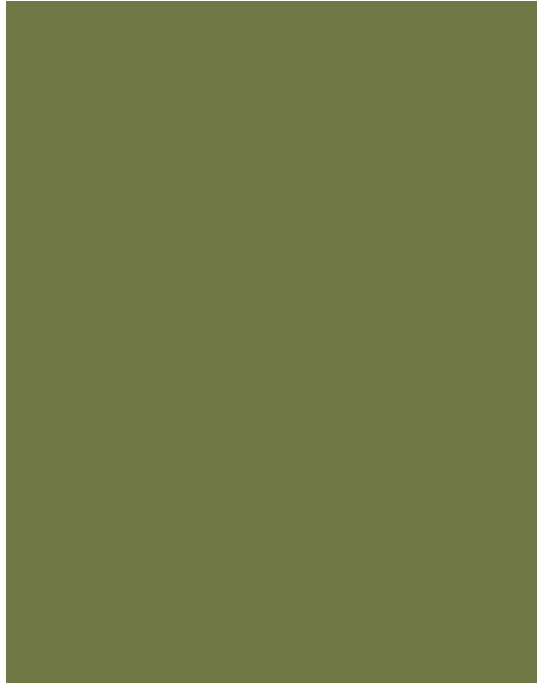


PETERSIME

X-Streamer Re-Store



Ives Vanstechelma



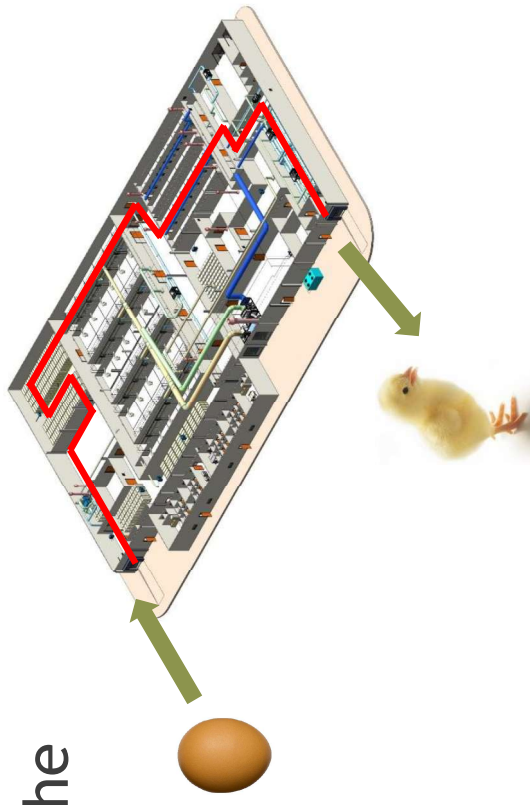
March 2026



X-Stream Re-Store



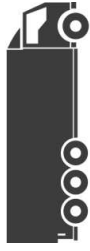
- ▶ A hatchery turns hatching eggs into chicks
- ▶ Good hatchability, chick quality and chick uniformity
- ▶ Process does not start at setting the incubators



X-Streamer Re-Store



Breeder farm



Transport



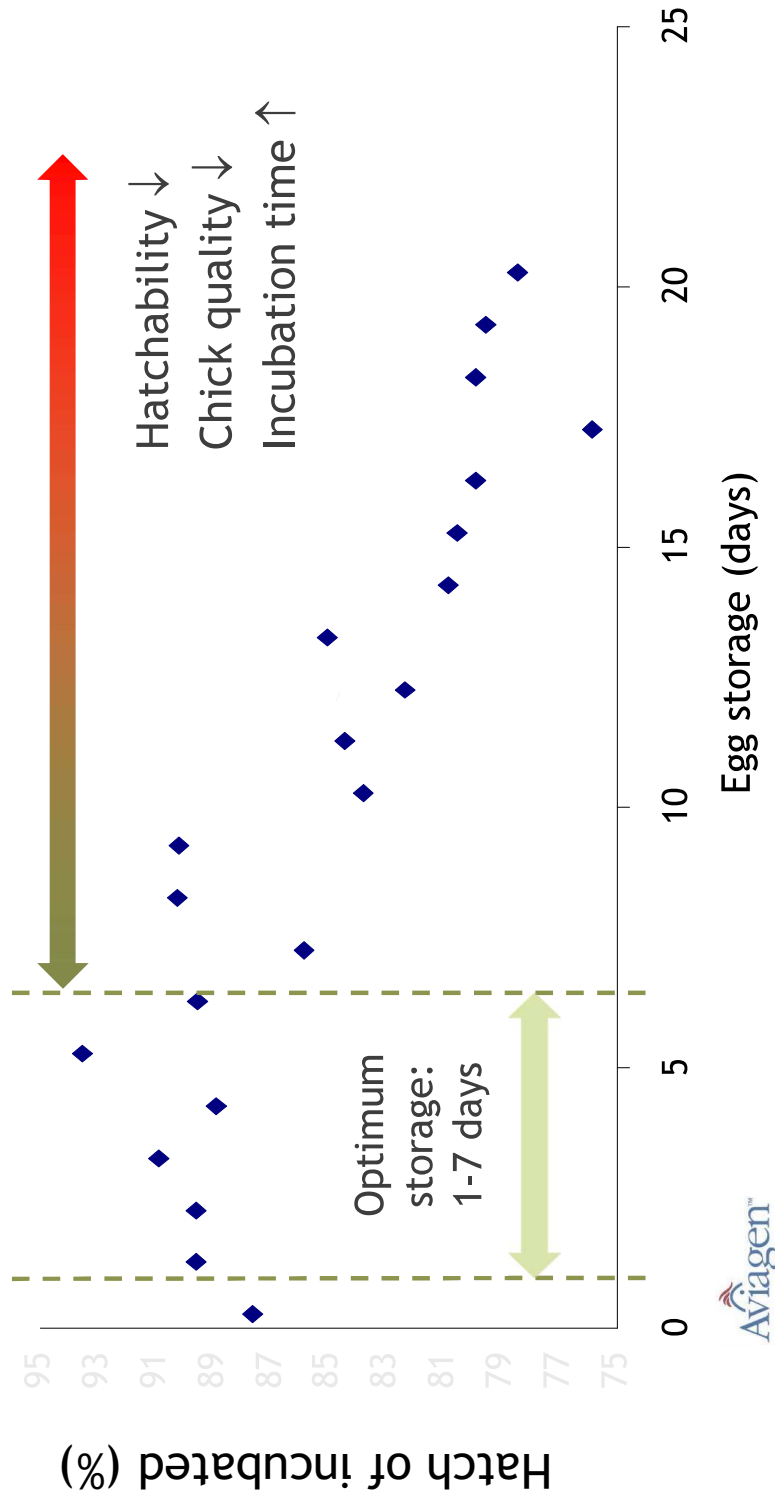
Egg handling &
fumigation



Storage

Maximize potential in hatching eggs and
minimize the losses

X-Streamer Re-Store





X-Streamer Re-Store

- ▶ Are you aware that
 - ▶ an average commercial hatchery loses easily more than 0.5% chicks due to egg storage losses?
 - ▶ and it's possible to recover 0.4% of those losses?
- ▶ Did you know that
 - ▶ 0.2% of all the eggs in the hatchery are classified as infertile, but are fertile in reality?
 - ▶ and it's possible to turn these embryos into healthy chicks?



X-Stream Re-Store



- ▶ X-Stream Re-Store minimizes losses due to egg storage
- ▶ Machine designed for heat treatments during storage
- ▶ Improves performance, better uniformity, easier logistics



At least 1% gain in hatchability for eggs stored 5-7 days

Content

- ▶ Biological background
- ▶ Field results
- ▶ X-Streamer Re-Store
- ▶ Re-Store in practice
- ▶ References



Content

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- Field results
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- Re-Store in practice
- References



Biological background

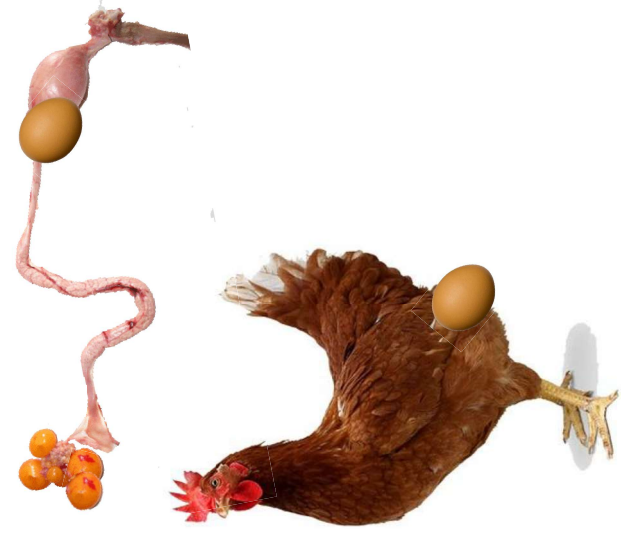




Biological background



Different developmental stages are possible at oviposition:



Pregastrula stage

Hatchability decreases in case of long storage times

Gastrula stage

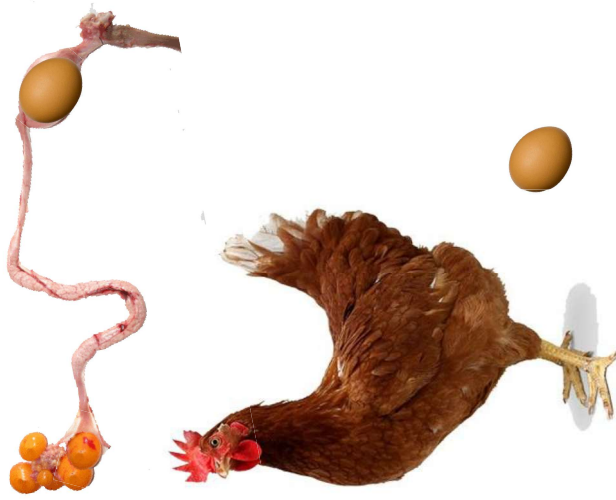
More able to withstand long storage times

Formation of primitive streak

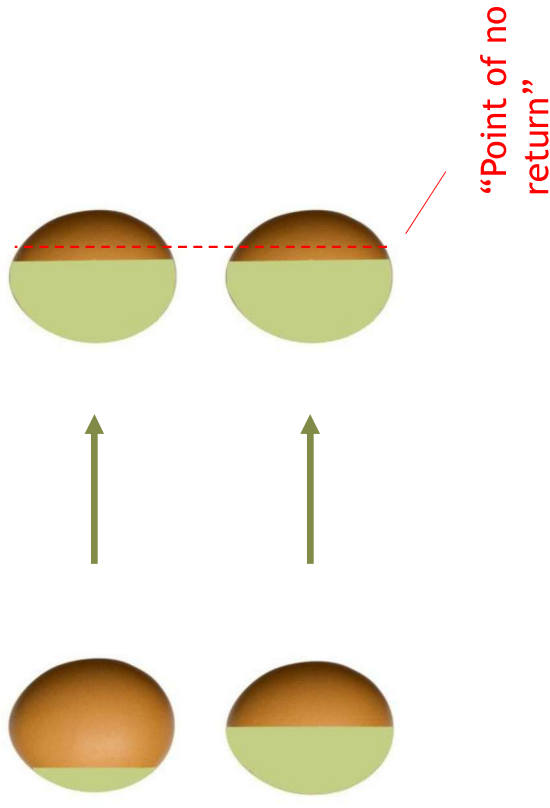
Long storage times are detrimental

“Point of no return”

