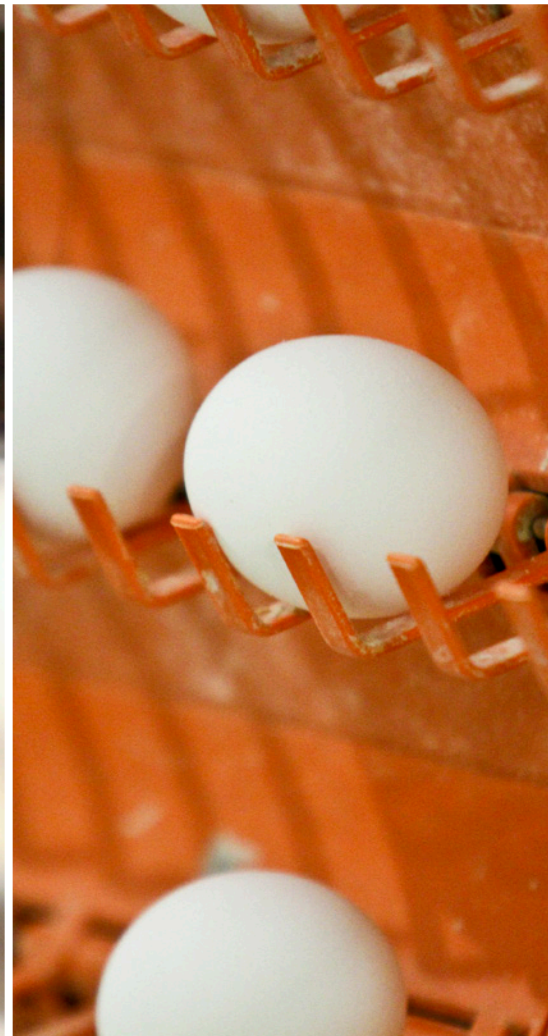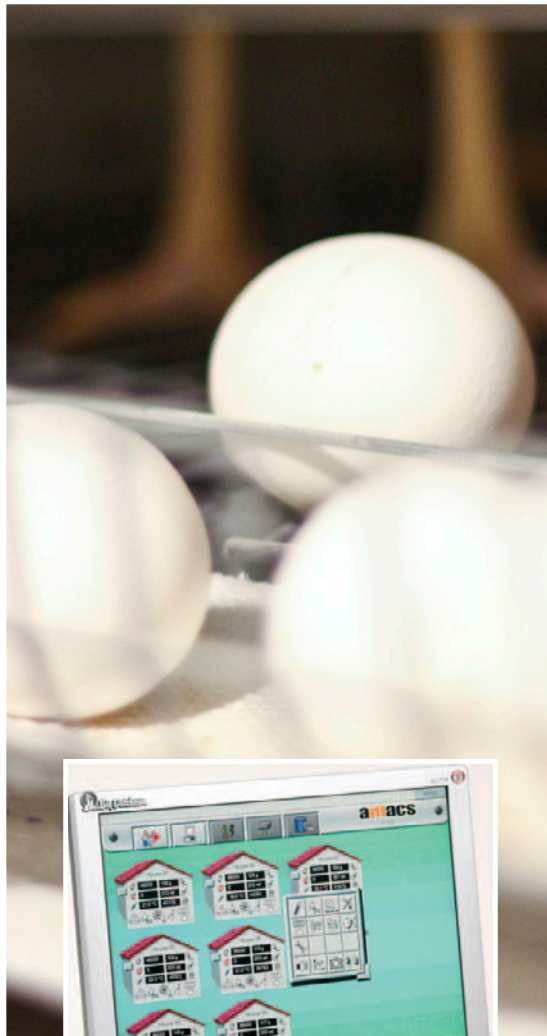# Big Dutchman

amacs

The Agro Management and Control System
for modern egg production

AMACS – THE "AGRO MANAGEMENT AND CONTROL SYSTEM" FOR PERMANENT DATA ACQUISITION, AND REAL-TIME CONTROL AND MONITORING OF EGG PRODUCTION.

amacs is a completely new generation of management and control system for modern egg production. Its software is based on the latest internet technology, has a modular design, can be used for both large and small houses, and can be adapted to the individual situation while allowing you to expanded at any time.

amacs allows for permanent data acquisition, real-time control and monitoring of traditional and alternative layer houses, or entire farm complexes, all from any location in the world with internet connection.

amacs allows for customized visualization and graphical display of all data and results, as well as transmission of live pictures directly from the production area. Receive alarm messages via e-mail or text messages to a mobile phone, computer or both.

