Hatchery Talks

Role of the hatchery in Antibiotic Free (ABF) production

Before we start …

- Polls
- Questions in chat
- Webinar-replay + hand-out

Hatchery Talks

Antibiotics in poultry production

Antibiotics: definition

Antibiotics: medicines used to prevent and treat bacterial infections

Used in:

- **Animal production systems**
- **Human health**

Antibiotics: how are they used?

Antibiotics are used in 2 different ways:

- **Curative**
  To treat a flock of birds with disease symptoms

- **Preventive**
  To minimize the risk a flock of birds gets sick (and as such it can also be seen as a growth promotor)

Antibiotics: risk

World Health Organization

Antibiotic resistance in human and in animals:

- One of the biggest threats to global health, food security, and development today.
- Can affect anyone, of any age, in any country
- Misuse of antibiotics accelerates the process
- Leads to longer hospital stays, higher medical costs and increased mortality

Antibiotics: why a call to go ABF?

Trend: 'ABF / No antibiotics ever (NAE)'

- Stop the preventive use of antibiotics
- Minimize the curative use of antibiotics

Antibiotics: statements

- The use of antibiotics is for correction of imperfections

- **So, let’s do the right thing!**

Hatchery Talks

Role of the hatchery in Antibiotic Free Production

Antibiotics in the hatchery

- **No direct need to use antibiotics in the hatchery**
- **If applied it is for benefits after chick delivery:**
  - Prevention of disease problems
  - Reduce 1st week mortality
  - Growth promotor
- **Application methods:**
  - Intra-muscular or sub-cutaneous injection
  - In-ovo
  - Advice: drinking water at farm (or in feed)

ABF: what can the hatchery do?

Simply stop applying antibiotics might become a disaster

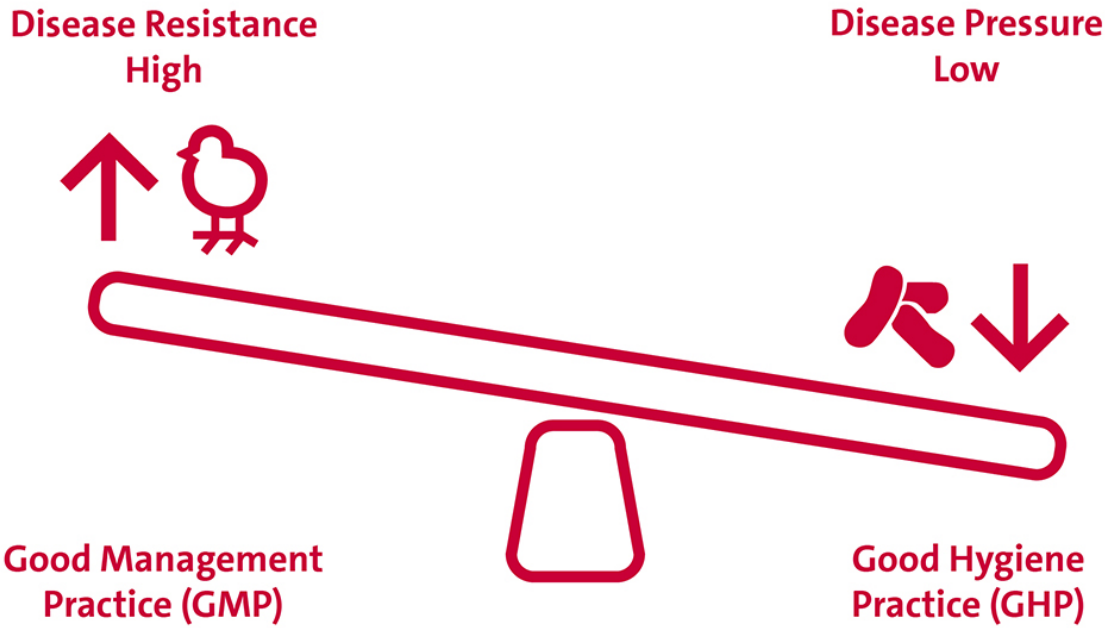
Might lead to problems in farm like:

- Increased 1st week mortality (e.g. omphalitis)
- Retarded growth & poor FCR
- Condemnations at processing plant

Poll

In our hatchery we do all we can to minimize the use of antibiotics

ABF: what can the hatchery do?

