



## The Italian web site for the forecast of bioclimatic index THI about the dairy cattle

M. C. Beltrano (1), S. Esposito (1), R. Scano (1), A. Vitali (1), and V. Primi (2)

(1) CRA - Research Unit for Climatology and Agrometeorology, ROME, Italy (mariacarmen.beltrano@entecra.it, +39 06 69531215), (2) University of Tuscia, Department of Animal Production, Viterbo, Italy

The meteorological variability and climate change, often accompanied by an increasing spread and intensification of extreme events, suggest an even greater use of agro meteorological applications to sustain agricultural and livestock activities.

About warm extreme events, in Italy in the last decade an increase of heat waves was observed, characterized by temperature above certain threshold values and persistence for several days or weeks. In the same last period also the average length of each heat wave event increased about of ten-fifteen (10-15) days.

Particularly during summer months, for livestock species, are more frequent situations of heat stress associated with heat waves.

In order to support the farmer in business management during the summer, the unit research for agricultural climatology and meteorology of the Agricultural Research Council (CRA-CMA), developed the Heat Warning System (SAC), a technical tool spread by internet, with the aim of guide the farmers in planning strategies to mitigate the effects of heat on health and on the performance of livestock.

Until now, the farmer had access to generic forecast of temperature and humidity, now, by accessing the website <http://www.cra-cma.it/sac/>, accesses alert bioclimatic bulletins and specific technical information.

The SAC is an innovative product on the national scene, based on a heat warning system built specially for the dairy cow. This system forecasts the THI-Temperature Humidity Index, that combine the simultaneous effects of both temperature and relative humidity and is commonly used to quantify the degree of heat stress.

The system provide six days forecast Italian maps of THI (day and night time) where are reported four hazard level to alert negative effects on production and welfare in dairy cows.

From the home page it is possible to open warning forecast pages for productivity or for mortality risks and to display the forecast maps related to the following six days.

Every day are shown the weekly forecasts of THI day and night. The data are displayed directly on a map coloured. Depending on the degree of risk, the map can take 4 different colours, green for zero risk, minimal risk for yellow, orange for alert and red for emergency.

Each map is accompanied by a legend which lists, for each category of risk, physiological and preventive measures to limit the negative effects of heat stress.

Moreover, an interactive system that allows each farmer to obtain specific advices, inputting data on their herd, to plan appropriate management adaptations strategies.

For example, in the section "THI calculates your barn", the SAC can calculate the value of THI indoor, entering the values of temperature and relative humidity of the barn, the system processes the value indicating the risk category. In this way it is possible to compare the values of THI exterior, with those real on the animals in the stable.

This alert system represents a valuable support to help farm managers in deciding the application of mitigation measures, which may ensure productions and welfare in livestock.