TRANSPARENT HOUSE = TRANSPARENT PRODUCTION – NO PROBLEM THANKS TO AMACS

amacs controls and monitors all layer houses on a farm. Depending on the specific requirements, up to four functional areas (climate, production, egg collection, and manure drying) can be monitored and controlled.

With flexibility in the fields of data acquisition, transfer options, visualization and tabular or graphical data analysis, **amacs** sets the standard for computer controlled agro management systems.

Use of network technologies and leading edge communications technologies

House bus   Base unit   Farm network (Ethernet)

Farm controller
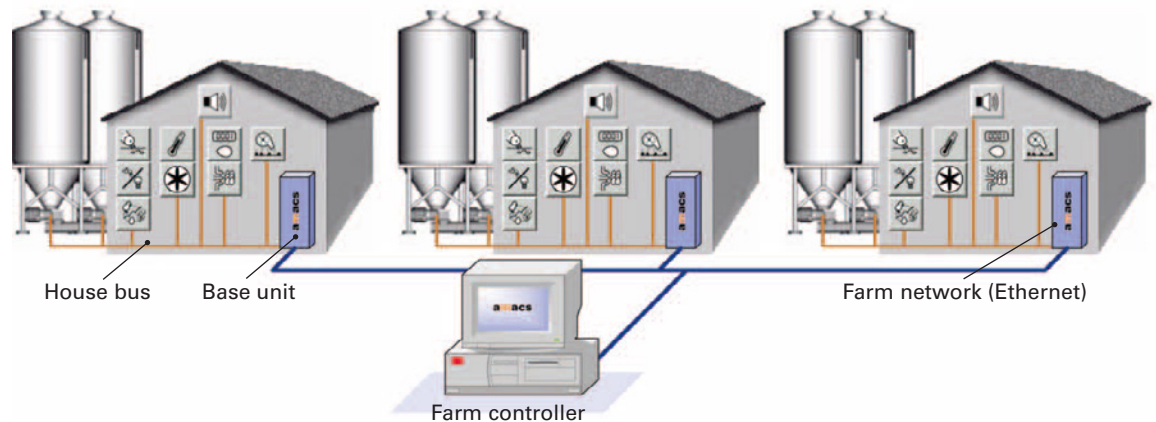
AMACS – A MANAGEMENT SYSTEM CONSISTING OF EXTENDABLE HARDWARE AND SOFTWARE COMPONENTS

The hardware used for each house consists of one base unit, and up to four different intelligent modules which can be used in any number. These modules use a house bus to communicate with each other and can be installed at any location throughout the house. Depending on the house size and the functional range, the modules are located in one or more custom-built switch cabinets.

In addition to connections for house bus and farm network, the base unit also has additional connections for an optional 6.4" color touch-screen for on-site operation. The individual base units are in permanent contact with the farm controller. From there, all data can be accessed from the PC in the farmer's office over modem via telephone or internet. The data is password-protected and encoded.

