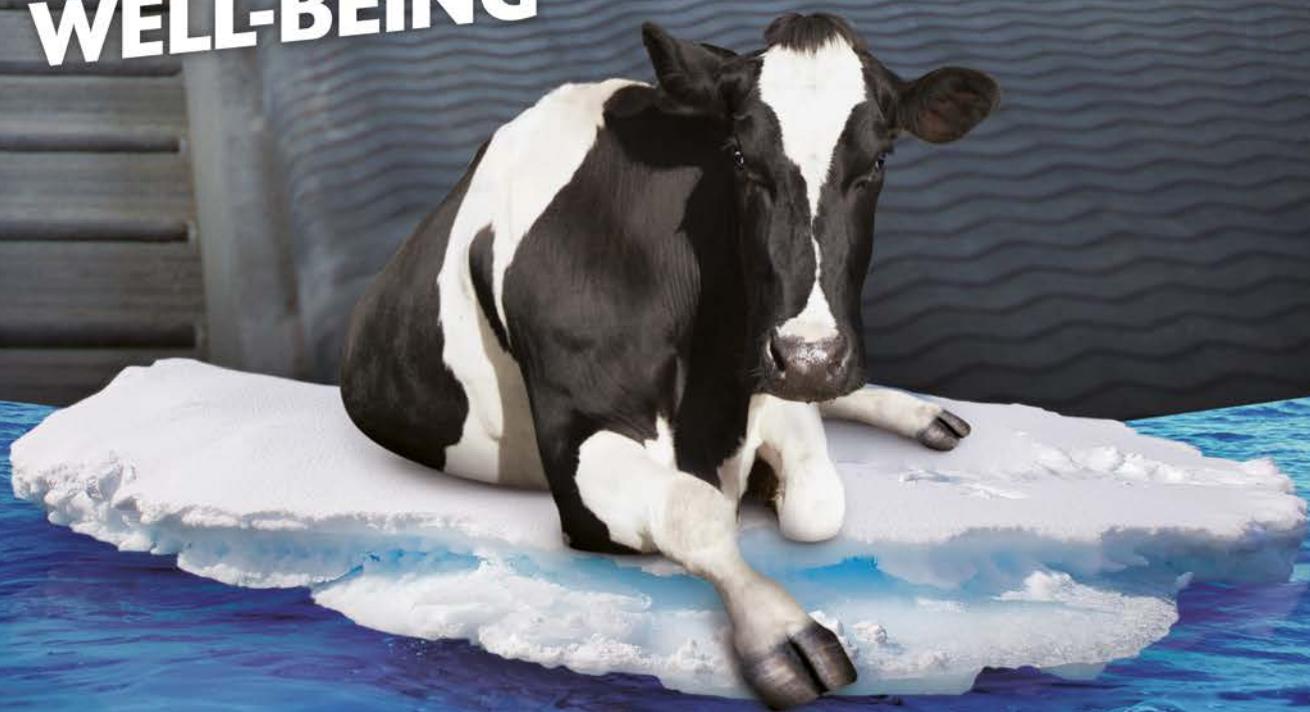


AQUACLIM[®]

ZOOTHERMAL[®] WATER MATTRESS

COOLING &
WELL-BEING



Bioret agri
★★★★★ Comfort solution provider

ZOOTHERMAL SCIENCE

Understanding heat exchange in cattle to improve their productivity.

Confined dairy cows are too hot !

Insulated flooring, enclosed environment, continuous presence of waste, heat stress is severely understated by dairy producers worldwide.

Heat stress in dairy cows? What is it?

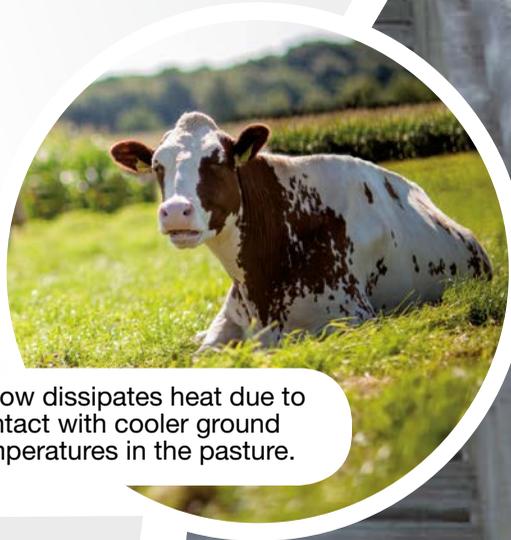


Let's start with a bit of zootechnic: cow digestion, activated by the rumen's microflora, emits a huge amount of inevitable heat. Moreover, the metabolism of cows whether in lactation or not, naturally generates internal heat. This is why a cow, even while resting, has to regulate its internal temperature and dissipate heat. During periods of heat stress (even mild and difficult to detect), production performance declines as does the dairyman's revenue.

The cow and the thermometer*

Temp.	Hum.	Physical condition	Impact / milk
34°C	85%	Severe stress	untested
30°C	75%	Advanced stress	- 3,9 kg/day (-8,6lbs)
25°C	50%	Moderate stress	- 2,7 kg/day (-6lbs)
22°C	50%	Mild stress	- 1,1 kg/day (-2,4lbs)
10-18°C	20-50%	Comfort Temperature	none

*Study results available upon request from Bioret Agri



A cow dissipates heat due to contact with cooler ground temperatures in the pasture.