Biological background



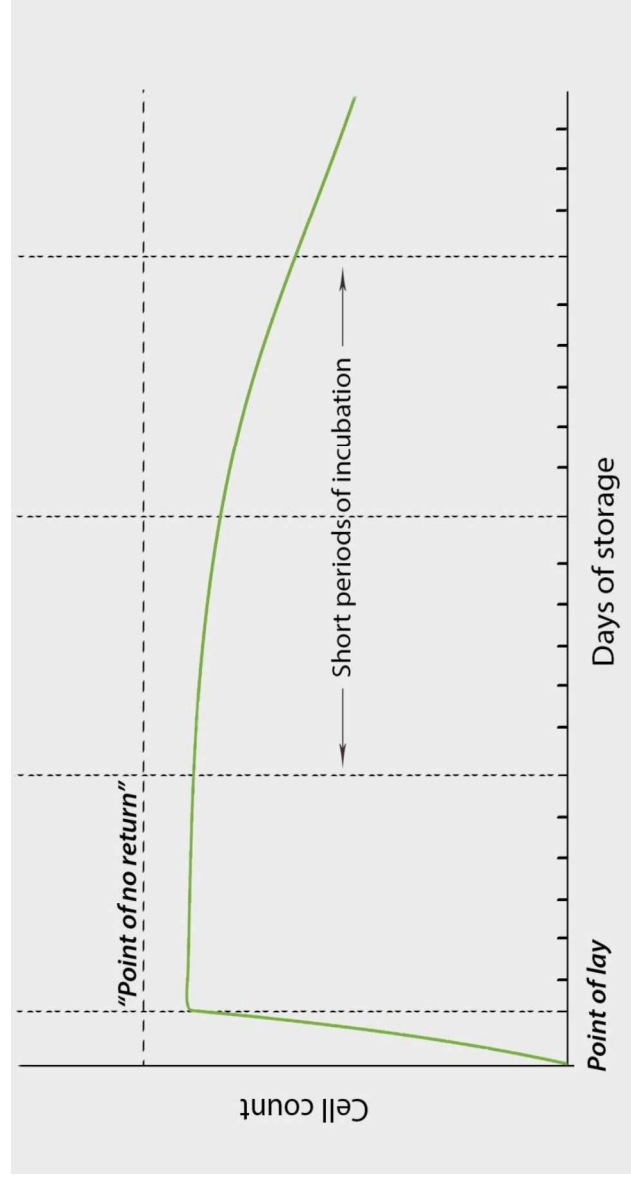
The effect of heat treatment during storage:



Biological background



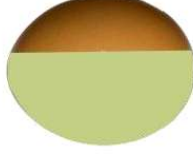
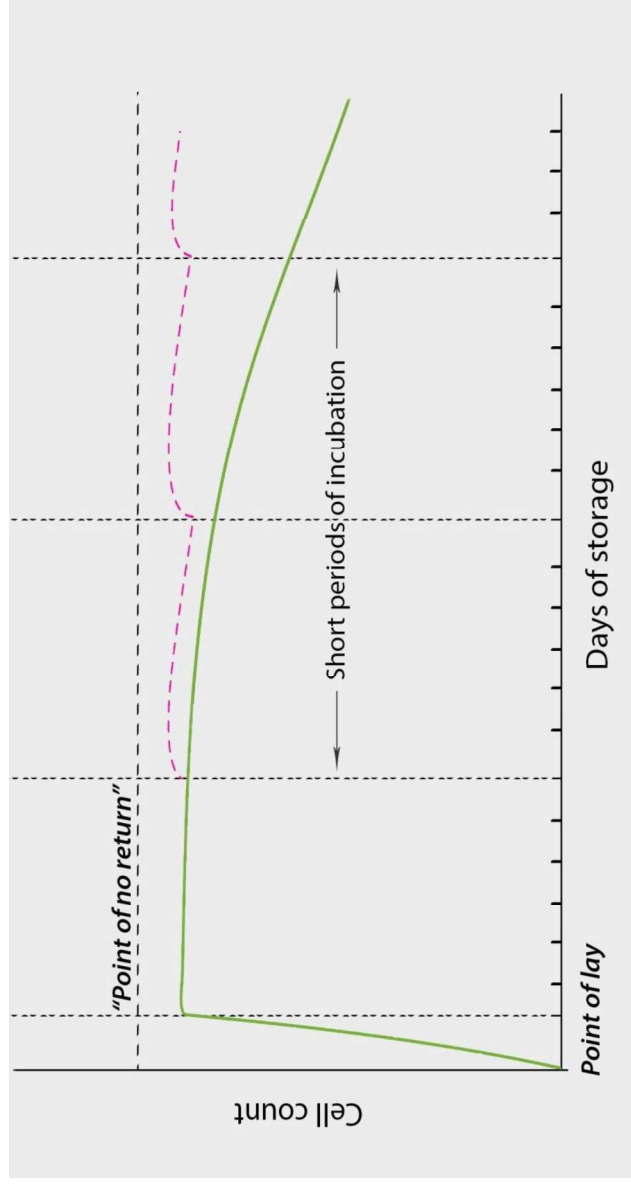
Treatment frequency and intensity



Biological background



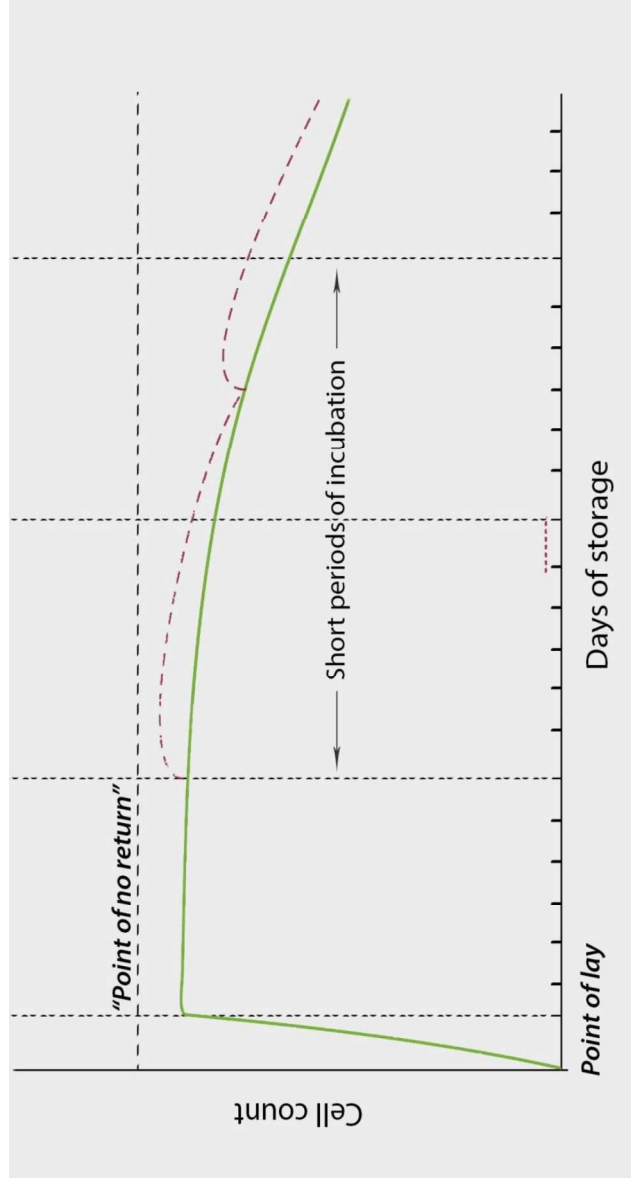
Treatment frequency: correct treatment



Biological background



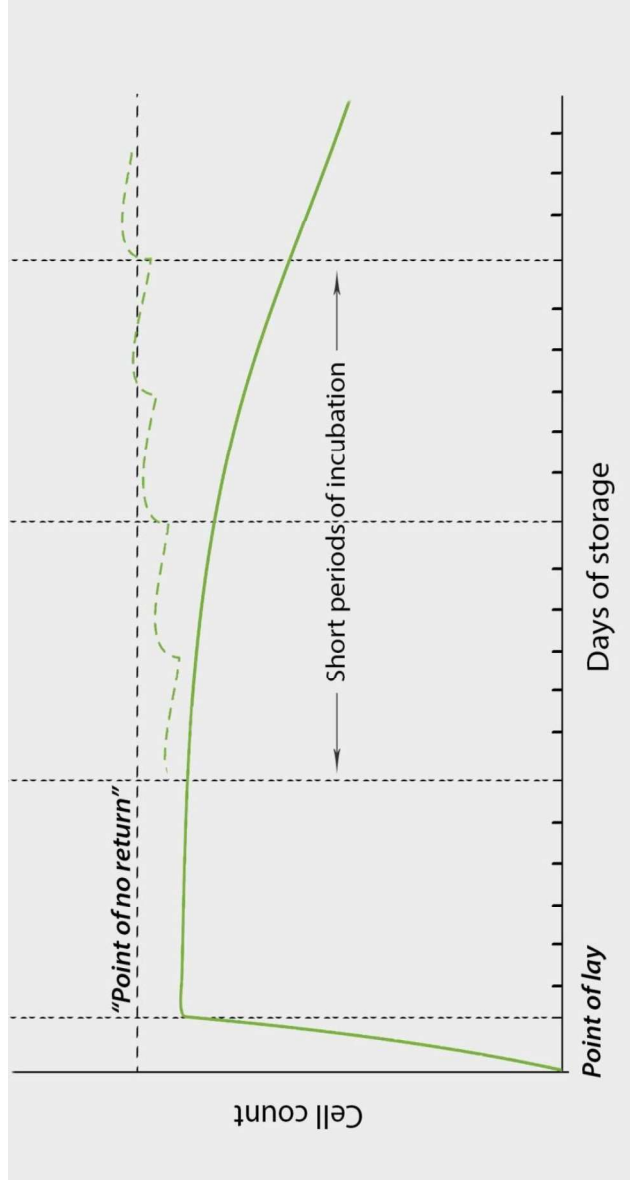
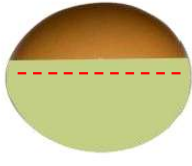
Treatment frequency/intensity: not frequent enough/insufficient treatment



