Problem Solvers—
Fred Hoeme and Joseph Danne

1. Read and discuss the stories of Fred Hoeme and Joseph Danne. What were the problems the two men solved?
   —Students will compare and contrast in writing the approaches the two men took to the problems they were attempting to solve.
   —Discuss vocabulary words. Students will use contextual clues to guess the meaning and use dictionaries or the definitions included to find the actual meaning.
   —On an Oklahoma map, students will locate the homes of the two men. Students will identify and compare the vegetation zones in the two parts of the state.
2. Students will use an online search engine or library resources to research a topic of interest related to Fred Hoeme and Joseph Danne (Dust Bowl, Oklahoma inventors, wheat varieties, hybrids, etc.). Students will write short papers based on their research.
3. Students will work in groups and brainstorm to create a new agricultural product, tool or machine. Students will present their ideas in booklet form.
   —Cut a piece of plain white paper into a 12 x 12 inch square.
   —Fold, crease, and unfold the square on each diagonal.
   —Fold one corner to the center point (where diagonal crease lines cross) of the square, and crease the fold.
   —Continue folding the other three corners to the center, and crease the fold.
   —The paper should now be in the shape of a square, with open corners to the center.
   —With the square facing you on a desk or table top, print your name and the name of the object to be described on the top flap.
   —Write one adjective to describe your object on each of the other flaps.
   —On the inside of your booklet, in the square section, complete a descriptive summary about your product, tool or machine.
   —On the inside flaps complete an illustration from the entries in your summary.

Oklahoma Academic Standards

GRADE 3

Economics: 1,2,3.
Geography: 1E; 2B. History: 9,10

Speaking and Listening: R.1,2,3; W.1,2. Reading and Writing Process: R.2. Critical Reading and Writing: R.7; W.2. Vocabulary: R.1,3,5. Research: R.1,2,3,4; W.1,2,3

HIGH SCHOOL

Geography: 1,4. Oklahoma History: 4.6,7

Speaking and Listening: R.1,2,3; W.1,2. Critical Reading and Writing: W.2. Vocabulary: R.1,3,5. Research: R.1,2,3; W.1,2,3

Vocabulary

dirt clods— lumps of earth or clay
Dust Bowl— a period of severe dust storms that greatly damaged the ecology and agriculture of the US and Canadian prairies during the 1930s
erosion—a wearing away by the action of water, wind, or glacial ice
exposed—left without protection
formal education— education that is classroom-based, provided by trained teachers
geneticist—a person who specializes in genetics, a branch of biology that deals with the inherited traits and variation of organisms
Gregor Mendel— the founder of the modern science of genetics
hybrid— an offspring of parents with different genes especially when of different races, breeds, species, or genera
immigrant— a person who comes to a country to live there
inheritance—the act of receiving something by genetic transmission
matured— become fully developed or ripe
modified— made changes in
plowed— opened, broke up, or worked with a plow, a farm machine used to cut, lift, and turn over soil
prairie— a large area of level or rolling grassland
stabilize—prevent from easily changing or moving
surface crust—a hard surface layer

Reading Page

Fred Hoeme and Joseph Danne

FRED HOEME: THE CHISEL PLOW

Fred Hoeme was a farmer living near Hooker during the **Dust Bowl** who was concerned about wind **erosion**. Hoeme noticed that road equipment kicked up **dirt clods** that didn't blow around like the soil **plowed** using the usual plowing methods. He invented the chisel plow, which left the **residue** of previous crops **exposed**. This helped **stabilize** the soil and prevented the formation of **surface crusts**, which helped the soil take in and hold rainwater.

Hoeme and his sons manufactured and sold about 2,000 plows from their farmstead. In 1938 W.T. Graham bought the rights to make and sell the plows. Graham **modified** the plow and advertised it as the Graham-Hoeme Plow, the "Plow to Save the Plains." It was sold worldwide. By the 1950s, about half of all Great Plain farmers owned chisel plows. The widespread use helped control wind erosion during the seven-year **drought** of the 50s. In 2000 a plaque was installed in Hoeme's honor at the Williams Homesteaders Park in Hooker.

JOSEPH DANNE: WHEAT FOR OKLAHOMA

Joseph Danne was a self-taught plant **geneticist** who developed a variety of wheat well-suited to Oklahoma and the Southern Plains. The son of German **immigrant** parents, Danne moved to Kingfisher County in 1893. He received eight years of **formal education** before purchasing a farm in Beckham County at age 23. He studied the **inheritance** laws of **Gregor Mendel** and conducted genetic research, combining different **strains** of wheat to create new genetic **hybrids**.

The result was Triumph Wheat, a 13-year research project conducted between Sweetwater and Sayre in Beckham County. In 1924 and 1925 he combined two locally-grown selections from Turkey wheat with a lesser- known white wheat type from Australia. This produced a rare hybrid uniquely adapted to Oklahoma's growing conditions. It had shorter and stronger straw to withstand **prairie** winds and it **matured** early enough to escape Oklahoma's hot summers. It also had **milling** and baking characteristics that were favored by the milling and baking industries. Triumph was released in 1940 . It was the first widely-grown wheat born in, and bred for, the Southern Great Plains.

Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.