Zoothermal® Water mattresses

by Bioret Agri

AQUASTAR®

Continuous roll water mattresses with a dedicated full water pouch for each cow. The laying position comfort is improved as is the zoothermic regulation in moderately hot and humid regions (oceanic climates for example).

AQUA BOARD®

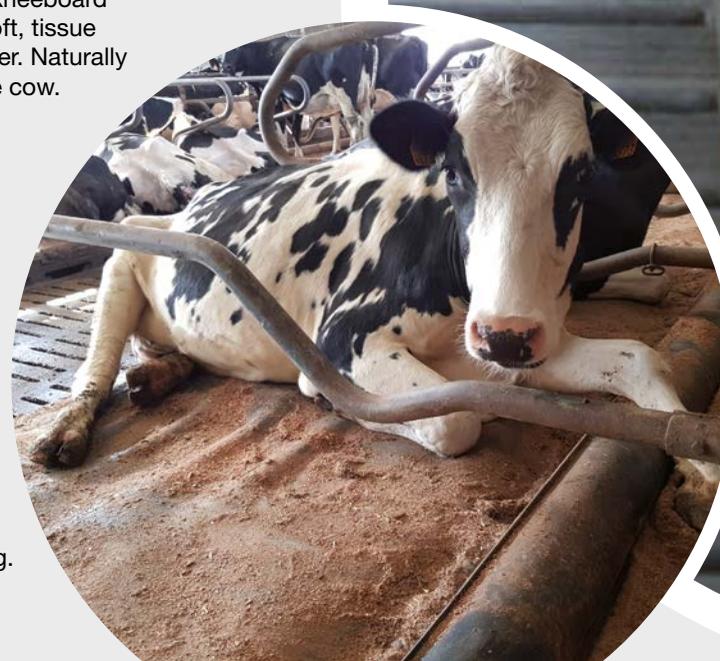
Water filled kneeboard creating a soft, tissue friendly barrier. Naturally positions the cow.

AQUACLIM®

Free stall mattresses which recirculate cooled water using a cooling system. It provides maximum laying comfort and zoothermic heat regulation in even the most severe climatic conditions and/or for dairy cattle with very high production potential.

AQUACLIM® Thermodynamic

Free stall mattresses which recirculate cooled water using a heat pump concept allowing heat recovery for on-farm applications. Cow comfort is improved as is zootechnic performance. Energy recovered from the cows can be captured to heat water, heat the environment and create an eco energy system available all year long.



AQUACLIM®

ZOOTHERMAL® WATER MATTRESS

COOLING & WELL-BEING



Improved blood circulation



Longer ruminating time = increased and more complete digestion of the feed's nutrients



Cyclic laying times increased by 15 - 20%

Improve heat dissipation, reduce stress, increase production.

1

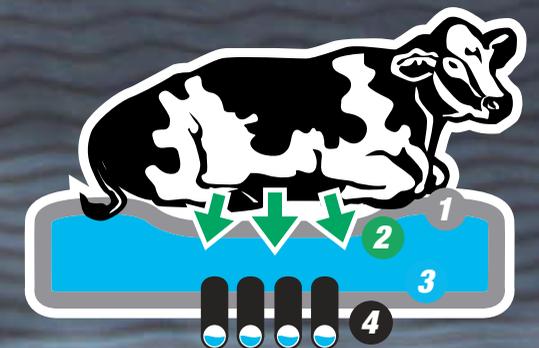
Better support of the weight : the water pouch provides an equal support on the entire contact surface. Blood circulation is optimized especially near the udder.

2

Capture heat : Heat transfer via conduction is reckoned as the most efficient method.

3

Dissipating heat : thermal balance established between cow and water provides a lasting cooling effect



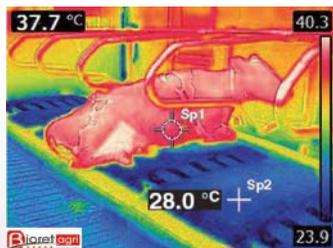
4

Energy valuation : heat extracted from the animal becomes available Eco-energy.

QUACLIM®

“ BOOST YOUR PRODUCTION ”

ASK FOR A PERSONALIZED STUDY FOR YOUR DAIRY FARM



ZOOTHERMAL® SCIENCE

Technology resulting from years of research performed by Bioret Agri R&D and its partners as well as French engineering firms and universities specializing in thermal transfer modeling.

A huge thanks to our partner dairy producers who contributed to the development of this response to a vital physiological need of the dairy cow.

Scientifically calculated benefits:

OHIO STATE UNIVERSITY Agricultural Technical Institute

+ 2 kg (+ 4,4 lbs) / day over 14 weeks for cows benefitting from a cooling solution.
(240 dairy cows studied)

CORNELL UNIVERSITY (NEW YORK)

Production/cow/day for cows laying on uncooled beddings : 31.2 kg/day (68.6 lbs.).

Production/cow/day for cows laying on a cooling solution : 34.9 kg/day or **+ 3,7 kg / day** (+ 8.1 lbs./day)

UNIVERSITY OF FLORIDA Department of Animal Science

A study shows the proven impact of cooling pregnant cows:

- on milk production after calving
- on the preservation of the genetic capital of the fetus that will be a future producer.

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