Biological background



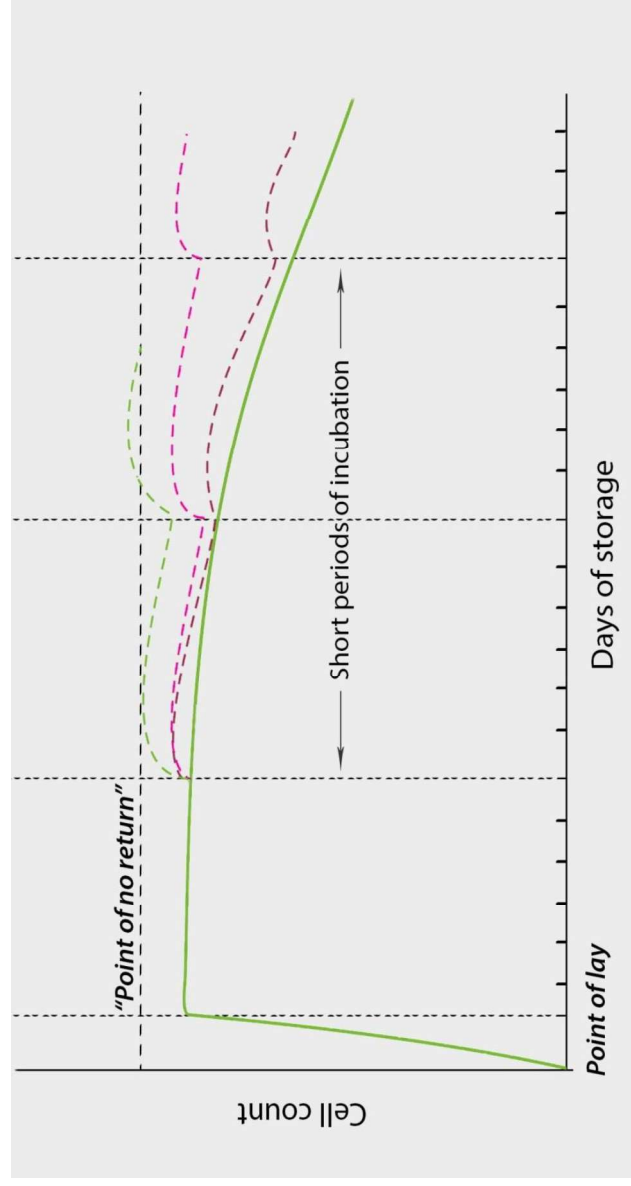
Treatment frequency/intensity: too frequent/excessive treatment



Biological background



Treatment frequency/intensity



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Content

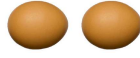
- ▶ Biological background
- ▶ Field results
- ▶ X-Streamer Re-Store
- ▶ Re-Store in practice
- ▶ References



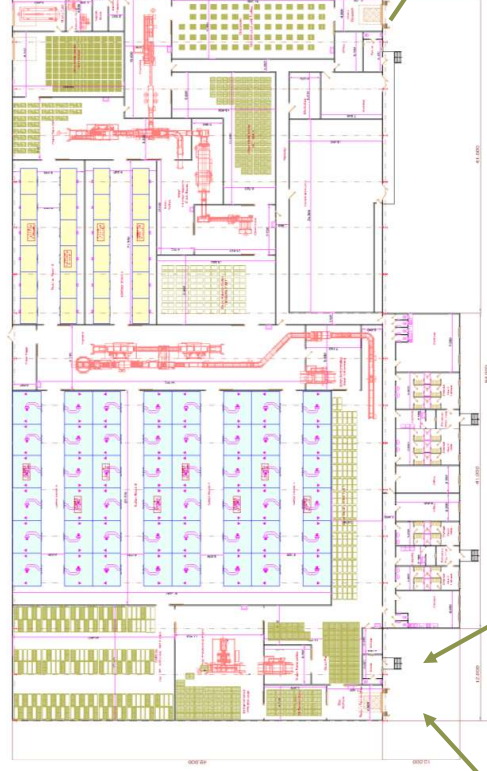
Field results



3 days



7 days



Re-Store improves hatchability & uniformity by eliminating losses due to storage, especially for younger flocks



29 weeks



51 weeks



Hatchability?
Uniformity?



Field results

- ▶ Gains in performance
- ▶ More uniform hatch window
- ▶ Easier production logistics
- ▶ Layers, turkeys, ducks and geese

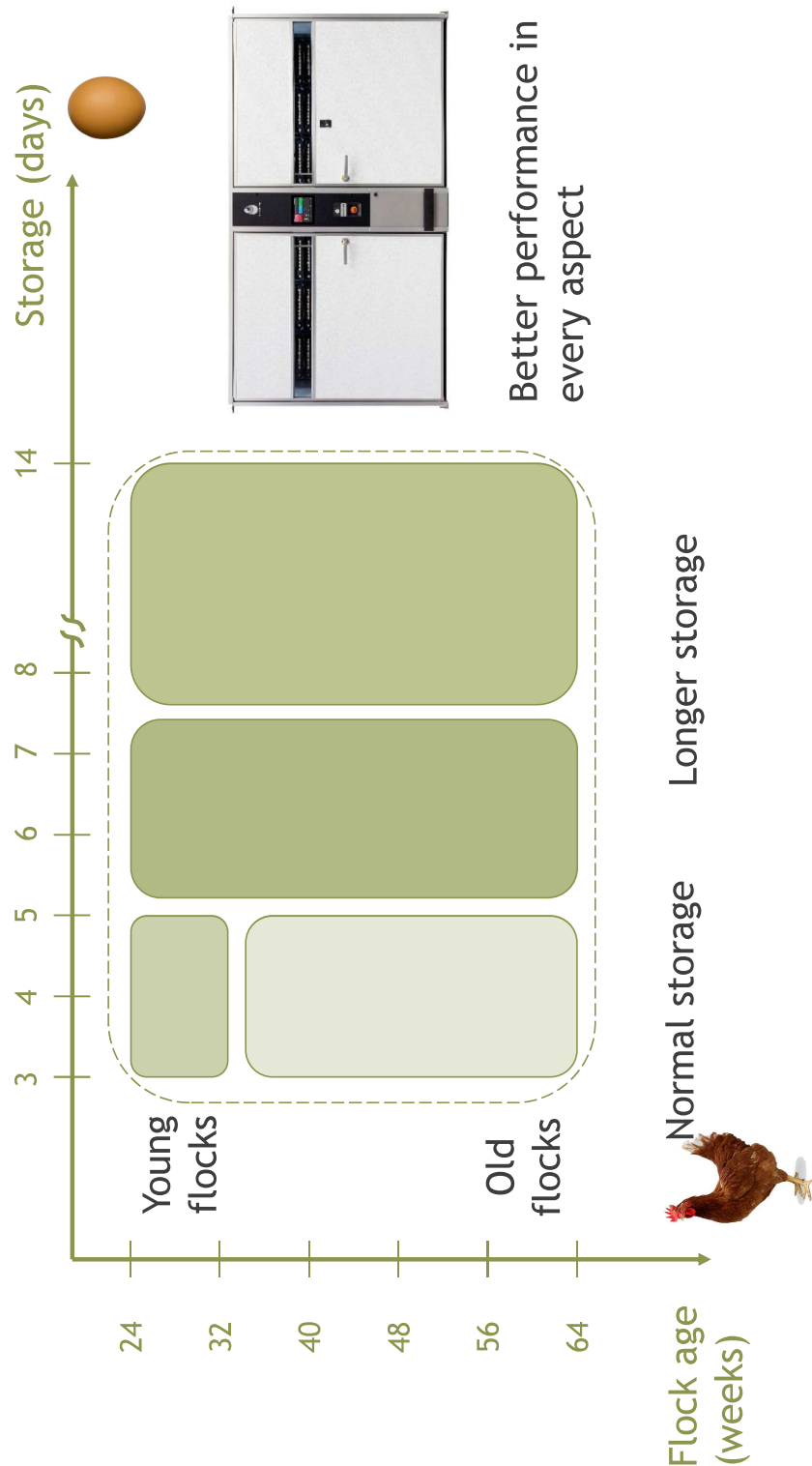


Field results

- ▶ Gains in performance
- ▶ More uniform hatch window
- ▶ Easier production logistics
- ▶ Layers, turkeys, ducks and geese

