
- **Proposal is to reward farming practices to reduce releases of greenhouse gases from agriculture by 10-20%**

DESCRIPTION OF PROPOSED POLICY

- **Programs to increase conservation practices in agriculture**
- **Farming practices can make tremendous differences in soil erosion, soil health, air and water quality, floodwater retention, wildlife habitat, and release of greenhouse gases**
- **Payments to farmers would be based on real, measurable conservation benefits**
- **Payments to farmers would take the form of direct payments or tax reductions**
- **Payments would increase for greater conservation results achieved**

COSTS OF THE PROGRAM AND COSTS TO YOUR HOUSEHOLD

- **Program would likely result in a slight increase in the prices of some foods**

- **Price increases would depend on differences in markets for various foods**
- **Costs will vary based on household's spending pattern and household's income tax bracket**

Please keep in mind the following points:

- **Cost estimate has been calculated as a fixed annual payment over many years**
- **Costs of this state policy could decrease or even be eliminated through time**
- **If this proposal passes, your household will have less money to spend on other things**
- **Please consider how you would vote based on your current level of household income.**