



Gold-Line : a new standard in hatching
eggs disinfection

ANIMAL INNOVATION SERVICES

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Gold-Line presentation

- Specially developed for and with hatcheries
- Proven efficacy against bacteria and germs
- Enhances chicks health and breeders productivity
- Absolutely safe for humans and animals
- 100% biodegradable
- Easy to use
- Effortless integration to other production equipments and procedures: compatible with all types of incubators, hatchers and other hatchery equipments
- Easy storage: the dangerous goods current regulations don't apply to Gold-Line
- Low corrosivity
- Recognized by national product regulation agencies: complies with the European eco-rules

Gold-Line tests in France

Evaluation of the impact of a hatchery disinfection with Gold-Line on the presence of germs in hatcheries and the chicks starting performance

Purposes of the test :

- Prove Gold-Line's efficiency in its use in hatcheries,
- Compare the control hatchery's usual disinfection method results to the use of Gold-Line,
- Highlight the sanitary quality's importance during hatching on the chick's zootechnical performances.

Test protocol (1/2)

- **Methodology :**

- Comparison of 2 disinfection methodologies in hatcheries:
 - 1 hatchery with the usual disinfection method,
 - 1 hatchery with Gold-Line use.
- Batches initial comparability:
 - Same hatching date,
 - Same hatching design,
 - Same donor batch (a « difficult » donor flock has been chosen),
 - Same average age of the eggs.

Test protocol (2/2)

- **Collected data:**

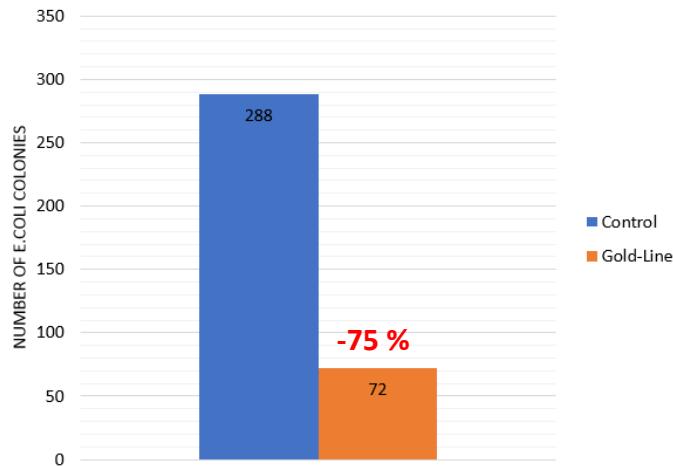
- Ambient air analysis in hatchery:
 - Sampling = 100 l of air on the air outlet 1 hour before taking out the movable carriage,
 - Searching for = E. Coli and Enterococci.
- Chicks starting performance (0-10 days):
 - Two groups are compared:
 - Chicks coming from eggs disinfected with the control product,
 - Chicks coming from eggs disinfected with Gold-Line.
 - Treatment randomization with 8 repetitions (pens) with 50 chicks per group.
 - Assessed zootechnical performances:
 - Bodyweight D0 (individual weighing),
 - Bodyweight D10 (individual weighing),
 - Mortality (measured on a daily basis).

Ambiant air analysis in the hatchery: results

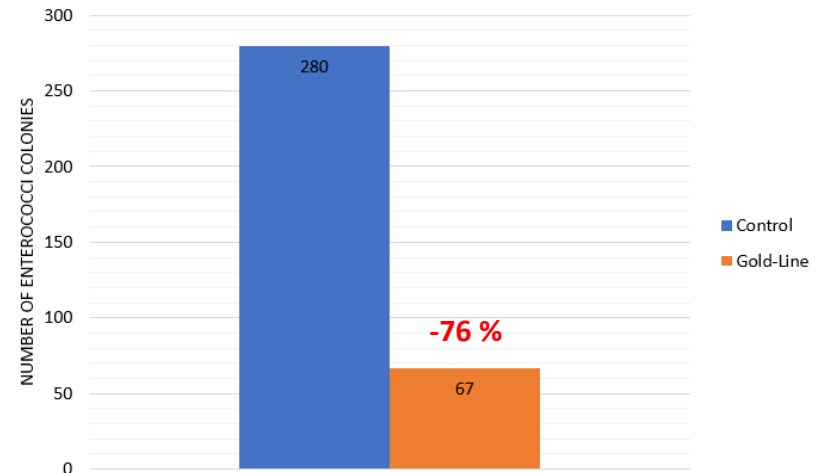
Colony counting depending on disinfection procedure

Treatment	Number of E. coli colonies (VRBL)	Number of Enterococci colonies (VRBD)
Control	288	280
Gold Line	72	67