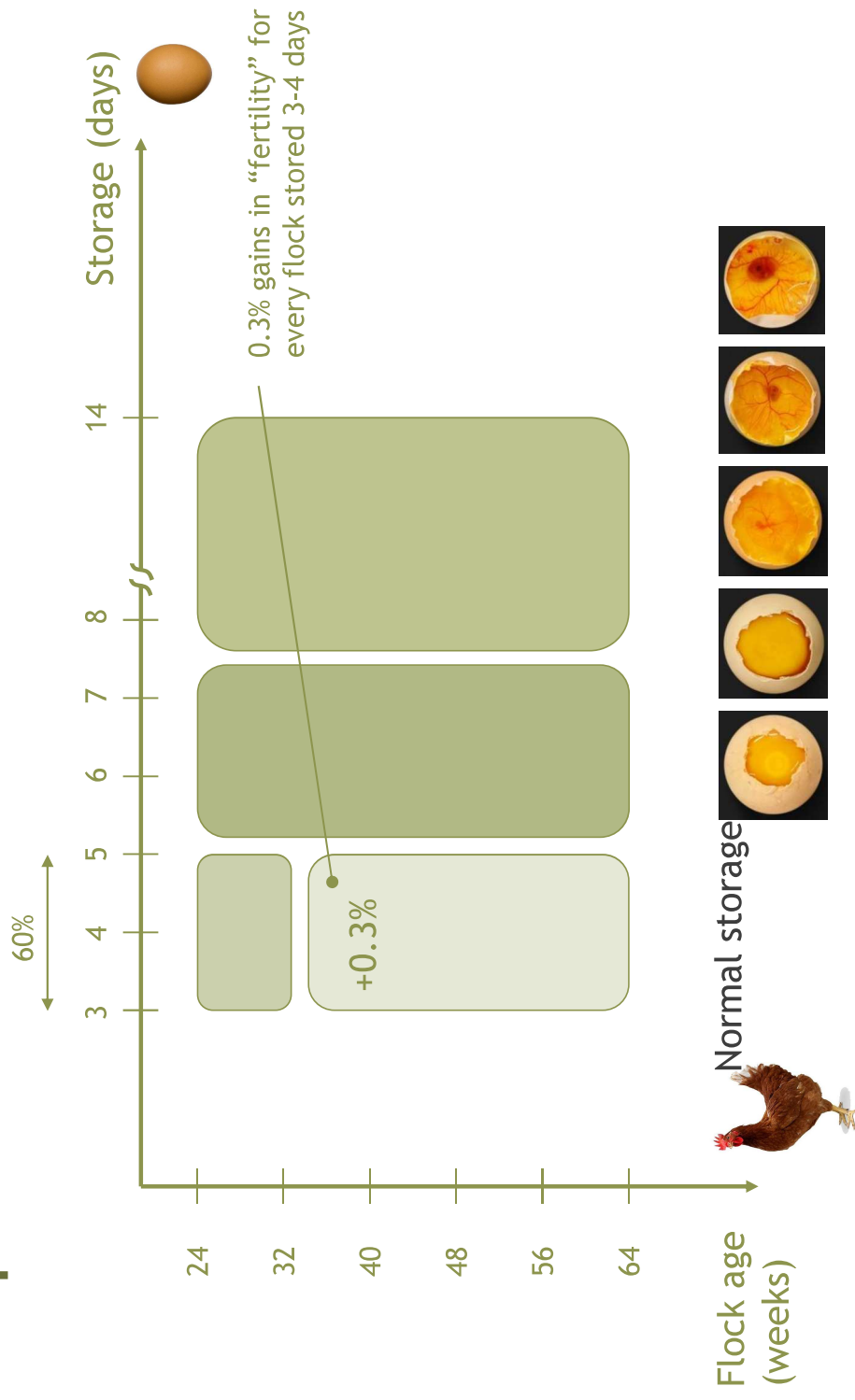


Gains in performance



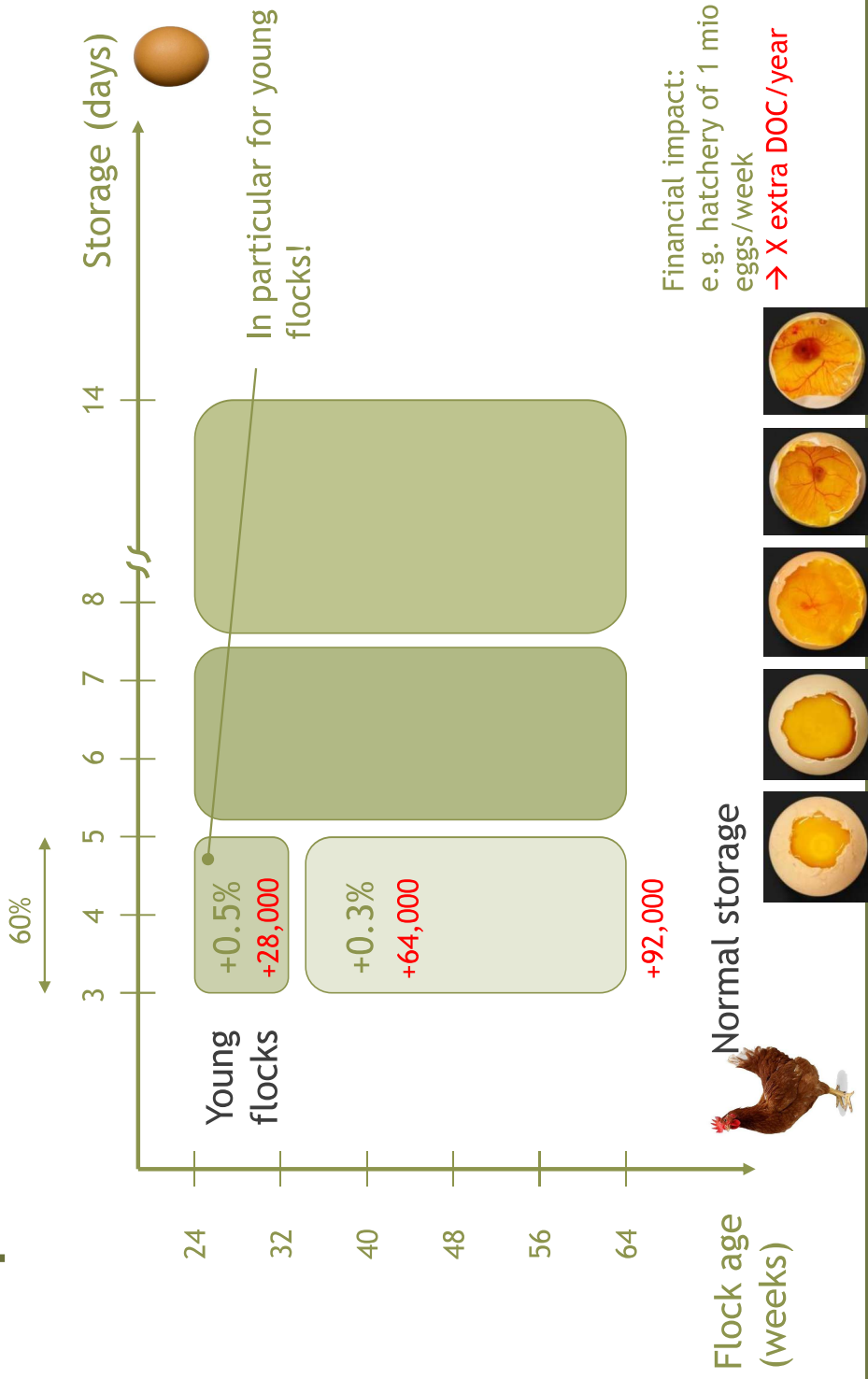


Gains in performance

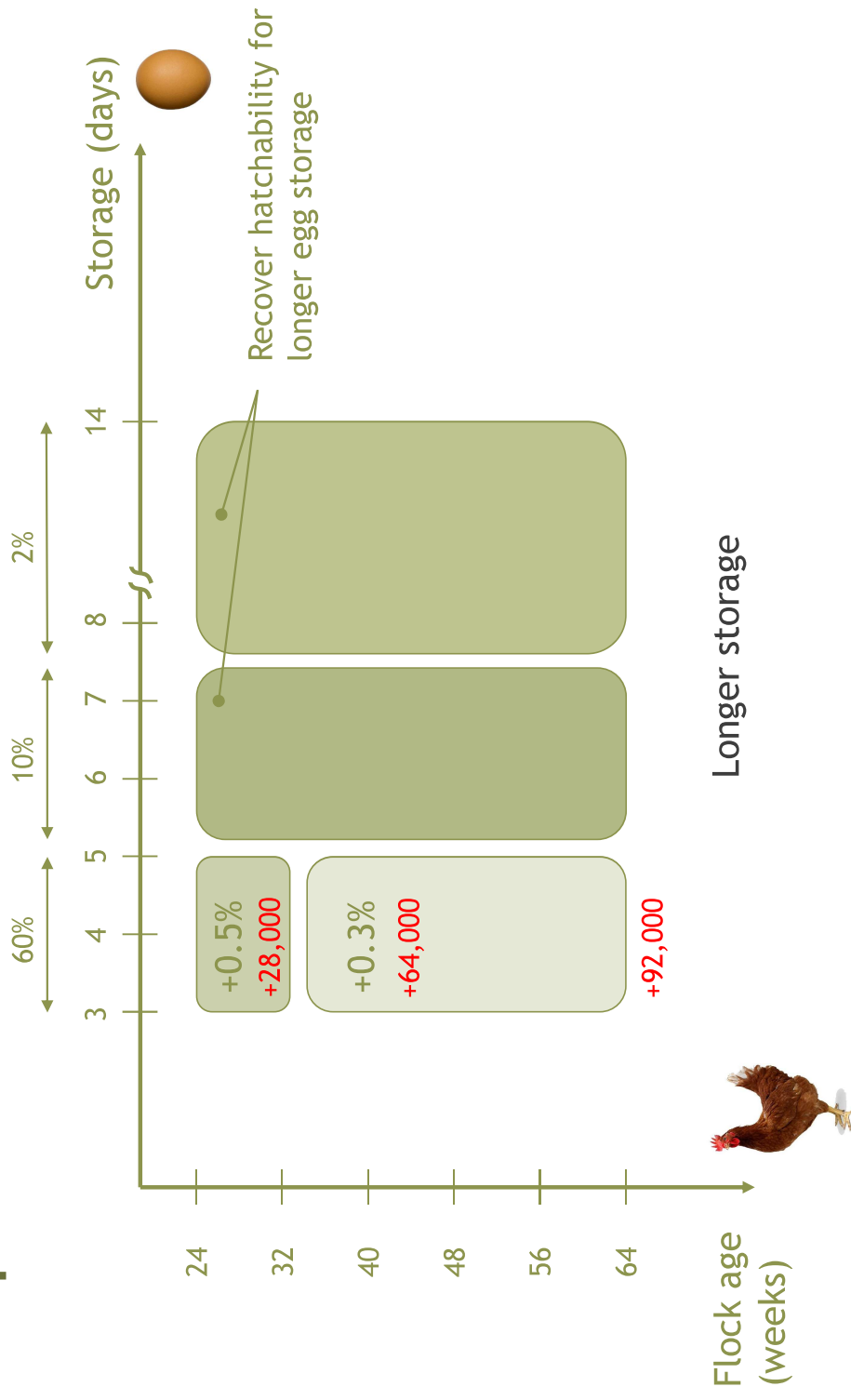




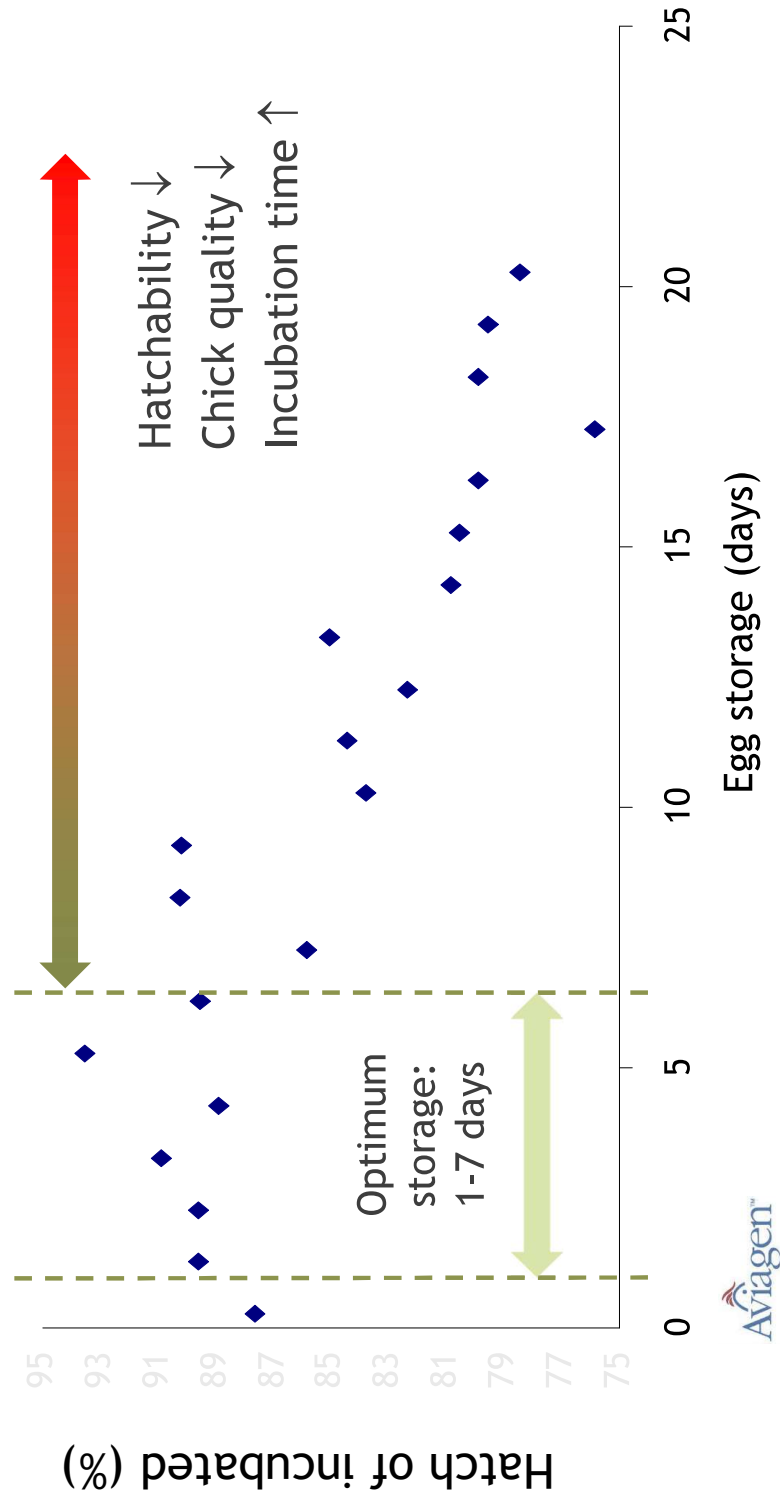
Gains in performance



Gains in performance



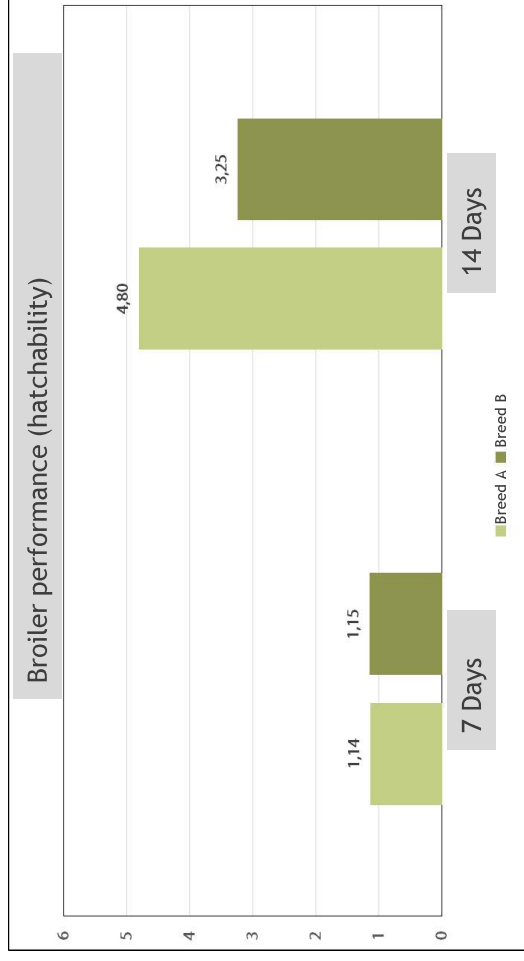
Gains in performance



Gains in performance



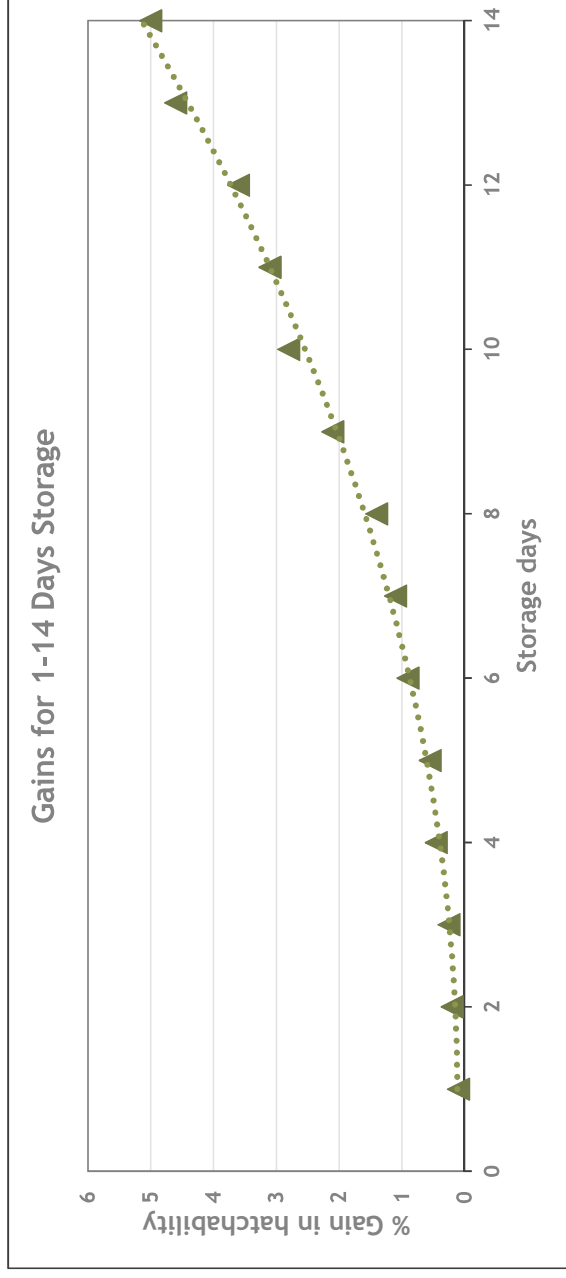
- At least 1% gain in hatchability for eggs stored 5-7 days
- 3-5% gain in hatchability for eggs stored 8-14 days



Gains in performance



- Consistent gains!
- > 500 trials (60,000 eggs per trial)



Why is Re-Store of interest to you?



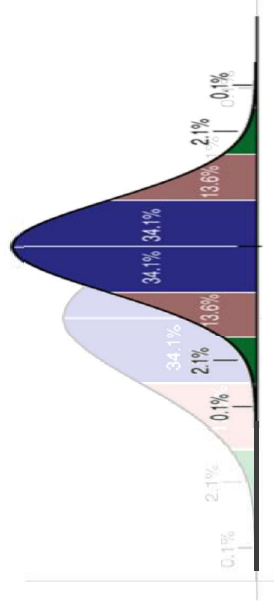
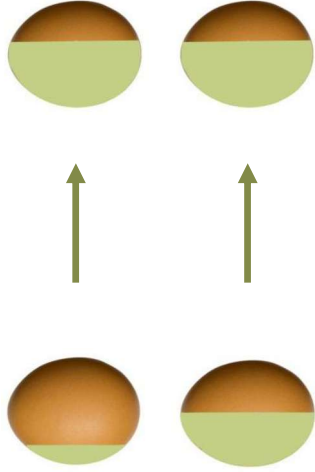
Field results

- ▶ Gains in performance
- ▶ More uniform hatch window
- ▶ Easier production logistics
- ▶ Layers, turkeys, ducks and geese



More uniform hatch window

- ▶ Every embryo will be in slightly different embryonic stage before storage
- ▶ Re-Store will align embryo development
- ▶ Better synchronisation of embryos right from the start
