5TH GRADE 4-H

ENVIRONMENTALLY FRIENDLY COVER CROPS

Save Soil, Prevent Water Pollution, Trap Carbon

Materials Needed: Three two-liter bottles, soil, three clear glasses/beakers, box or stand approximately 5-inches high. Note: One bottle must have a cover crop growing in it for approximately a month prior to the demonstration. A section of sod can be cut the day of the demonstration and used instead of a cover crop.

Procedure: Please watch this video for a basic introduction to the experiment: youtube.com/watch?v=im4HVXMGI68&t=18s

As you can see from the video, each bottle has a large open window on the top. Each bottle is sitting at an angle, in order to allow run-off. However, I recommend using clear glasses or beakers to catch the run-off. The small bottle bottoms he is using tend to make a mess.

Discussion and Follow-Up: After showing the soil runoff experiment, discuss with the students why losing top soil is such a problem. Simply put, the topsoil is the best place to grow things! Surveys find that between one-fourth to one-half of Midwestern top soil has been lost to poor farming practices. As soil washes away and soil quality decreases, more fertilizers and other chemicals must be used.

If more chemicals are used, and cover crops aren't planted when the primary crops are not growing, more pollution will make it into streams leading to the Gulf of Mexico or the Great Lakes. Every year, these chemicals cause "dead zones" of high algae growth and water that can't support most aquatic life.

However, planting cover crops not only reduces erosion, keeping many of these chemicals from reaching waterways; but the cover crop also improves and builds top soil as the cover crops are allowed to decay.

In addition, using cover crops helps with carbon sequestration (the process of returning carbon to the ground and trapping it there). In other words, cover crops can help take carbon out of the air during photosynthesis; and, if the ground is properly managed, the carbon can be trapped for hundreds of years. According to the Environmental Protection Agency, cover crops are already sequestering 5.5 million tons of carbon per year, that is equal to the carbon output of 1.2 million cars. If every farm in the United States used cover crops, it is estimated that we could keep 147 million tons of carbon out of the atmosphere.

Indiana Standard: 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

4-**H Project:** Soil & Water Science

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