

# Hotline to the cowshed

September 8 2008

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A wireless measuring system, consisting of sensors and transmission units, helps to keep livestock healthier with a minimum use of resources.

Gone are the good old days when farmers knew all their cows by name. There is little time left for the animals in today's dairy industry. And it is easy to overlook the first signs of disease. This situation can now be remedied by a tiny sensor in the cow's rumen, which monitors the animal's state of health and raises the alarm in good time. The system determines the pH level and the temperature inside the cow's rumen.

The data are wirelessly transmitted to an external receiver module in the animal's collar via an encapsulated measuring probe. A network of sensors forwards the signals to a central database. The farmer immediately receives a warning if the readings are above or below a reference value. At present, the pH level in the rumen can only be measured via pharyngeal probes.

Scientists from the Fraunhofer Institute for Microelectronic Circuits and Systems IMS in Duisburg have developed the new system, which they can also adapt to numerous other applications in agriculture and forestry. The network nodes contain all of the components needed for connecting sensors and actuators. Radio modules of this kind have a long service life due to their low energy consumption. They are capable of autonomous networking, and do not require supervision or a special infrastructure.

The system is a joint development by partners in Germany and the Netherlands. The cross-border project is co-financed by the EU program

INTERREG IIIA in the Rhine-Waal region, the Ministry of Economic Affairs and Energy of the State of North Rhine-Westphalia, and the Gelderland province. The new measuring system is slated to go into service as of mid-2008, and will be tested on pilot farms run by the Lower Rhine Chamber of Agriculture and in other research establishments.

Source: Fraunhofer-Gesellschaft

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