

The importance of hatchery monitoring and maintenance

Hatchery maintenance is the process of checking that all equipment is working correctly to minimise the risk that a machine failure adversely affects hatch performance and poult quality. This also includes the upkeep of the hatchery structure and facilities to ensure that they can be kept clean and properly disinfected. Good maintenance procedures are an essential part of hatchery management and are often what distinguish good hatcheries from poor ones.

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The main objectives for hatchery maintenance are to produce a hatchery maintenance schedule to minimise the risk of equipment failure. As well as this, monitoring performance of hatchery equipment is vital to ensure faults can be quickly identified and rectified.

In order to produce a well planned maintenance schedule all equipment should be checked at the correct time intervals.

A maintenance list should have the following information:

- The identity of the equipment.
- The checks required.
- The expected frequency of maintenance (daily, weekly, annually etc).
- Date of next maintenance.

Where critical processes are controlled by environmental sensors (for example, thermometers, humidity and CO₂ sensors), they should be regularly calibrated.

The recommendations of the equipment manufacturer should be used to set the minimum frequency of maintenance checks. However, it may be necessary to increase the frequency of checks because of:

- Local regulations.
- The importance of the equipment to the functioning of the hatchery.
- Frequency of use.
- Past experience of the equipment, for example a history of frequent failure.

Where machines are operated continuously (for example, multi-stage incubators) it is important to schedule

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Equipment machinery	Recommended frequency	Recommended actions to take
Incubators and hatchers	Daily	Check temperature, humidity, ventilation setting and turner operation. Top up wet bulb thermometer water bottles if necessary
Egg store	Daily	Check temperature and humidity
Incubator and hatcher rooms	Daily	Check temperature and humidity and static pressure (where required)
Water chillers	Daily	Water temperature
Standby generators	Weekly	Test automatic changeover and run under load for one hour
Hatchery alarms	Weekly	Test all alarms and auto dial out system
Hatchers	After every hatch	<ol style="list-style-type: none"> 1. Properly clean and disinfect. 2. Inspect for visual damage or faults. 3. Inspect fan belts for wear, splits and correct tension. 4. All fans and heater bars are working. 5. Humidity sprays are working correctly, i.e. no droplets forming or leaks. Spray nozzles should be removed and cleaned to prevent build-up of deposits. 6. Check for water leaks from cooling and humidification system. 7. Covers to protect sensors during washing are removed after cleaning. 8. Replace wet bulb wicks.
Sexing carousels/tables/conveyors	After every hatch	<ol style="list-style-type: none"> 1. Properly cleaned and disinfected, including undersides of conveyor belts. 2. Visual inspection for damage or faults.
Incubators	After each incubation (single-stage) or monthly (multi-stage)	<ol style="list-style-type: none"> 1. Properly cleaned and disinfected. 2. Visual inspection for damage or faults. 3. Inspect fan belts for wear, splits and correct tension. 4. All fans and heater bars are working correctly. 5. Humidity sprays are working correctly, i.e. no droplets forming or leaks. Spray nozzles should be removed and cleaned to prevent build-up of deposits. 6. Check for water leaks from cooling and humidification system and leaking solenoids. 7. Replace wet bulb wicks. 8. Grease fan bearings and turning mechanism cogs. 9. Check turner mechanism for correct angle and smooth operation. 10. Inspect ventilation dampers and lubricate linkages.
Hatchery ventilation	1-3 monthly	Clean and/or replace air filters – clean inside all air ducts
Water chillers and air compressors	1-3 monthly	Inspect and test.
Room humidifiers	1-3 monthly	Inspect and clean spray nozzles.
Water tanks/supply	1-3 monthly	Check water treatment working
Incubators and hatchers	6-12 monthly	Calibrate temperature and humidity sensors.
Air conditioning	6-12 monthly	Service and clean/replace filters

Table 1. A typical hatchery maintenance programme.



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periods when the machines can be taken out of service for maintenance, cleaning and disinfection as required.

Properly trained personnel should always carry out maintenance or repairs and comply with any local Health & Safety Regulations. If suitably trained personnel are not on the hatchery staff, ensure that trained contractors are used. Keep a comprehensive stock of spare parts for all equipment. The use of checklists can be helpful to ensure all items are properly checked during maintenance.

Hatchery monitoring

Monitoring the performance of all equipment in the hatchery is an important part of the maintenance programme. The degree of monitoring required will depend on the importance to the incubation process. Incubators and hatcher rooms require continuous monitoring, with alarms, to ensure temperature and humidity stay within the required limits. The alarm system should be independent of the machine control system. Whatever automated alarm system is used, it is also recommended that manual

temperature and humidity checks are carried out at least twice daily. In incubators it is also important to check that the eggs have been turned.

The temperature and humidity in egg stores, incubator and hatcher rooms should be checked at least twice daily. When incubators that require static pressure gradients between air inlets and exhausts are used, these should be checked at least twice a day. If any monitored variable is found

outside the acceptable range then prompt action must be taken to determine the cause of the problem and, if necessary, rectify the fault.

Table 1 on the previous page shows an example of a hatchery maintenance programme but it should not be treated as comprehensive. The programme should be adapted to meet the requirements of each hatchery and the type of equipment installed. ■

