

Environmental Stressor Case Study

Think back to Myra, who is visiting a very poor village in Niger, Africa as part of a humanitarian mission. Remember, most of Niger lies in the Sahara Desert, and lack of rainfall makes it very difficult for the village to grow enough food to survive. Myra wants to find a variety of sorghum (a grain that can be eaten or fed to animals) that will thrive and bring it back to the village, allowing the village to increase their food and cattle production.

Myra gets in touch with a researcher at Virginia Tech who aims to develop a drought-tolerant variety of sorghum. The researcher decides to breed together sorghum plants that grow the best with limited water. Over many generations, she hopes to develop a variety of sorghum that thrives on very little water.

She also wants to identify any gene or genes that provide this drought resistance so they can be studied further and potentially used in other plants. Using your knowledge of biotechnology and DNA analysis, outline a plan of action that the researcher could use to identify these genes. Your plan should include clear, step-by-step instructions using techniques that you have learned about in this lesson.

Make a poster to showcase your plan. Your poster should include your **claim** (the techniques you think the researcher should use, and in what order), your **evidence** (information directly from your flowchart), and your **reasoning** (your explanation for your choices and why you arrived at your claim.)