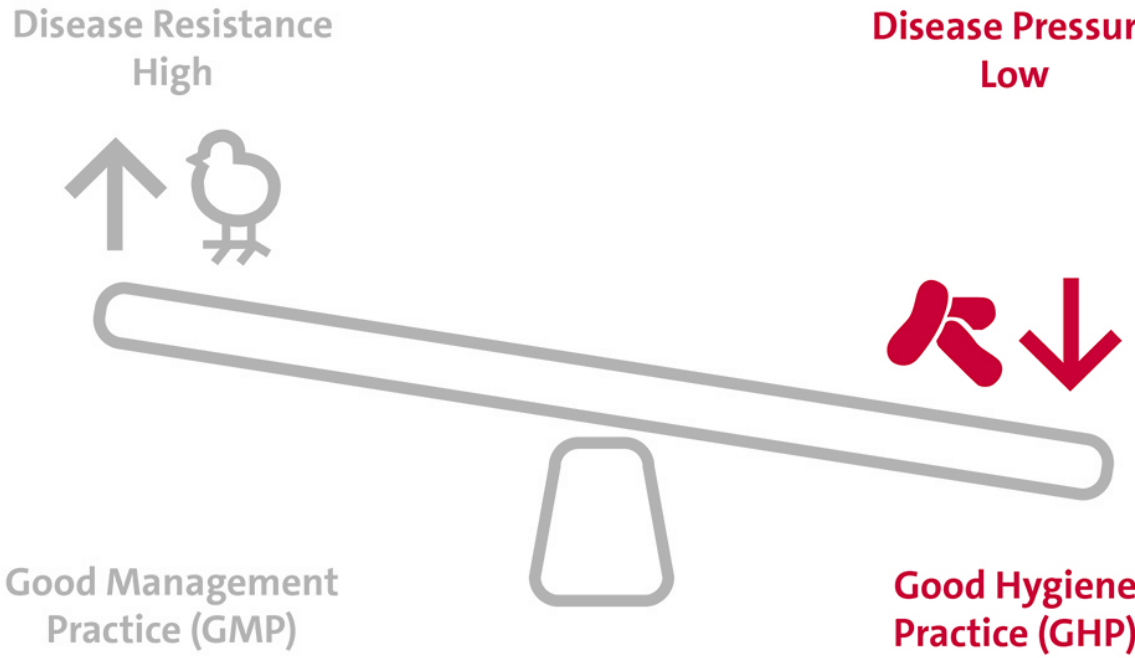


Hatchery Talks

Decreasing the disease pressure

Decreasing the disease pressure

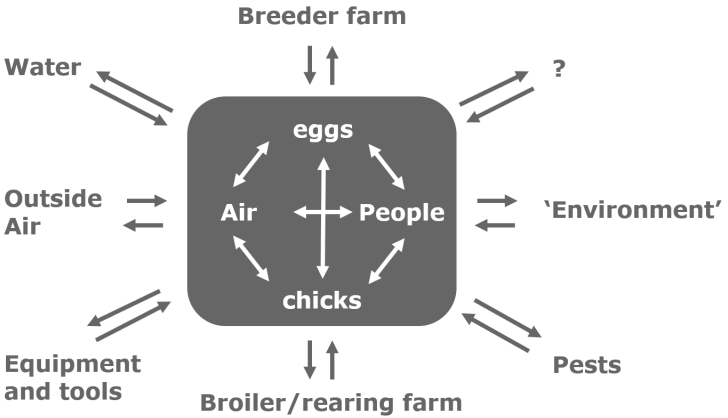
Good Hygiene Practices (GHP)



Decreasing the disease pressure

Good Hygiene Practices (GHP)

- Implement good biosecurity
- Avoid cross-contamination
- Cleaning & disinfection



Hatching eggs

Vertical transmission → health status breeders
(Salmonella spp; Mycoplasma spp; various viruses)

- **Monitoring**
- **Avoid horizontal transmission in hatchery:**
  - 1 flock/hatcher
  - 1 hatcher room/hatch day



Hatching eggs

Hatching eggs → main source of pathogens

- Are you setting floor eggs?
- Do you accept dirty eggs?
- Do you check for hair line cracks?
- Are you preventing ‘egg sweating’?

Poll

“Not setting floor eggs greatly contributes to lowering the need for use of antibiotics!”