House bus

Ethernet

Base unit   4 intelligent modules   Switch cabinet with display integrated in door   Farm controller
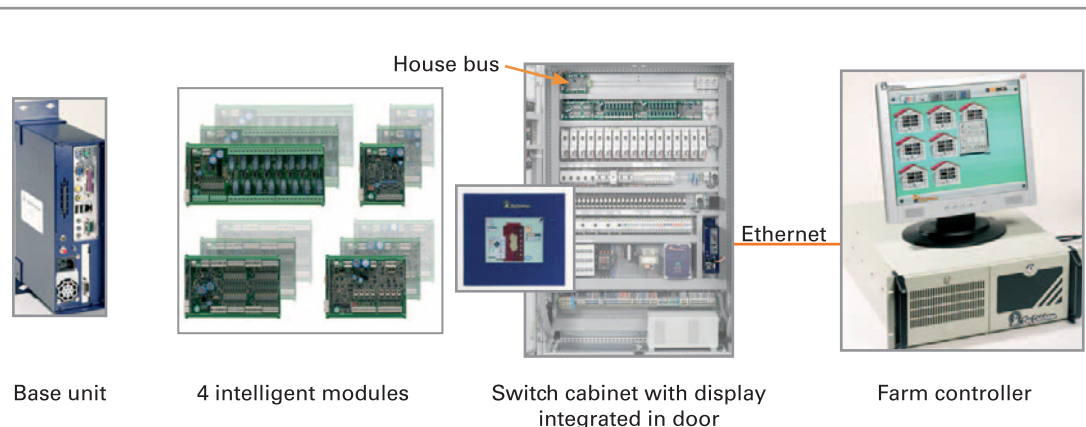
IMPORTANT ADVANTAGES AT A GLANCE

- Real-time monitoring and control of the houses allows any changes made at the farm controller to take effect right away
- Central data storage and analysis per bird provides comparison with reference data stored in the system
- Continuous visualization of house data on your farm controller
- High degree of flexibility thanks to different inter- faces for analysis of individual operational results
- Password-protected remote access to data and settings via ISDN or DSL/internet
- Reliable Linux-based system with self-sufficient control inside the building (if modern glass fibre network technology is used)
- Malfunctions caused by over voltage can be avoided
- Alarm system via e-mail
- Integrated log and report system
- Use of a network web cam for direct photo transmission from the house (optional)
- Change of language by one simple click

## SOFTWARE: AMACS STARTS WITH A DISPLAY OF ALL CONNECTED HOUSES

The illustration above shows a water supply alarm in house 06.

The start page of the farm controller shows all houses which are to be controlled. Via the status symbols displayed in each house or the function keys shown, the individual areas, such as climate or feeding, can be accessed.

Adjustment and control of the entire house climate

Adjustment and control of feeding and feed weighing

Settings for manure drying and control of air mixer

Adjustment and control of water and light program

Registration of laid eggs and laying performance

Total egg collection and egg flow control

Production and livestock management, calculation of production data and bird weighing

Freely usable timers

Display and listing of current alarm messages

Diagrammatic visualization of different data

Current picture from the house transmitted from a network camera

Current system status

FUNCTIONAL AREA CLIMATE WITH CUSTOMIZED ILLUSTRATION OF YOUR HOUSE
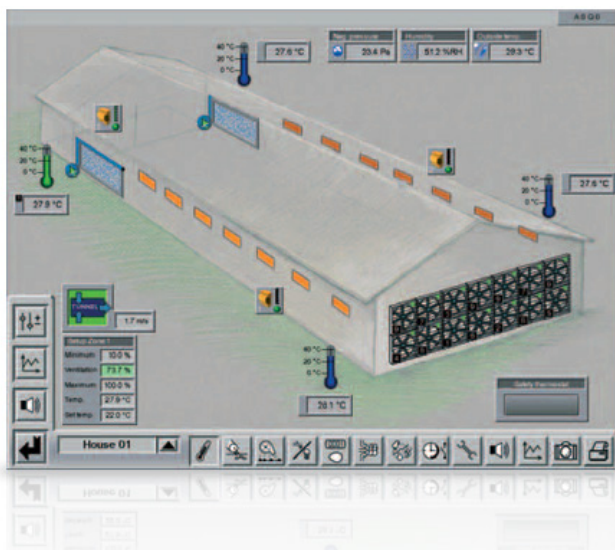
The functional area climate includes temperature regulation over supply and exhaust air, as well as heating and cooling. By means of sensors which measure the outside and inside temperatures as well as the air humidity amacs determines the degree of ventilation needed. All traditional ventilation systems – from cross ventilation to tunnel ventilation – can be controlled. Optimum climate conditions are an important condition for high laying performance. For this reason, it may be important to have a cooling system working on hot summer days. amacs controls the particular system – pad cooling or Fogging Cooler – not only based on temperature but also taking into account the current air humidity. It is also possible to connect additional sensors for pollution gases such as CO_2 or NH_3
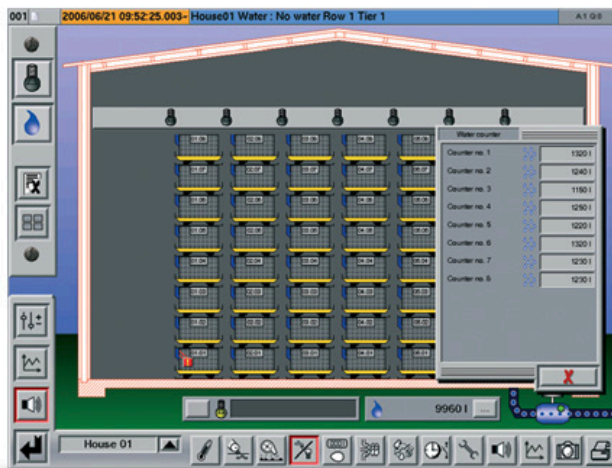
FUNCTIONAL AREA PRODUCTION – FEEDING MANAGEMENT

