



Pizz-A-Thon Ag Facts – For Student Research

1. Explain why a healthy soil leads to healthy food.
2. How does protecting our soil from washing away also help keep our water clean?
3. Explain how the cheese on your pizza gets from soil to pizza and what careers are involved in the process?

Soil Sustains Life on Earth: *“A Slice of Education comes with every pizza!”*

Most of our food can be traced back to soil. Understand the value of protecting our soil and water as you experiment with the Plexiglas plant/root observation box and demonstrate controlling the rain drop to maintain water quality.



“Experiment and Discover
The Value of Conservation”

Hope Lies With The World’s Youth

In every nation, destructive farming practices rob soil of nutrients and endanger our world food supply. **Erosion has turned farmland into deserts and dust.** In every region of the world, there is more destruction to the soil than improvement. Our best hope lies with the world’s youth, through education. Soil is the very foundation of agriculture. Erosion also results in water pollution, a very important topic in today’s world. A goal of the Pizz-A-Thon is to help develop future leaders who will be good stewards of our soil and water resources.

***Soil health:** It is important to leave old plant residue from crops from the year before on the surface of crop fields to prevent water and wind erosion (called conservation tillage, no till or residue management).

Importance of Knowing Soil Terms: Soil texture is important as it lets you compare soil that is good for crops vs. poor soil. Soil texture describes the ranges of mineral particles that make up a particular soil with clay being the smallest, silt being the larger particle and sand the largest. Texture is important because particle sizes reflect the sizes of the pores between them and that influences how much air and water the soil can hold for plant growth. The ideal soil has a little of everything- sand, silt and clay (using an example if basketballs represented the size of sand, then baseballs would be the size of silt and bee bees the size of clay). Soil with the ideal combination of particle sizes is called a loam soil. Any of these soils on a slope is subject to erosion and it is important to control the erosion to keep the soil from washing away. It is also to prevent the eroding soil and nutrients from polluting our water.

Conservation Practices: Cover crops planted on crop fields in the fall help protect our water from becoming polluted with sediment and nitrates, before new crops start to grow in the spring of the year. Terraces and *conservation tillage are used depending if crops are on steeper sloping land.

Earthworms and living soil organisms break down last year's crop residue, providing for air and water movement through the soil and providing organic matter for a good environment for the seeds to germinate and crops to grow. This develops good topsoil. This lowers the need for chemicals which can pollute aquifers and streams.

The Universe below our feet is home to millions of living organisms (a recycling factory for so much of the energy that sustains life). An ideal soil structure is 25% air, 25% water (50% pore space), 45% mineral and 5% organic matter. The layer of soil on the top (top soil) contains the best structure and mineral content for growing crops. (See the Soil Profile illustration.)

Meat Ingredients

Farm Animals (Livestock): Farmers carefully control what **cattle** (dairy and beef) **and swine** (pigs-hogs) eat. The farmers work with veterinarians' to keep their animals healthy. This extra care means that farm livestock give us ham, pork, hamburger, beef and sausage, all popular in the pizza business.

Chickens and turkeys are popular sources of protein and iron and low in fat, calories and cholesterol. And of course chickens provide us with eggs. **Cattle, sheep and goats are called ruminants**, (have four compartments in their stomachs), so they can digest plants - humans can't. Cattle must "burb up" their food (water, hay and corn) about the size of a baseball and it is called a "cud". Cows and sheep may spend as many as 8 hours a day chewing their cud.

Dairy Cattle: Farmers raise dairy cows to provide us with milk, cheese, yogurt and ice cream. Milk and dairy foods provide protein, A,B and D Vitamins, calcium and phosphorous. In **cheese making**, milk is pasteurized and bacteria culture is added. **Beef Cattle:** Beef cattle are hardy and eat grains like corn and oats, but many eat hay and grasses. **Research** cattle's digestive system (ruminants with 4 compartment stomach). Beef is an important source of protein, iron, B Vitamins and zinc and "by products" such as medicines, chewing gum, floor wax, pet feeds and leather for shoes.

Grain Ingredients

Wheat is a grain crop and popular for the flour ground and used for pizza crust. Wheat is also a livestock feed. Some oat and rye grain are also used for flour. Corn and Soybeans are used for feed for livestock and for many products for humans (oils and other products used in making pizza).

Garden Ingredients

See-Pizza Garden Illustration (round in shape of a pizza): Consider establishing a pizza garden to grow ingredients for your "prize pizza". (Fresh ingredients are better for the health than processed.)