H13 – Time-controlled feeding (Big Dutchman)

Sensor for feeding time control, mounted in the trough. Check sensors at valves with 0-values.

The system

The system automatically adjusts the feed quantity up or down based on how quickly the pigs eat (measured in seconds) at each valve.

Daily routines

1. Place the pigs at the current weight without reduction. If you observe large quantities of leftovers in the troughs during the first days, the valves can be reduced manually.
2. Check how much the pigs have eaten as a percentage of the curve's daily ration over the past 14 days (Valve Efficiency). Check and note valves with minimum or maximum consumption.
3. Check actual feeding time for 0-values. Check valves with 0-values for skips or possible sensor errors.

Be aware of

The system adjusts feed based on many interrelated parameters. Changing just one parameter affects all others and thus how the system adjusts. This includes feed curves, number of daily feedings, interval between feedings, percentage distribution of feed over 24 hours, ideal feeding time and system settings.

Calculation parametres:

The sensor

The sensor's placement and height are crucial for the volume of feed under the sensor. The volume under the sensor should be the same in all troughs (approx. 0.75 liters per pig).

Minimum and maximum deviation in % (curves for finishers)

Indicates how much the system may deviate from the feed curve in percentage of the daily ration.

Ideal feeding time (valve time measurement)

The baseline for when the system should adjust up or down. Defined in seconds.

Max feeding time – reduction and skip (valve time measurement)

Indicates the maximum number of seconds the sensor may detect feed after feeding. If exceeded, the valve is reduced by the minimum deviation from the curve unless otherwise set. If the sensor is still triggered at the next test, feeding is skipped at that valve.

System settings (system variable 7)

Indicate how much the system should adjust per feeding based on how many seconds faster or slower the pigs ate compared to the baseline.

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1.	**Ideal / optimum feeding time** The basis for when the system should adjust up or down. Defined in seconds. Describes the number of seconds from when the sensor detects feed until the feed level is beneath the sensor. The goal is to set the number of seconds as close as possible to the actual average in the herd. Disregard very long (over 1,800 sec.) and short feeding times (under 60 sec.) when calculating the average. As a starting point, the ideal feeding time is set under <u>valves</u> → <u>valve time measurement</u> → <u>ideal/optimal feeding time</u>. The ideal/optimal feeding time can also be set to vary along with the curve (in the latest programme versions). This allows the ideal/optimal feeding time to change in line with the pig's age and weight. It is configured under <u>curves</u> → <u>curves for finishers</u> → <u>select the curve(s) in use</u> → <u>set under optimal feeding time</u>.
2.	**Max feeding time** Set in seconds. Default is set to 1,800 seconds. If the valve detects feed after 1,800 seconds, it will be downregulated to the minimum deviation on the feed curve. If the valve continues to detect feed during the sensor test before the next mixing, the valve will be skipped and will not receive feed. This means the valve will both be skipped and, during the following feeding, be regulated down to the minimum deviation from the curve. Newer versions of the programme allow a small amount of feed (typically 10–20%) to still be dispensed during a skip, to refresh the feed in the trough (entered under "Kurvedata for slagtesvin" or KD followed by ENTER).
3.	**Min / Max deviation from curve (%)** Specifies how much the system is allowed to deviate from the feed curve, minimum/maximum, as a percentage of the daily ration from the curve. This ensures that the system does not adjust too drastically up or down. The goal is to set this as you would manually adjust the feed at individual points on the curve. Configured under: <u>curves</u> -> <u>curves for finishers</u> -> <u>select the curve(s) in use</u> -> set under <u>adlibitum minimum %</u> and <u>adlibitum maximum %</u>.
4.	**System settings** Indicates how much the system should adjust up or down per feeding, based on how many seconds the pigs have eaten faster or slower than the baseline. Several parameters are interconnected in this setting and influence each other. Configured under <u>system</u> → <u>SV7 Feed Time-Controlled Feeding</u>. <u>Regulation factor feeding time (sec.)</u> is set by default to 30 seconds <u>Regulation factor up (%)</u> is set by default to 3 %. <u>Regulation factor down (%)</u> is set by default to 6 %. This means that each time the actual feeding time deviates by 30 seconds from the ideal feeding time, the system adjusts up by +3% if the pigs have eaten faster and down by -6% if they have eaten slower. In other words, with this setting, the system adjusts up by +1% per 10 seconds and down by -2% per 10 seconds. Formula: Ideal feeding time – actual feeding time / regulation factor x regulation factor in % = % adjustment. <u>Max regulation % up</u> can be set e.g. to 6% <u>Max regulation % down</u> can be set to e.g. 6% This means that the system can adjust by a maximum of 6% up or down per feeding, even if the formula calculates a higher value. This ensures that the system does not adjust to the maximum deviation from the curve in just one feeding - unless the maximum feeding time has been exceeded.

4. **Setup procedure**

   A. **Same volume under each sensor**
   There must be 0.75 liters of water beneath the sensor per pig using the valve. For example, 32 pigs using the valve × 0.75 L of water = 24 liters of water under the sensor. Pour 24 liters of water into the trough and mount the sensor at this height. Create a wooden block that matches this height and use it to mount all other sensors at the same height where the trough and number of pigs eating from the trough are the same.

   If there are different types of troughs or the number of pigs using the valve varies, repeat the above procedure to ensure there are 0.75 liters of water under the sensor.

   The height typically varies between 15–30 mm above the bottom of the trough.

   When correctly adjusted, this corresponds to approximately half of the feed amount per feeding for 30 kg pigs being above the sensor and half below.

   B. **Enter feed curve, feeding times, daily feedings and dry matter %**
   The above is crucial for the feeding time in seconds and must be set before the next checkpoint. Please note that changes to this will alter the feeding time and thereby the way the system is adjusted.

   C. **Daily Min / Max deviation**
   Set based on how you would manually adjust. For example, -30% at transfer of the pigs and -10% after 3 weeks. The curve should be high enough that only +5% max deviation is needed until final phase.

   D. **Min / Max deviation per feeding**
   At very short or very long feeding times, the system will adjust entirely to the minimum or maximum of the curve in a single feeding. Therefore, it is advisable to set a minimum and maximum percentage that the system is allowed to adjust per feeding - typically up to +/-10% per feeding. It is a good idea to set the + and - factors equally. This provides more stable feeding.

   E. **How fast the pigs eat**
   Note feeding time from transfer to the final phase. Use average (seconds) as baseline for ideal feeding time / time empty trough. Alternatively, use 240 sec IF 0.75 L water per pig is ensured.

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