

# Best Practice

in the Hatchery



Transfer





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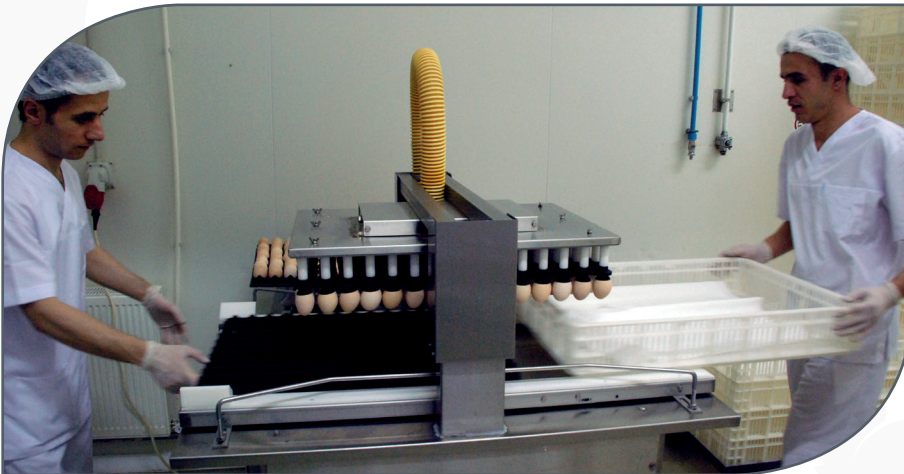
## Transfer

### What is transfer?

At around day 18 of incubation, eggs have to be taken out of the setters, moved from setter trays to hatcher baskets and transferred into hatchers to complete their last three days of incubation.

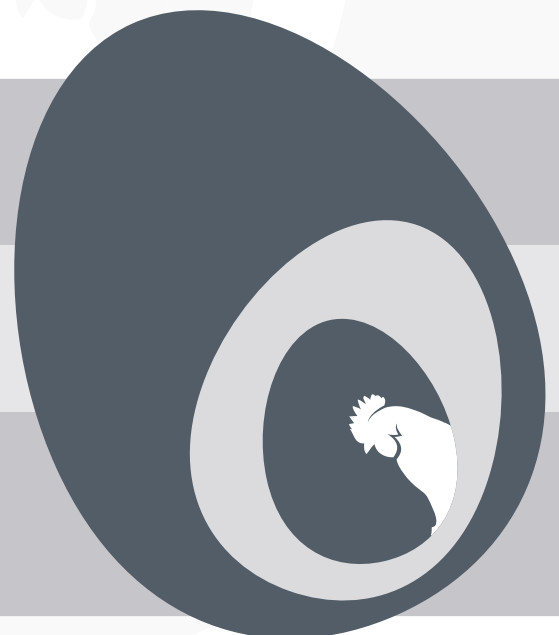
### What can go wrong?

The transfer process will involve all the eggs due to hatch on the relevant day and so can take several hours to complete. If it is not carefully organized and monitored, there is a chance that the embryos in the eggs may become chilled or overheated; either will widen the hatch window and overheating can negatively influence chick quality or even be fatal if prolonged. At 18 days of incubation, the eggs are also vulnerable to rough handling which can damage blood vessels or the egg shell. Transfer damage can cost 2-3% hatchability of fertile eggs when the process is not managed properly.



### Best Practice for Transferring Eggs

- 1 Plan carefully, so eggs do not spend any more time out of the incubator than absolutely necessary.
- 2 Use a well-maintained vacuum lifter to move the eggs from setter tray to hatcher basket.
- 3 Monitor the process, and the hatch debris regularly to make sure that eggs are not being damaged during transfer.





## Candling

**1 Eggs can be candled to identify infertile and early dead embryos after about 10 days of incubation.**

Candling is usually combined with transfer at 18 days, so that the eggs do not have to be removed from the setter twice. Candling must not prolong the transfer process for any longer than necessary.

**2 During candling, trays are passed over a bright light source and the light shows through the eggs where there has been no or little embryo development.**

**3 As a minimum, candling is usually done for a sample of every set, to provide feedback on fertility, egg handling and rots for the breeder farms.**

The process can be done manually, using a candling lamp or by passing trays over a light box in a candling table, or it can be completely automated.

**4 If fertility is below 80%, it is usually worth candling all the eggs, removing the clears and then backfilling the spaces so that 90% of the potential spaces in the trays hold live embryos.**

This avoids cold spots developing in the hatcher due to a localized lack of metabolic heat. Removing the clears also keeps the hatched chicks cleaner. Do not backfill above 90%, because most hatchers will not have the cooling capacity to cope with the extra heat output.

**5 Whatever candling method is used, it is important to break open samples of the clear eggs regularly, to check that no live embryos are being removed.**



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*Infertile eggs, or those where the embryo has died within the first 4 days allow light to pass through and are removed as candling clears.*

## In Ovo Vaccination

In ovo vaccination of the embryo can also be completed during transfer. This process must not prolong the transfer process by any more than necessary and must be completed according to the instructions of the manufacturer.