- ▶ More narrow hatch window → better uniformity



Field results

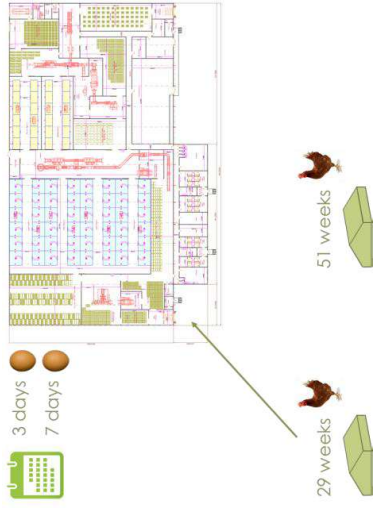
- ▶ Gains in performance
- ▶ More uniform hatch window
- ▶ Easier production logistics
- ▶ Layers, turkeys, ducks and geese



Easier production logistics



- ▶ Traditionally: different incubation time for different storage time
 - ▶ Set some machines 2h earlier, others 1h later, ...
 - ▶ Not easy to organise
- ▶ With Re-Store
 - ▶ Not needed anymore to apply different timings for different storage!
 - ▶ Easier for hatchery mgr and personnel to organise



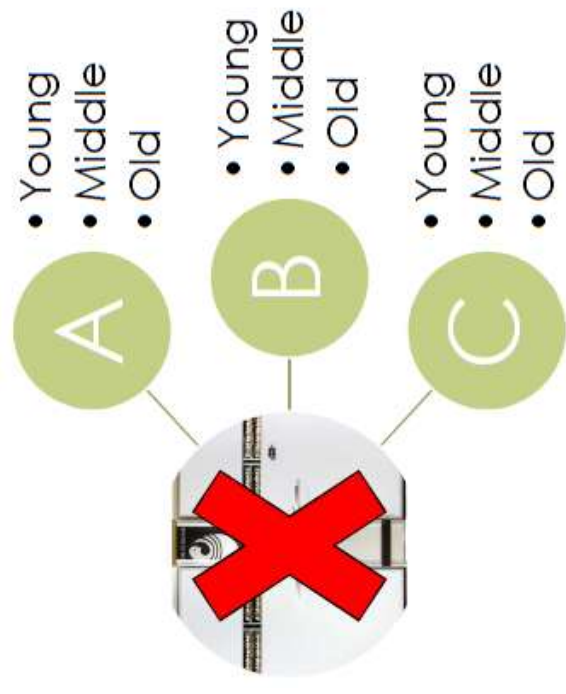
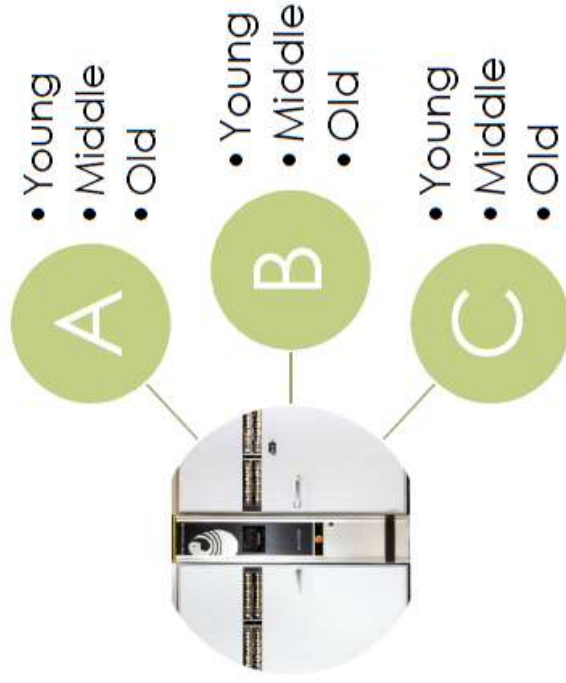
Field results

- ▶ Gains in performance
- ▶ More uniform hatch window
- ▶ Easier production logistics
- ▶ Layers, turkeys, ducks and geese



Chicken: Layer

► First positive tests



Chicken: Layer



- ▶ First positive tests
- ▶ Short storage times tested
 - ▶ Culls 0.91% ↓
 - ▶ Female hatch 2.12% ↑
 - ▶ Uniformity 2.12% ↑
- ▶ Calculated gains in a 3M female chicks/month hatchery
 - ▶ 63,600 chicks ↑
 - ▶ 27,300 culls ↓