The comprehensive functional area production comprises the entire feeding management, including feed weighing and feed logging. Light control, water consumption and water alarms, as well as livestock management are also part of this functional area. Supplying feed according to the age and the laying performance is a decisive factor to cut down feed costs, and **amacs** gives you to the control you need to mange feed consumption per tier, per bird and per day at any time.

The freely-programmable feeding manager allows control of feed intake either automatically or manually. Feed consumption can be determined by an electronic feed scale or bin weighing.

Bin weighing also allows control of feed deliveries made by the feed supplier. The system displays whether the respective bin is cleared for filling, or if filling is not permitted. All feed deliveries are recognized and saved by **amacs**.

WATER SUPPLY AND LIGHT CONTROL

Maximize laying performance with optimum water supply. Up to 12 electronic water meters per house can be used to record the total water consumption in liter or in ml/day and per hen. The water consumption is controlled by a timer, and water consumption can be determined by per tier or row.

When insufficient water supply is detected **amacs** will be immediately let you know. The red symbol shown in the illustration above indicates the location where water level in the ventilation tubes of the nipple drinkers is not reaching the set value. The red frame around the function key indicates current problems of the water supply. Additionally, a text message showing the row and the tier in which the alarm took place appears above the picture.
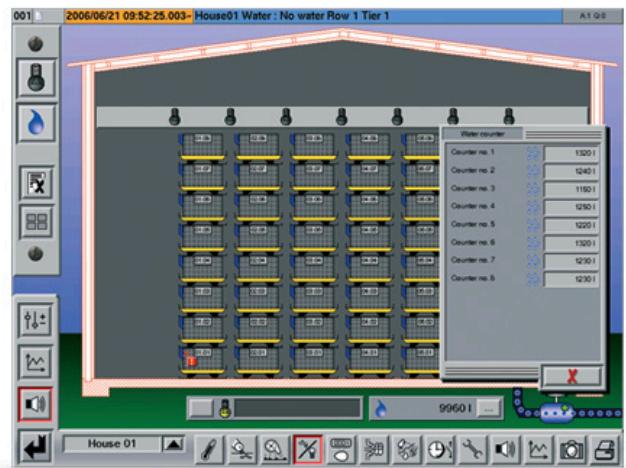
Create the ideal environment for high performance egg laying, egg quality, and feed conversions with the proper lighting schedule. A freely programmable timer, dimmer function and sunrise/sunset simulation allow for any type of lighting program. A light sensor allows for active (real) light control. Another advantage is the so called control light. That means the level of illumination is increased for a defined amount of time for the daily inspection walk and automatically decreased subsequently.