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## Transfer

### Best Practice for Transferring Eggs

- 1 Transfer should be done in a dedicated room, held at slightly negative pressure and with air temperature between 24°C and 28°C (75°F and 82°F).**

The negative pressure will prevent bacteria from exploding eggs getting into the incubators, and a warm but not hot room will limit the chances of the eggs getting chilled or overheated.

- 2 Plan to transfer the eggs between 432 and 444 hours of incubation.**

Eggs need to be turned until at least 15 days, but early transfer (between 16 and 18 days) can give acceptable results so long as temperature and humidity can be managed as they would have been in the setter. However late transfer, especially once the eggs start to pip, will be detrimental to hatch and chick quality.

- 3 Make sure that the hatcher baskets and hatchers are washed, disinfected, dry and warm before transfer starts.**

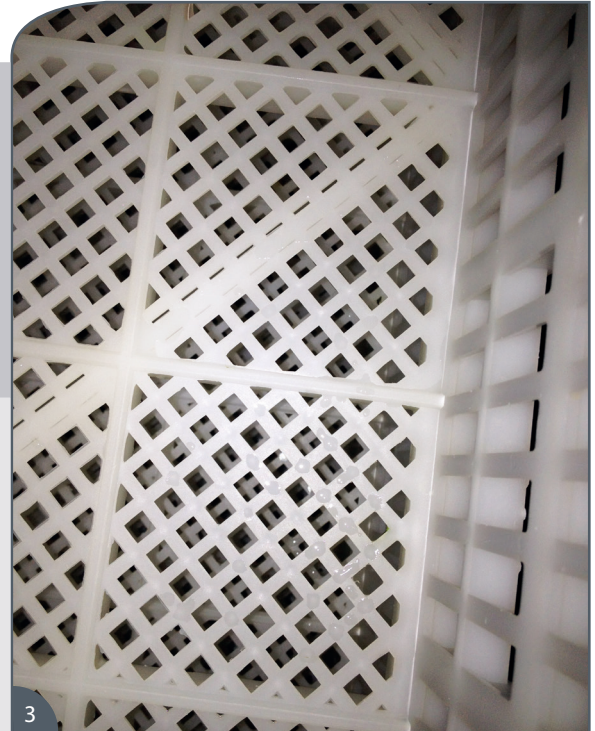
The best place to dry the clean hatcher baskets is in the clean hatchers.

- 4 The eggs should not be out of an incubator for longer than 30 minutes.**

Move one trolley at a time out of the setter, starting with the youngest flocks every time. Keep the setter running until all the eggs have been moved.

- 5 Follow manufacturers recommendations about the transfer pattern - they may advise moving trollies from sides to middle, or to move eggs from the middle trays to the top or bottom of the trolley.**

- 6 Use your stronger, taller workers to load the buggy, or provide a ramp or step.** A full hatcher basket is heavy, and the buggies are often 2 m (6.6 ft) high or more.



*The person loading this hatcher buggy needs to reach above head height to stack the top layers. It will be impossible to complete the stack without causing some transfer damage.*



## Automation

- 1 Candling, moving the eggs from tray to basket, and tray/basket de-stacking and stacking can all be automated.
- 2 Vacuum egg lifters to move eggs from setter tray to hatcher basket will almost always pay for themselves in reduced transfer damage provided they are maintained properly.
- 3 Automatic candling and tray handling both work well. The choice of whether to use them will depend on the cost and availability of labor. Careful monitoring and maintenance to keep them working well is required.

## Checking for Problems with Transfer

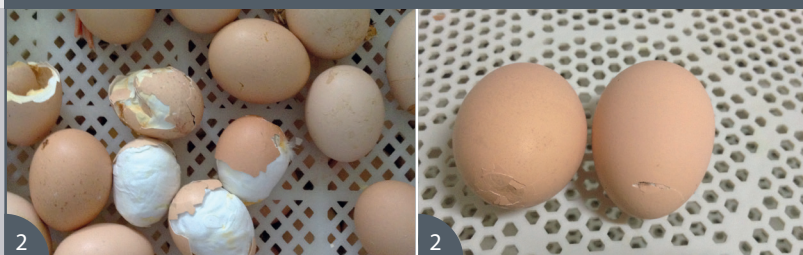
Watch the transfer carefully, checking that the hatchers are prepared, the individual trollies spend no more than 30 minutes out of the machine and that all handling is gentle.

- 1 **Check that eggs have not rolled to one end of the basket** – this is a sign that the person building the stack is pushing the tray into place too hard. If only the top trays are affected then they may not be tall enough or strong enough for this part of the job.



The picture to the left shows eggs concentrated in one end of the hatcher basket, with gaps at the front. This is because the person loading the stack has pushed the basket into position with too much force. In the picture on the right, the eggs are evenly spread.

- 2 **Check the hatch debris for transfer cracks** – these are particularly obvious because there will be an 18 day embryo which has dried out slightly, with the shell membranes white and thick.



Impact damage to egg shells during transfer. The damaged eggs contain full term embryos, slightly dried out. Shell membranes are white and papery.

The egg on the left was damaged by excessive vacuum pressure from a lifter. The egg on the right was damaged by the transfer plate used during automated transfer.

- 3 **Transfer damage can also be seen without any shell damage** - these 18 day embryos have blood clots from damaged blood vessels due to rough handling during egg transfer.







# Notes

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