Cattle Cooling Case Study

Senninger® i-Wob®

Senninger i-Wob®

Low-angle 9-groove

LOCATION:
Caprock Dairy- Muleshoe, TX

INSTALLATION:
2007

DESCRIPTION:
Reduce heat stress in milking cows
to increase production

Senninger®
Irrigation Inc.

i-Wob®

Pen Capacity:100 cows

Units: 20

Product: i-Wob LA9

Nozzle: #20 5/16 in. (7.94mm)

Pressure: 10 psi (0.69 bar)

Spacing: 10 ft. (3.1m) single row

Application:
Water cycles on and off allowing for evaporative cooling. Fans increase evaporation rate

The drop in milk production in the summer causes significant economic losses in the dairy industry. That decrease in production is brought on by heat stress, and studies have documented that cooling lactating cows increases their milk production. Heat stress to cattle is brought on by solar radiation, high air temperatures and high relative humidity. This is further aggravated by heat production from the cow's own body. Generally, the more milk a cow produces, the more heat her body produces from digestion and metabolism. Cattle respond to heat stress by panting and sweating. If these do not alleviate the heat load, the body temperature will rise, which in turn will reduce feed intake, increase the maintenance requirement and decrease fertility, immune system function, growth, milk production and productive ability. Sprinkling the cow with water to fully wet her body and using fans to evaporate the water cools her and encourages her to take in more feed and produce more milk.

i-Wob® FEATURES:

Unique off-center rotary-action for an extremely uniform distribution pattern and a low instantaneous application rate

Resistance to the abrasive wear common to harsh land treatment environments – the moving parts are protected from abrasion by an extremely resilient wear-sleeve which cushions contact surfaces

Installation

Senninger i-Wobs are installed over the holding pen. They are set to cycle on and off to apply the water intermittently allowing for evaporative cooling. Natural air movement or the use of fans increases the evaporation rate.

Implications

Due to the unique off-center rotary design, the i-Wobs deliver water in a gentle rain-like manner uniformly over the entire pen. They are designed for low pressure operation which saves energy. The i-Wob has three deflector geometries based on the desired droplet size and trajectory. The unique design of the i-Wob provides relatively uniform-sized droplets that are adequate in size to resist wind distortion from the cooling fans. The i-Wob is designed for flexible drop installations.

Senninger®
Irrigation Inc.
16220 E. Highway 50, Clermont, FL 34711 U.S.A
407-877-5655
www.senninger.com