Chicken



- Fresh eggs: developmental stage X
- Up to 5 % gains in performance

Stage	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Chicken	0	0	0	0	4.2	83.3	12.5	0	0	0
Goose	0	0	0	11.1	0	27.7**	22.2	27.7**	11.1**	0
Muscovy duck	0	19.0*	80.9**	0	0	0*	0	0	0	0
Mulard duck (commercial)	0	7.4	37.0	33.3	18.5	3.7**	0	0	0	0
Mulard duck (EXP) ¹	0	5.9	37.2**	43.1**	5.9	2.0**	3.9	0	2.0	0
Pekin duck (EXP) ¹	2.3	2.3	22.7**	34.0**	20.4	18.2**	0*	0	0	0
Guinea	0	0	35.0*	57.5**	5.0	2.5**	0*	0	0	0
Japanese quail	0	2.3	2.3	6.8	4.5	11.4**	40.9*	25.0**	4.5	2.3
Turkey ²	0	0	0	4.4	53.5	40.3**	1.7**	0	0	0

Turkeys



- Fresh eggs: earlier development stage ↔ chickens
- Higher gains in performance ↔ chickens

Stage	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Chicken	0	0	0	0	4.2	83.3	12.5	0	0	0
Goose	0	0	0	11.1	0	27.7**	22.2	27.7**	11.1**	0
Muscovy duck	0	19.0*	80.9**	0	0	0**	0	0	0	0
Mulard duck (commercial)	0	7.4	37.0	33.3	18.5	3.7**	0	0	0	0
Mulard duck (EXP) ¹	0	5.9	37.2**	43.1**	5.9	2.0**	3.9	0	2.0	0
Pekin duck (EXP) ¹	2.3	2.3	22.7**	34.0**	20.4	18.2**	0*	0	0	0
Guinea	0	0	35.0*	57.5**	5.0	2.5**	0*	0	0	0
Japanese quail	0	2.3	2.3	6.8	4.3	11.4**	40.9*	25.0**	4.5	2.3
Turkey ²	0	0	0	4.4	53.5	40.3**	1.7**	0	0	0

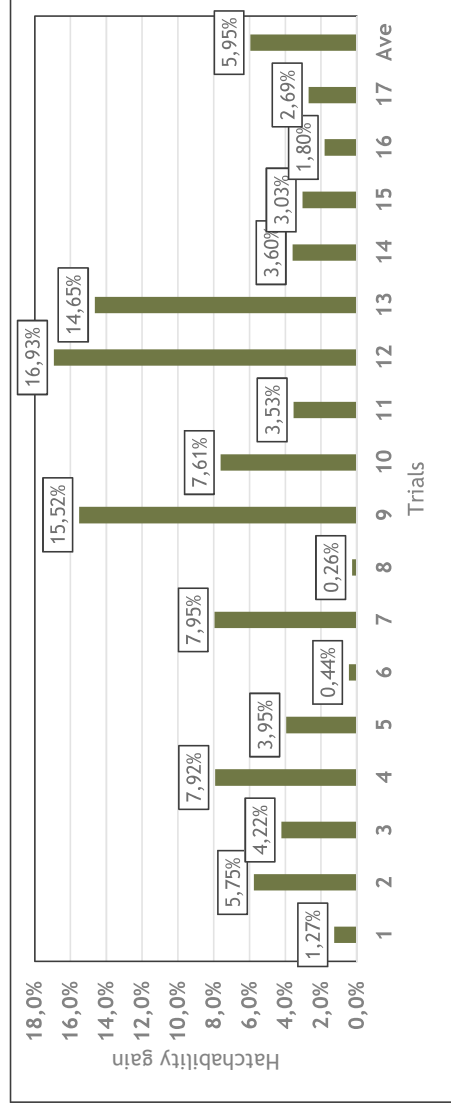
Turkeys



- ▶ Shorter storage (6 days): nearly 4% gain
- ▶ Longer storage (12 days) : nearly 10% gain
- ▶ Overall gain: almost 6%



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Ducks



- Fresh eggs: earlier development stage ↔ chickens (and turkeys)
- Higher gains in performance ↔ chickens

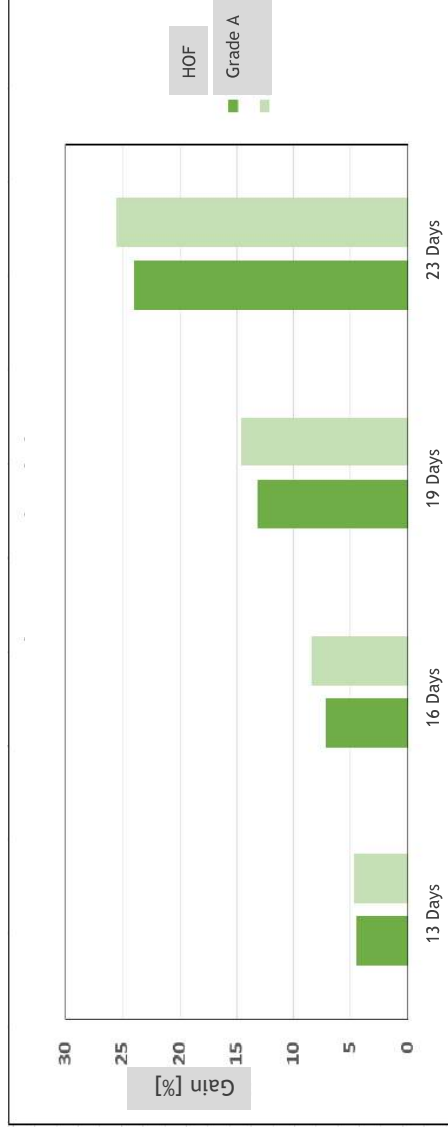
Stage	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Chicken	0	0	0	0	4.2	83.3	12.5	0	0	0
Goose	0	0	0	11.1	0	27.7**	22.2	27.7**	11.1**	0
Muscovy duck	0	19.0*	80.9**	0	0	0*	0	0	0	0
Mulard duck (commercial)	0	7.4	37.0	33.3	18.5	3.7**	0	0	0	0
Mulard duck (EXP) ¹	0	5.9	37.2**	43.1**	5.9	2.0**	3.9	0	2.0	0
Pekin duck (EXP) ¹	2.3	2.3	22.7**	34.0**	20.4	18.2**	0*	0	0	0
Guinea	0	0	35.0*	57.5**	5.0	2.5**	0*	0	0	0
Japanese quail	0	2.3	2.3	6.8	4.5	11.4**	40.9*	25.0**	4.5	2.3
Turkey ²	0	0	0	4.4	53.5	40.3**	1.7**	0	0	0

Ducks

► Results are positive



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Content

- ▶ Biological background
- ▶ Field results
- ▶ X-Streamer Re-Store
- ▶ Re-Store in practice
- ▶ References



X-Streamer Re-Store



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X-Streamers Re-Store



From egg holding room...



to the X-Streamers Re-Store...



with OvoScan™ controlling the egg shell temperature



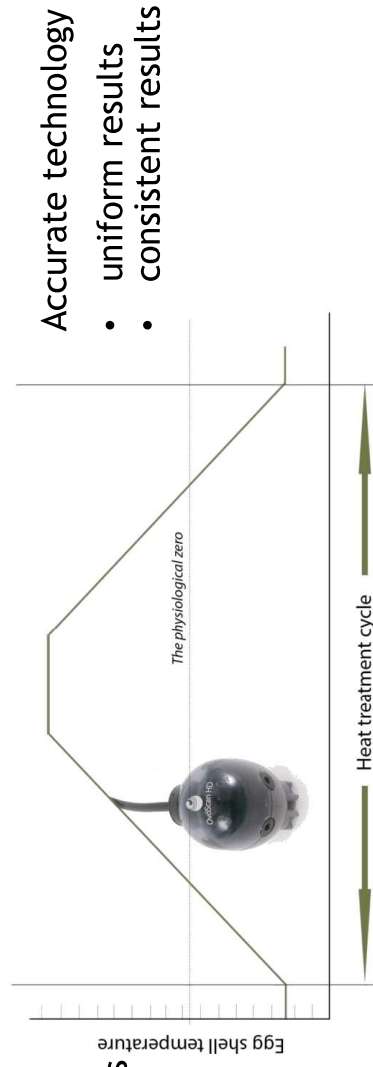
RE-STORE

X-Streamer Re-Store



OvoScan guarantees that

eggspare the feed stream is
in a tested way



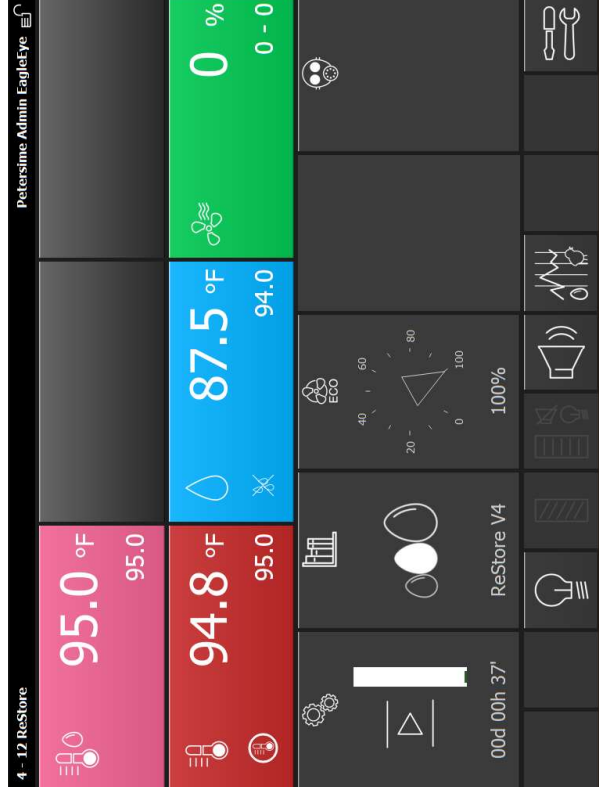
Accurate technology

- uniform results
- consistent results



X-Stream Re-Store

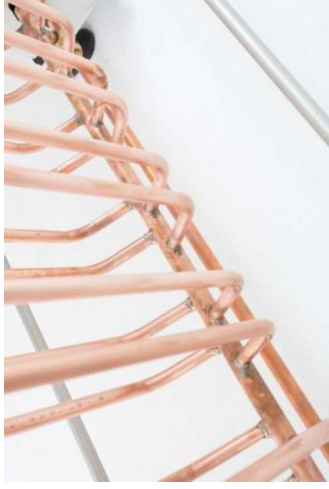
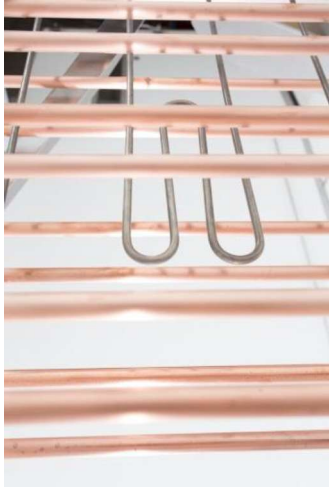
- ▶ Automatic control of process
 - ▶ Temperature
 - ▶ Ventilation/humidity
- ▶ Program is adjustable



X-Streamer Re-Store



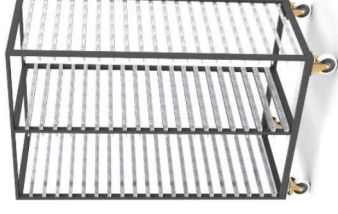
- ▶ Adaptations to guarantee consistent results
 - ▶ Extra heating capacity
 - ▶ Extra cooling capacity
 - ▶ Uniform airflow



