The Dust Bowl, an agricultural depression that occurred in the 1930s, added to the struggles of the Great Depression. Crops withered, and a long drought pushed people out of the country's breadbasket. People left the Great Plains and traveled to eastern cities or to the California coast.

A man digs out his farm from under the drifted sand. No grass or crops can be seen in this picture.

Image source: The Library of Congress

Why did the land suddenly dry up? What caused the giant Dust Bowl? Let's take a look at the science behind this social, environmental, and economic disaster.

A Dry, Dusty Spell

During the 1930s, the central part of the United States experienced a drastic water shortage. There were four distinct droughts: 1930-31, 1934, 1936, 1939-40. Combined with record high temperatures, these droughts meant there was not enough water to refill rivers and aquifers. Riverbanks receded, leading to dry basins. The Great Plains turned into a desert. Instead of using water sparingly, farmers continued to irrigate as needed, and most did not alter their planting schedules.

The Dust Bowl was characterized by massive dust storms that blew across the plains. Strong winds rose up from the Southwest, carrying dust across the open prairies. As the wind swept across the fields, the top layer of soil was blown away. This soil was the productive layer. It often contained seeds and small plantings. Many farmers lost money, both from the failure of crops that had already been planted and from the need to clean up after the storms. Farmers found that the soil was blown away down to the layer they had tilled the year before. The dust storms could last for days, and they left behind drifting sand dunes. In March 1934, the dust storms were so strong that they blew dirt to the Atlantic Coast. Various locations on the East Coast reported hazy skies from drifting dust.

Other massive dust storms were called "black blizzards," which were more like thunderstorms without rain. Caused by polar air masses descending into the continental air mass, they often arrived with thunder and lightning. The dust was carried high into the air, and it moved across the land like a tidal wave. Anyone caught out in a dust storm risked suffocating in the dust or becoming ill with dust pneumonia. When the storm hit a town, it left it half buried. Visibility went to zero in minutes. After a black blizzard, people had to shovel sand from around their houses and off the streets.

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Farming Methods

The sudden change in weather patterns greatly affected the farms of the Midwestern United States. However, even with these meteorological changes, farms may have been successful if farmers had not altered the land. When pioneers first settled the land, it was not barren and dusty. Long prairie grasses grew everywhere—even in times of drought. This was because the grasses had adapted to the harsh prairie climate. The tall grasses of the prairie, including bluestem grass, Indian grass, and switch grass, have deep roots that help keep water trapped in the soil. Roots of the bluestem grass can be more than seven feet deep. This depth protects the roots from the hot summer sun and frozen winters. The deep roots also help stabilize the soil and prevent erosion.

A dust storm blows into Baca County in Colorado in 1936. All daylight was blocked in these massive storms.

Image source: The Library of Congress

The grasses were fertilized by the droppings of wild animals, including buffalo, elk, and deer. Also, prairie dogs dug underground channels that brought oxygen into the soil and created water runoff below the surface. A balanced ecosystem was in place. However, farmers pulled the grasses to plant wheat, killed prairie dogs because they upset the fields, and hunted the buffalo and elk until they were only found in small herds. The land was stripped of its natural defenses and nutrients.

Farmers planted wheat as their main crop. Wheat did well in the long summers of the Midwest, but it was the only crop many farmers raised. Once the drought began, the loose soil began to blow away. Wheat roots averaged four feet in depth (rather than the native grasses' seven feet). Because farmers harvested the wheat at the end of its cycle, no soil was held in place over the winter. Instead of rotating crops to add nutrients back into the soil, wheat was planted season after season. Crop failure, even without the long drought, hot summers and high winds, was inevitable.

Bad Timing

The Dust Bowl was caused by a series of environmental events, including a decade of drought, overfarming, the stripping of the prairie grasses and the removal of the natural ecosystem. One catastrophe followed another, and farms could no longer be maintained.

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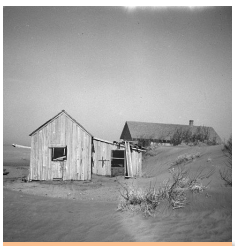
Those who had borrowed money to buy machinery for plowing the thick prairie grasses could not pay their debtors back. They abandoned their farms, leaving the land unplanted and dry.



This farm in Oklahoma was abandoned in 1936. Many farmers left their property in disrepair while they looked for a better life in the fertile California farmlands.

Image source: The Library of Congress

After the Soil Conservation Act was passed in 1935, the government began conducting soil investigations to develop new methods of farming. The government gave aid to farmers who switched to terraced farming and rotated crops. Terraced farms turn flat surfaces into sloped land, a technique that greatly minimizes how much water is lost to runoff. Irrigation was improved, and farmers began using a new source of water, the Ogallala Aquifer. An aquifer is a large reserve of fresh water. New wells allowed farmers to tap into this water supply. The government developed strategies to deal with any new natural environmental threats in an organized way.

The Dust Bowl was caused by a series of droughts, made worse by poor land-use practices. The Dust Bowl left a huge impact on the United States and caused many people to abandon their farms and the farming way of life. The misery of the Dust Bowl era serves as a reminder that nature will respond to the ways humans interact with it.

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After reading the passage, answer the following questions:

1. What causes black blizzards?
   - **A.** polar air masses
   - **B.** tornados
   - **C.** tropical air masses
   - **D.** volcanic ash clouds

2. How is the decline of the American buffalo linked to the development of the Dust Bowl in this passage?
   - **A.** Buffalo stampedes flattened the farm fields and kicked up dust.
   - **B.** Buffalo had helped fertilize the prairie grasses.
   - **C.** Buffalo ate all the long prairie grasses, causing the soil to become loose.
   - **D.** Buffalo dug water holes that allowed farmers to irrigate their crops.

3. Based on this passage, which area of the United States was least likely affected by the series of drought in the 1930s?
   - **A.** California
   - **B.** Colorado
   - **C.** Oklahoma
   - **D.** Washington, DC

4. Which factor do you think contributed most to the rise of the Dust Bowl? Use details and evidence from the passage to support your answer.