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Dairies Test New Fans For Cooling Cows

Many dairies in California use fans to help control the comfort levels for cows during hot summer months to avoid a decrease in milk production due to heat stress. The typical dairy utilizes up to 200 conventional 0.5-hp fans. Finding more efficient fans will save energy, lower dairy costs, and increase profits.

Southern California Edison (SCE) engineers are evaluating

a new high-volume, low-speed (HVLS) fan to learn how well these fans work when compared with conventional agricultural ventilation fans. Resembling a home ceiling fan, but with blades 20 feet in diameter, it rotates at a slower speed of 50 revolutions per minute (rpm), while moving a large volume of air. The HVLS fan uses only 400 Watts of energy, which is equivalent to the energy used by a conventional ventilation agricultural fan with 3-foot-long blades rotating at 800 rpm.

The HVLS fans were installed at two dairies near Tulare in the San Joaquin Valley. Testing started in the summer of 2000 and will continue through the summer of 2001. One dairy has eight thermostatically-



HVLS fans in 1200-foot-long free-stall facility

controlled HVLS fans installed in half of a 1200-foot-long free-stall facility. These fans have special 24-foot-long blades and 1-hp motors. The eight HVLS fans replaced 52 conventional fans.

The second dairy has three HVLS fans installed in the milking barn, placed above the milking, holding, and washing areas. These fans have 20-foot-long blades and 0.5-hp motors. The three HVLS fans replaced 16 conventional fans. The fans are manually-controlled by the dairy workers.