Hatching eggs

Quality control & feedback to breeder farm

Sample size		
Category	Number of eggs	% of sample
Dirty		
Misshaped		
Upside down		
Abnormal shell colour		
Poor shell quality		
Hairline cracks		
Big cracks		
Too small		
Too big		
Total		

Hatching eggs

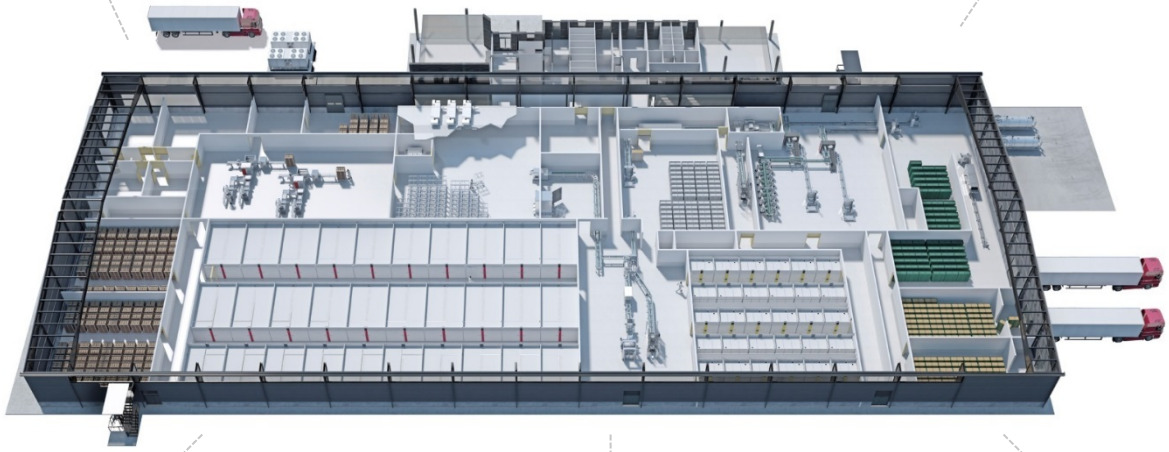
Disinfecting of hatching eggs

- No sense to disinfect floor eggs or dirty nest eggs
- At the breeder farm or in the hatchery
- Chemical & method
- Washing eggs is risky!

Hygiene zones

Egg Arrival

Chick handling / dispatch



Setter room

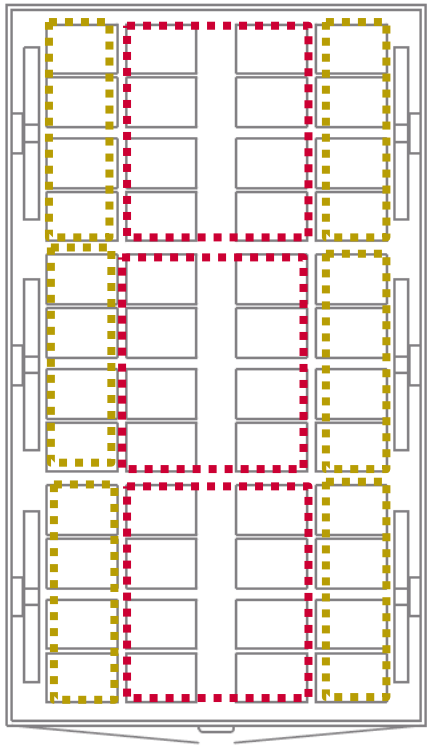
Candling and transfer

Hatcher room

Transfer

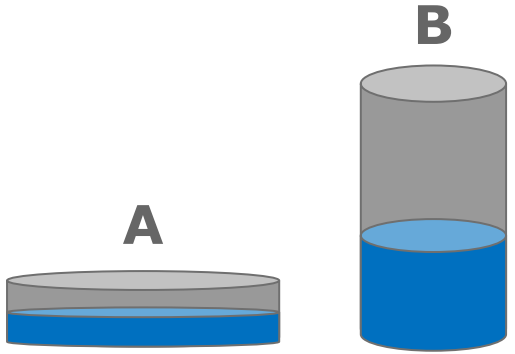
Transfer from setter to hatcher:

- First **young**/next **old** flocks
- Bangers:
  - Bucket with liquid disinfectant or vacuum waste system
  - Clean-up immediately after each banger
  - Live-egg detection
- Clean/disinfect vacuum heads
- Paper in basket?



Formalin during the hatch?

