

Cora Ravenkamp  
*Blocking the Wind*

Eastern Colorado is a bad place for newborn calves to be exposed out in the cold night of a blizzard unprotected. That's why the ranchers before us thought of windbreaks. Windbreaks have been used to keep the snow and wind from freezing the animals in the pastures and sometimes to also slow soil erosion and keep fruit crops warm. But which shape is the most effective in Eastern Colorado? That's what I wanted to know. So I designed a wind tunnel, made a few model windbreaks, and a grid system on a plywood board. Then I hooked up a tube and inserted a leaf blower and a 4-H cattle blower into the end of the tube. At the junction of the tube and the tunnel, I duct-taped a section of the tube and cut a slit so I could shove in flour, which was the model "snow", into the flow of the wind to simulate a blizzard. For each windbreak, I used two cups of flour and watched, recorded, and took pictures of the protection and efficiency of the windbreaks. After doing every shape, I calculated the protection area and divided it by the material area of the windbreak itself. After analyzing the results, I conclude that a half circle is the most efficient shape out of the four shapes I tested. This windbreak will protect the most area and also help the cattle stay happy and healthy.