PETERSIME

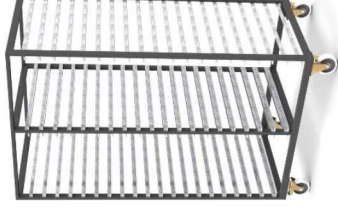
X-Streamer Re-Store

- ▶ XSTR-24S Re-Store
 - ▶ Capacity is 24 Petersime trolleys
 - ▶ Standard trolleys: 115,200 eggs
 - ▶ HD trolleys: 129,024 eggs
- ▶ Also possible (look case by case)
 - ▶ Farm trolleys
 - ▶ Other trolleys
- ▶ Maximum capacity is 129,024 eggs
- ▶ Partial loading is possible



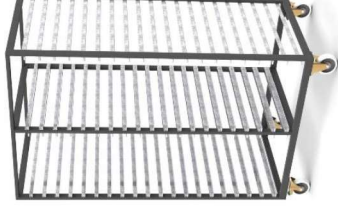
X-Streamer Re-Store

- ▶ XSTR-12S Re-Store
 - ▶ Capacity is 12 Petersime trolleys
 - ▶ Standard trolleys: 57,600 eggs
 - ▶ HD trolleys: 64,512 eggs
- ▶ Also possible (look case by case)
 - ▶ Farm trolleys
 - ▶ Other trolleys
- ▶ Maximum capacity is 64,512 eggs
- ▶ Partial loading is possible



X-Stream Re-Store

- ▶ XSTR-8S Re-Store
 - ▶ Capacity is 8 Petersime trolleys
 - ▶ Standard trolleys: 38,400 eggs
 - ▶ HD trolleys: 43,008 eggs
 - ▶ Also possible (look case by case)
 - ▶ Farm trolleys
 - ▶ Other trolleys
 - ▶ Maximum capacity is 43,008 eggs
 - ▶ Partial loading is possible



X-Stream Re-Store

- ▶ XSTR-2S Re-Store
 - ▶ Capacity is 2 Petersime trolleys
 - ▶ Standard trolleys: 9,600 eggs
 - ▶ HD trolleys: 10,752 eggs
- ▶ Maximum capacity is 10,752 eggs
- ▶ Partial loading is possible



X-Streamer Re-Store

- ▶ Specifications
 - ▶ OvoScan
 - ▶ Software for heat treatment cycles
 - ▶ Compatible with Eagle-Eye
 - ▶ Chicken, turkey, duck and geese
 - ▶ No turning
 - ▶ No CO₂ control

Dedicated X-Streamer for
heat treatments

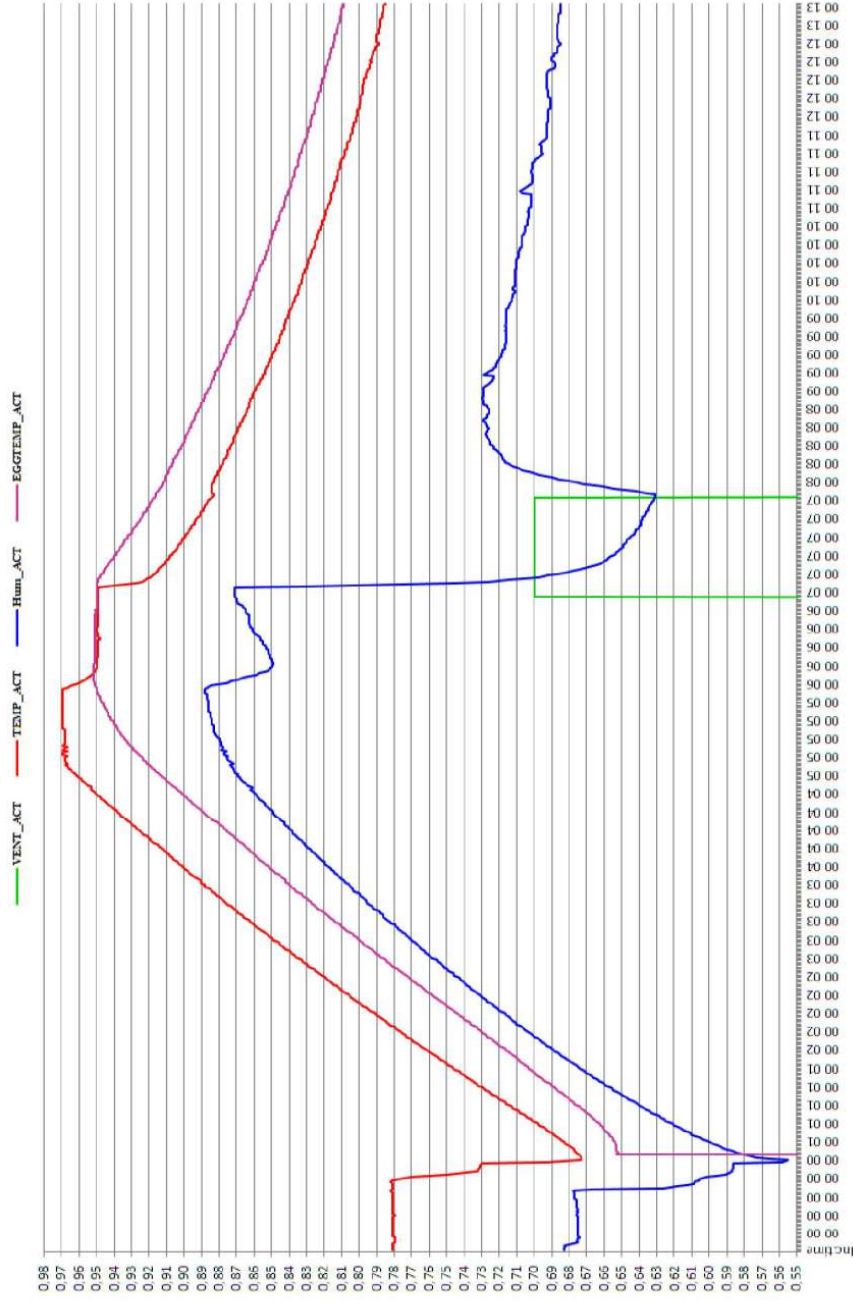


Content

- ▶ Biological background
- ▶ Field results
- ▶ X-Streamer Re-Store
- ▶ Re-Store in practice
- ▶ References