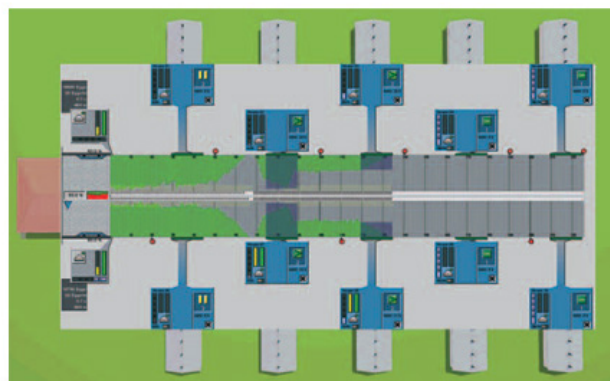The illustration above shows the light is dimmed by hand.
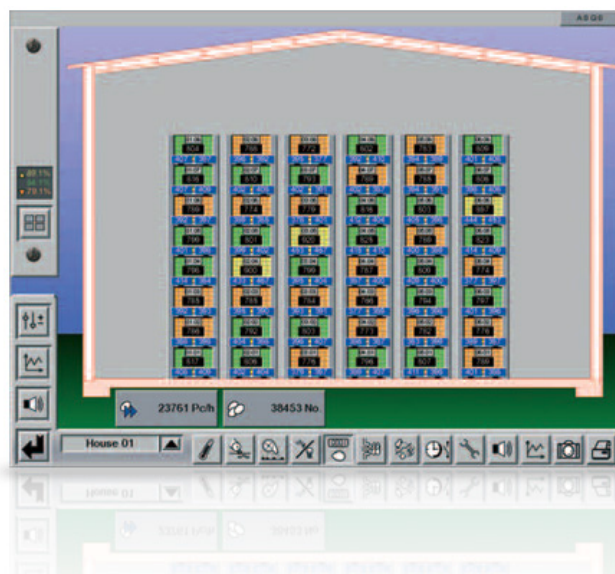
Laying performance is recorded automatically with the use of an egg counter, recording and storing the data in a data base that can be pulled and used for production logs and diagrams.

A comparison to reference data, which are stored in the system according to breed and age of the birds, immediately shows whether the laying performance is within the target range or not. With the standard program egg optimization, a simple longitudinal egg belt control can be activated with which a fixed number of eggs may be collected in each house per hour.

In the house diagram at left, you can immediately see how many eggs are produced at which location. The system also monitors and indicates through color markings whether the target egg numbers are met or not.

DIGITAL EGGFLOW – OPTIMIZED EGG FLOW CONTROL TO THE PACKER

If the amacs extension "packer optimization"* is installed, the egg belt speed can be controlled house-spanning adjusted to the number of eggs. This allows for an optimum utilization of connected sorting machines and packers. An insufficient utilisation rate is often caused by:

- Waiting times at the start of the collection

- Manual start of individual houses

- Constant readjustments of the longitudinal egg belt speed

- Empty running of belts with low filling rate

The Digital EggFlow addresses common problems with the following benefits:

- Belts are automatically started in the morning and the egg flow stops directly at the packer

- Creation of up to 15 freely definable collection groups that can be changed daily

- The egg collection in all houses that belong to the same collection group is finished at the same time, and at the maximum possible filling rate

- The eggs of the next collection group are subsequently transported to the cross belt

- Automatic stop of the cross belt when a new collection group arrives at the packer

- When two cross belts are used, the eggs can be collected from both belts simultaneously or separately

STEPLESS CROSS BELT CONTROL

As an option, Big Dutchman offers a stepless cross belt control. Egg congestions caused when too many eggs join the egg stream at the same time at the transfer from the cross belt to the packer are detected by an egg pressure sensor. The speed of the longitudinal and cross belts is immediately and automatically reduced if a frequency converter is connected.

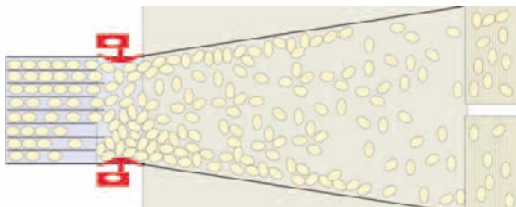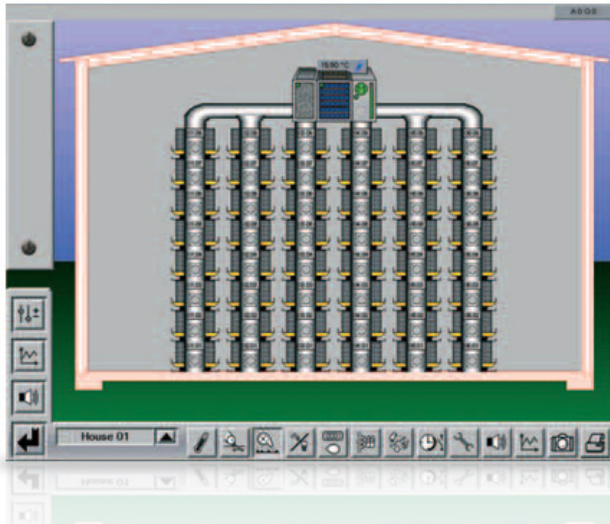Digital EggFlow received the World Poultry Award 2006