Number of E.Coli colonies depending on the disinfection procedure



Number of Enterococci colonies depending on the disinfection procedure



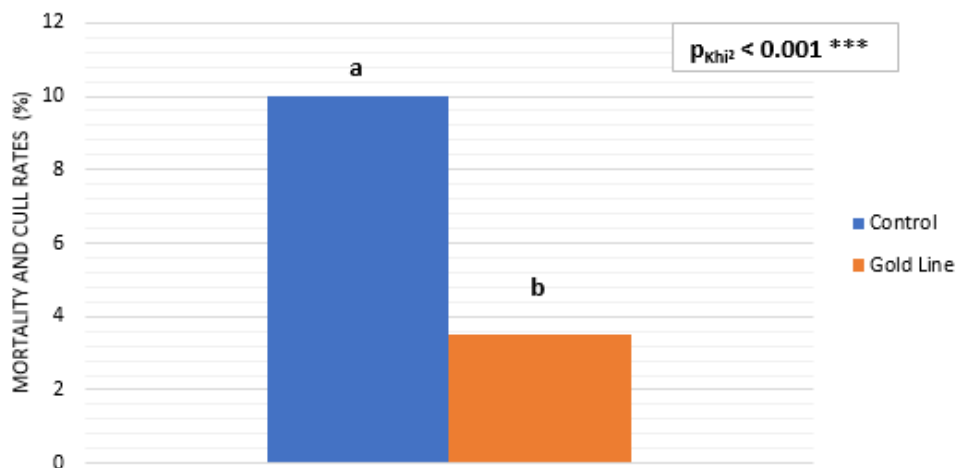
Gold-Line disinfection allowed to reduce the number of E.Coli and Enterococci colonies by 4

Chicks starting performance: results

Mortality and culling rates depending on disinfection procedure

Treatment	Mortality and culling (%)	Number of chicks
Control	10.0 % a	400
Gold-Line	3.5 % b	400
Chi-square test	p < 0.001 ***	

Mortality and cull rates depending on the disinfection procedure



Gold-Line disinfection reduced mortality by 3 at Day 10

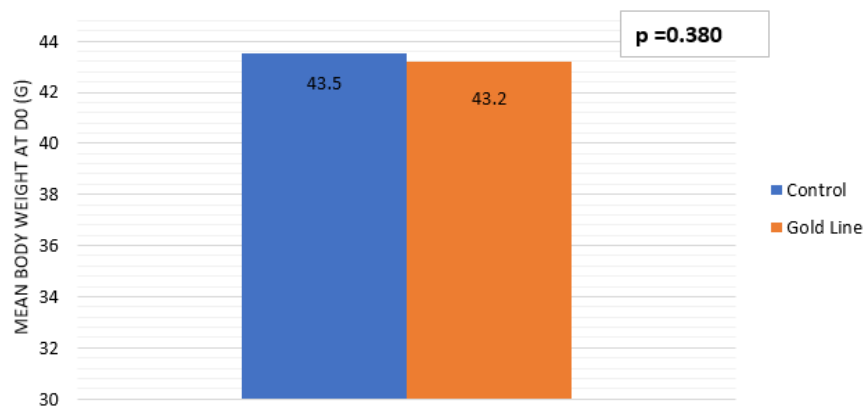
Chicks starting performance: results

Collective weighing at D0 depending on the treatment

Batch	Weight at D0 (g) (Standard deviation %)	Number of pens
Control	43.5 ± 0.7 (1.6)	8
Gold-Line	43.2 ± 0.4 (1.0)	8
Total	43.3 ± 0.6 (1.3)	16

Mean value ± standard deviation

Bodyweight at D0 depending on the disinfection procedure



Comment :

At D0, the disinfection procedure has no significant effect on the **Body Weight** ($p = 0.380$).

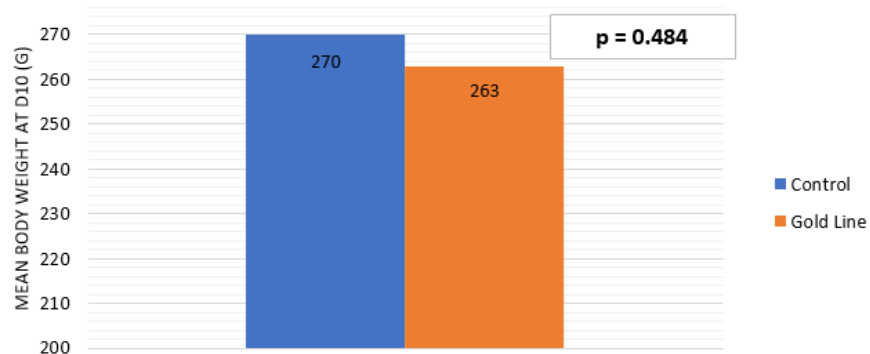
Chick starting performance: results

Collective weighing at D10 depending on the treatment with the D0 weight as covariate

Batch	Weight at D10 (g) (Standard deviation %)	Number of pens
Control	270 ± 13 (4.8)	8
Gold-Line	263 ± 10 (3.9)	7
Total	267 ± 12 (4.5)	15

Mean value ± standard deviation

Bodyweight at D10 depending on the disinfection procedure with the D0 weight as covariate



Comment :

At D10 (with D0 weight as covariate), the disinfection procedure has no significant effect on the **Body Weight** ($p = 0.484$).

Conclusion

- ✓ The disinfection results in hatcheries allowed to highlight Gold-Line's efficiency with a reduction of E.Coli population by 75% and of Enterococci by 76%.
- ✓ The improvement of sanitary quality during hatching has a positive and significant impact on the chicks viability at starting → A Gold-Line disinfection reduces by 65% the death rate and culls during the first few days of life.