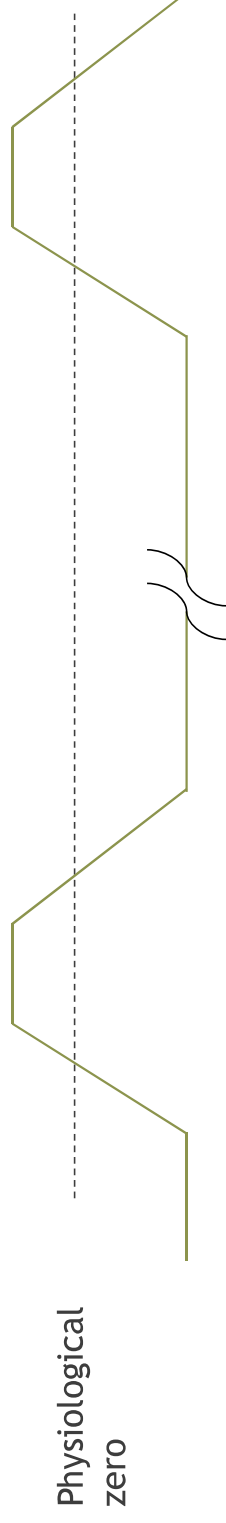


Re-Store in practice





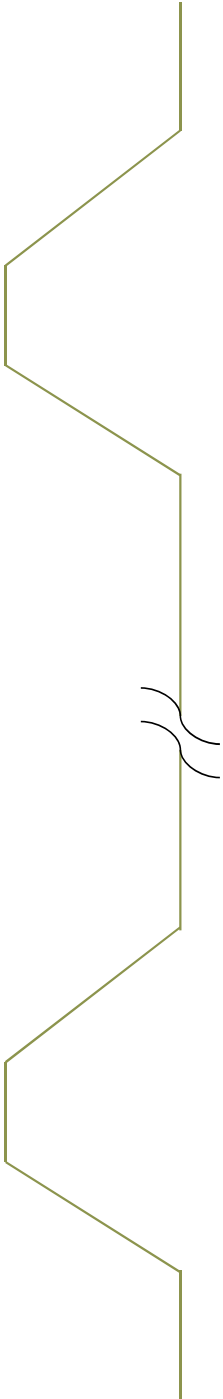
Re-Store in practice



Re-Store in practice

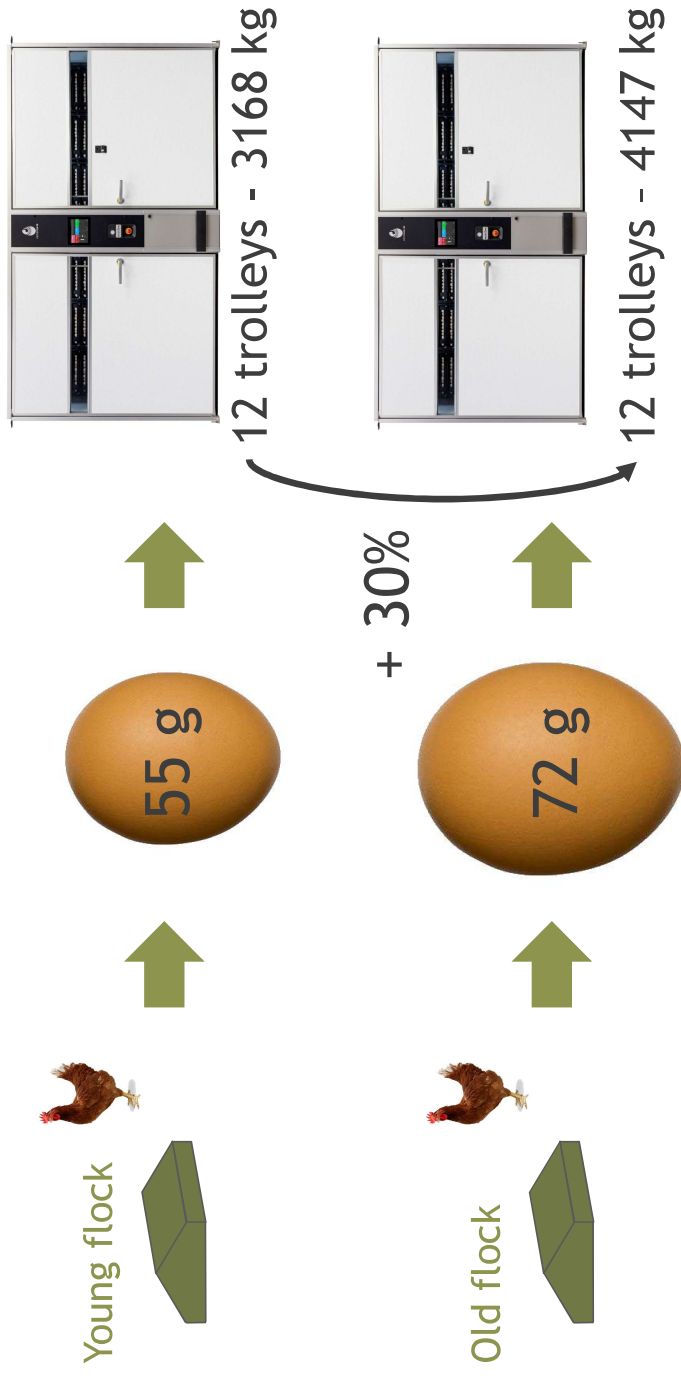
► Number of required treatments

Storage time [days]	# Re-Store treatments
0 - 3	0
4 - 10	1
11 - 15	2
16 - ...	3



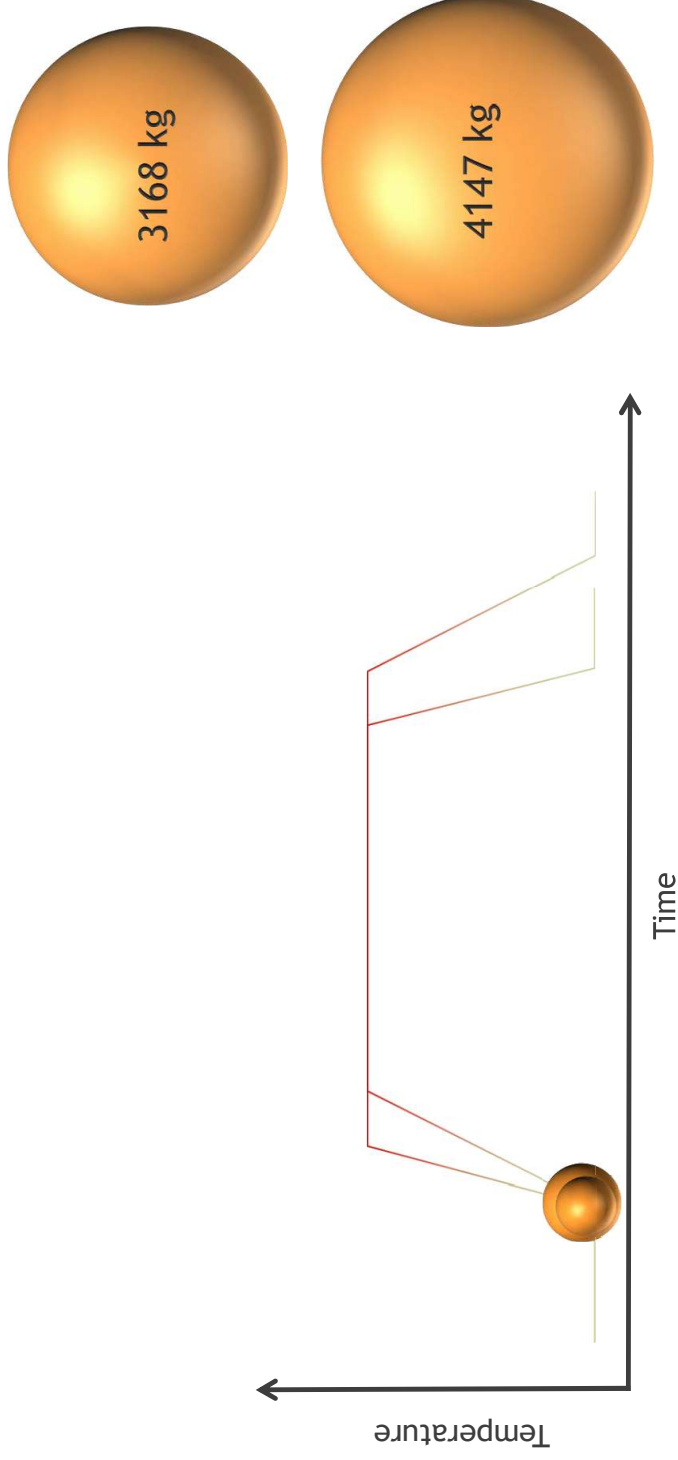
Re-Store in practice

► Time Re-Store treatment depends on egg size



Re-Store practice

- Time Re-Store treatment depends on egg size



Re-Store in practice



► Time Re-Store treatment depends on storage temperature

32 °C

Temp 1



Temp 2

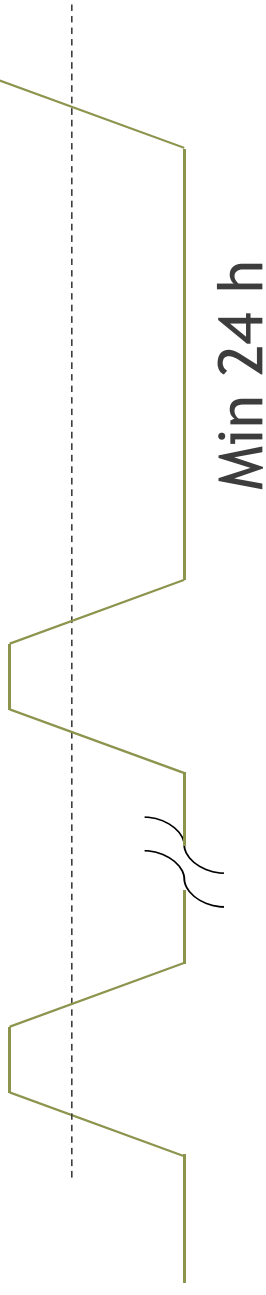


Maximum temperature is 27 °C
Recommended is 24 °C

Re-Store in practice

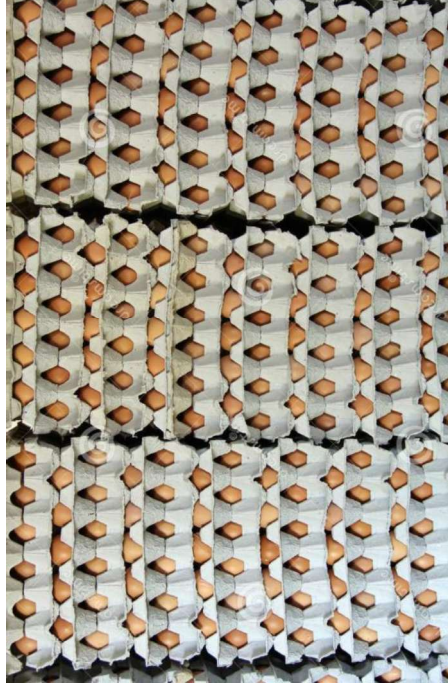


- At least 24h in coldstore between last Re-Store treatment and setting



Re-Store in practice

- ▶ No cardboards or plastic wrap



Re-Store in practice

- ▶ On site training
- ▶ Use the machine
- ▶ Principles and best practices
- ▶ Logistics of heat treatments
- ▶ Evaluating the processes before incubation
 - ▶ Collection at the farm
 - ▶ Storage conditions at the farm
 - ▶ Transport to the hatchery
 - ▶ Storage in the hatchery
 - ▶ Re-Store in the hatchery



Content

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Re-Store reference

- ▶ Aviagen
 - ▶ UK, Germany, Australia, Sweden, Turkey, New Zealand, Denmark, Brazil, Hungary, Spain, South Africa
- ▶ Cobb
 - ▶ Brazil, Spain, UK, China, New Zealand
- ▶ Broiler
 - ▶ Minhe (China), Bounty (Philippines), Sam Hwa (korea), Huat Lai (Malaysia), Darwalla (Australia) Skreining (Austria), Orvia (France), Shalimar (India), Probroed & Sloot (Netherlands), Couvoir de l'Etoile (Belgium), Ávinash, Vizu (Nepal), Granja El Pilar (Spain), Milouot (Israel), Rom Trading (Romania), Agrofert (Czech republic), Brinky (Russia), ...
- ▶ Layer
 - ▶ Hy-Line (Colombia, Brazil), Lohman (Mexico), Babolna (Hungary)
- ▶ Turkeys
 - ▶ Hendrix Genetics (USA), Le Helloco, Hybrid turkeys (France)
- ▶ Ducks
 - ▶ Sandor Szemak (Ukraine)



RE-STORE

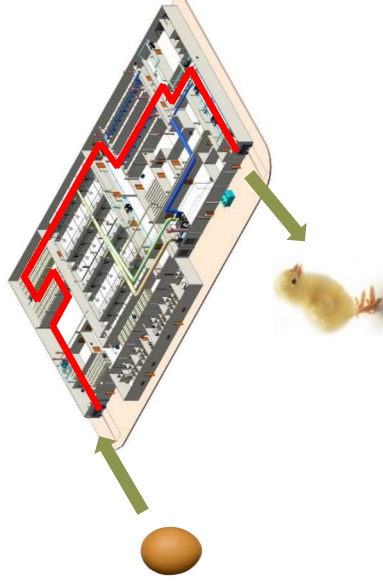
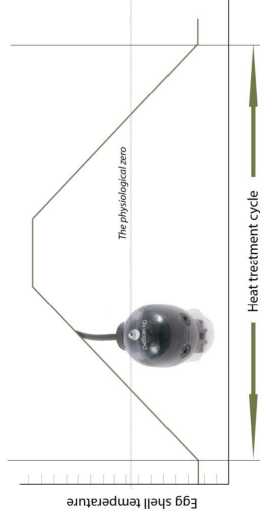


Summary

- ▶ Storage is an important step for the output of a hatchery
- ▶ X-Streamer Re-Store
 - ▶ Gain performance
 - ▶ Better uniformity
 - ▶ Easier logistics

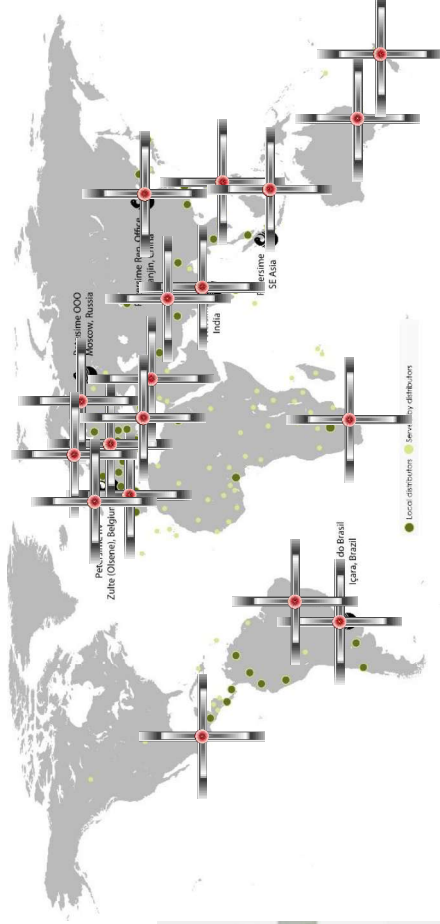


PETERSIME



Summary

- ▶ Training and support available
- ▶ Machine is proving value worldwide
 - ▶ Commercial hatcheries
 - ▶ Breeder hatcheries
 - ▶ Turkeys and ducks



Thank you!



Questions ?