*Patent pending

## FUNCTIONAL AREA MANURE DRYING – FRESH AIR, LITTLE NH3 EMISSIONS

Air mixers, heat exchangers or radial fans are regulated on the basis of outside temperature and manure drying temperature, guaranteeing reliable and even manure drying.

With **amacs** you control any connected automatic filters, and up to 8 air mixers per house manually over the PC surface.

The picture at left shows a cage system with an air mixer in the front gable.

ALARM MESSAGES AND MESSAGE STATISTICS
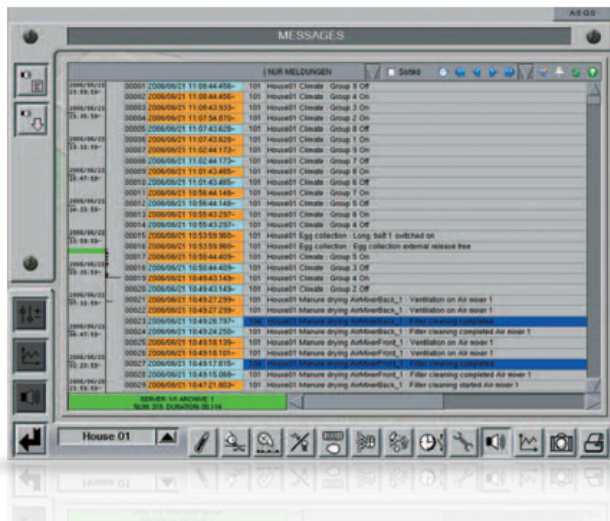
Customize amacs to notify you of events such as a power failure, deviations in temperature, water and feed consumption, as well as minimum stock in the silo, and more. Through email and/or texting, amacs gives you the ability to micro manage your houses where ever you are.

A chronological alarm statistic allows you to detect and trace back frequent disturbances, and the use of special event filters, you can select specific events to manage, such as production problems or climate alarms. The alarm statistics can also serve as a farm logbook.

REMOTE-ACCESS TO DATA AND SETTINGS OVER ISDN OR INTERNET

Through remote access through ISDN or the internet, you can keep an eye on your farm at any time, and any where. For those time when you need direct assistance, **amacs** specialists can simply access your Farm Controller and are able to help you right away.


ISDN

WWW
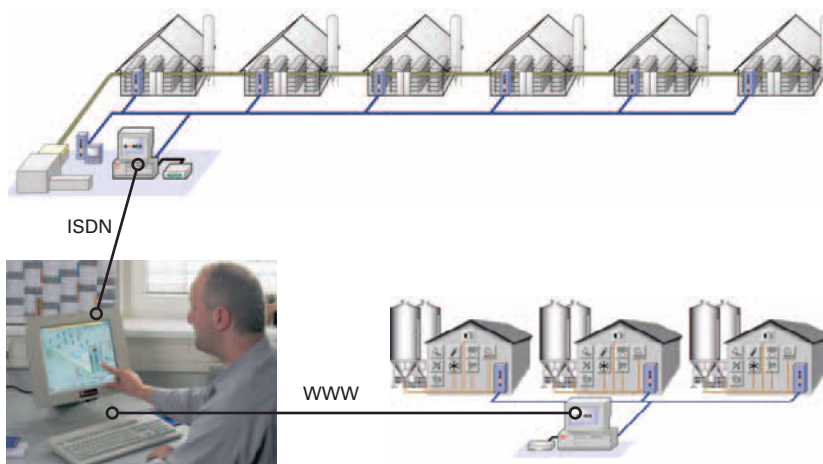
Let amacs help you to stay informed with precise and immediate production information, giving you a faster and more accurate response, while maximizing results.

