Sweating rates from live Holstein cows were measured using a closed chamber VapoMeter, and a portable calorimeter. Measurements were made when cows were in shade and exposed to direct sunlight under different air velocities. The effect of color of hair coat on sweating rate was compared. Comparisons of different sweat rate measuring systems were also compared. The sweating rate at zero air velocity using the VapoMeter was 62 g/h-m, and the sweating rates at 0.2 and 1.0 m/s measured using the portable calorimeter were 238 g/h-m and 333 g/h-m, respectively when ambient temperature was 33°C, relative humidity was 52% and solar load was 740 W/m².
Dairy cows will adjust by seeking shade, increasing respiration rate and dilation of the blood vessels. The effect on milk production will be minimal. 80 – 89 Moderate. – Sweating and panting. Two Ways to Reduce Heat Stress. • Provide cooler environment. – Reduce direct solar radiation (shades) – Decrease cow density – Cool the air (mist systems) – Create air movement (draw out hot air). • Cool the cow. – Soak the cow (sprinklers) and dry the cow – Maximize the number of wet-dry cycles/hour. Where can we cool cows? • Holding pens • Feeding areas • Freestall barns • Shades. environmental distress (particularly thermal stress) around the time of infection. The development of integrated production systems in which the understanding of inter-actions among husbandry practices, facilities, disease control and environmental factors is applied in complementary ways. Chapter 9 also discusses the relationship of weather and animal diseases. Active cooperation among professional services (meteorologists, engineers, veterinarians, nutritionists, and so on), advisory services and farmers is required to successfully include these factors as a basis for strategic and operati

Shades Providing shade in housing areas and the holding pen is the second step. Cows housed in drylot or pasture situations should be provided with solid shade. The holding pen is where dairy cows experience the most heat stress. Arizona researchers (Wiersma and Armstrong 1983) concluded that when cows were cooled in the holding pen, milk production increased 1.7 pounds per day during the summer. Low-volume sprinklers and fans can be used to wet cows and speed evaporation of the water off the cows backs. The nozzles are turned on and off with an electric eye or wand switch as the cow passes under the nozzles. If properly installed, sprinkler should wet the top and sides of the cow, the udder will remain dry, the water will not interfere with post-dipping.