ANALYSIS AND VISUALIZATION OF ALL HOUSE AND PRODUCTION DATA
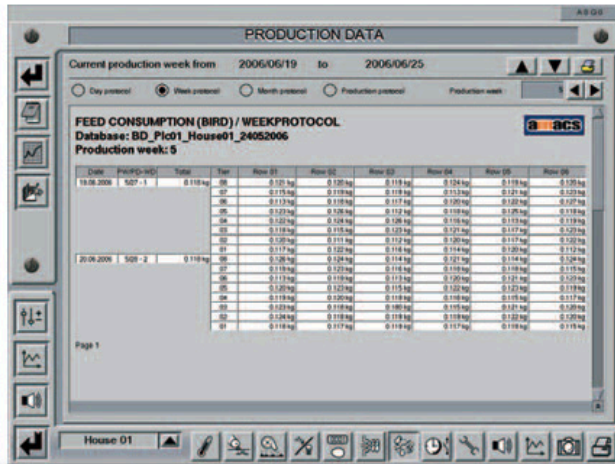
IF INFORMATION IS VITAL FOR YOUR SUCCESS, THEN YOU CAN RELY ON AMACS.

With amacs you have all the information you need at your finger tips, allowing you to access it easily and rapidly whenever you want it.
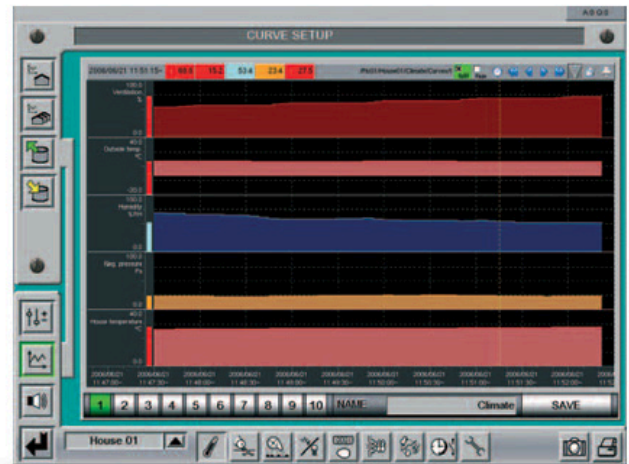
Feed conversion, laying performance, mortality, bird weighing, operating hours of the fans or the entire climate control system can be visualized in graphs and tables. All data can be freely combined and visualized on the screen by simple drag & drop.

FARM-SPECIFIC EVALUATIONS WITH BD-COPY FOR WINDOWS

BD-Copy is a data base conversion program developed by Big Dutchman which allows you to easily import your amacs data into all traditional Microsoft Office applications, such as Excel or Access, allowing you to create customized evaluations and diagrams. You can also activate an automatic download of farm data at a freely definable time. If you require assistance regarding the house or farm-spanning evaluations of your data, Big Dutchman will be happy to assist you in setting up everything according to your requirements (optional).
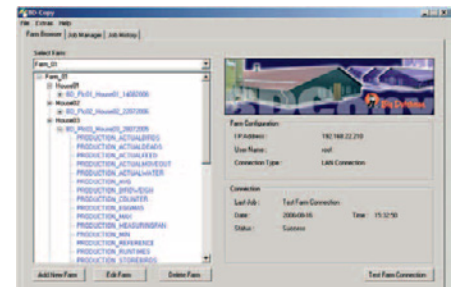
USE OF A NETWORK CAMERA FOR TRANSMISSION OF PICTURES DIRECTLY FROM THE HOUSE

The use of an in-house network camera allows the transmission of live-pictures from the house to the Farm Controller, using the Ethernet, or directly to the PC in your office, using a browser. Thus you can keep track of everything that happens inside the houses also on a visual basis.

The remote-controlled camera is placed in a fracture-proof casing made of Plexiglas, mounted to the wall or to the ceiling, and transmits pictures onto the Farm Controller or onto your PC.

Details are subject to change: 12/14

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