- To reduce disease pressure and/or for yellow chicks
- 100 – max. 250 ml formalin (37 – 40 %)
- Surface plate approx. 1,000 cm²
- Placement just before pipping; finished when chicks are drying
- **Risk! Legislation! Labour conditions!**



200 ml formalin

Highest concentration in air?

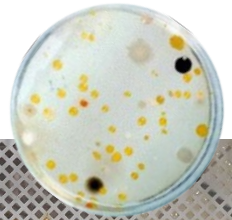
Air

Pressure differences:

- Setter room → over-pressure
- Hatchers and especially fluff tunnel → under-pressure
  - Location of exhaust in relation to wind

Cleaning and disinfection

- Multi-stage versus single-stage
- How clean are your hatcher baskets?
- Monitoring

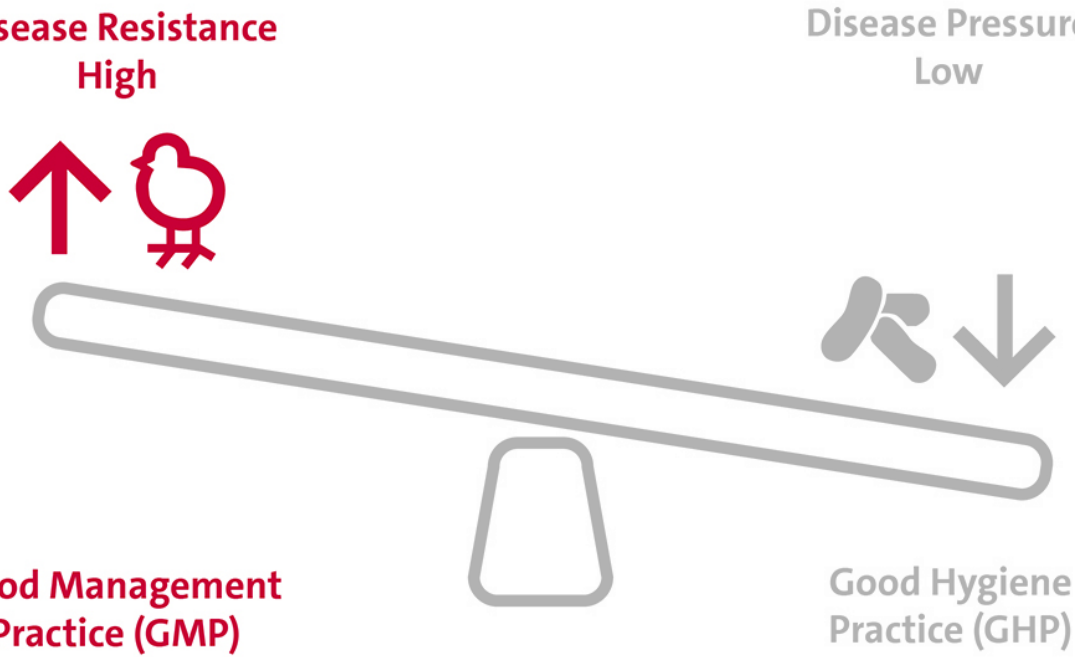


Hatchery Talks

Increasing the disease resistance

Increasing the disease resistance

Good Management Practice (GMP)

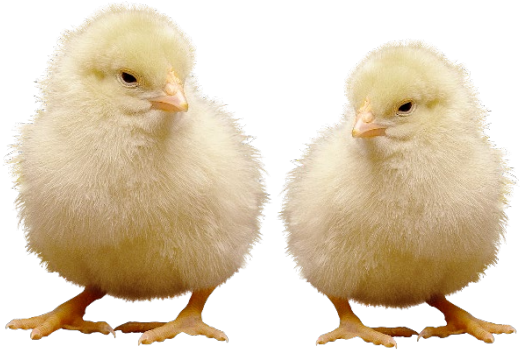


Good Management Practice (GMP)

- **Provide optimal incubation conditions for strong and vital day-old-chicks**
- **Apply a good vaccination program to ensure high level of immunity**
- **Avoid stress factors for embryos and chicks:**
  - Overheating
  - Chilling
  - Dehydration
  - Delayed feed access

What is disease resistance?

- **1st line of defense**
  - Skin
  - Trachea
  - Intestinal wall
- **Innate immune system**
- **Antibodies**
  - Passive: maternal origin
  - Active: produced by chick



Increasing the disease resistance

Skin

Optimal incubation conditions for well-closed navel

- Embryo temperature control
- Egg weight loss
- Effect of egg storage

Avoid injuries:

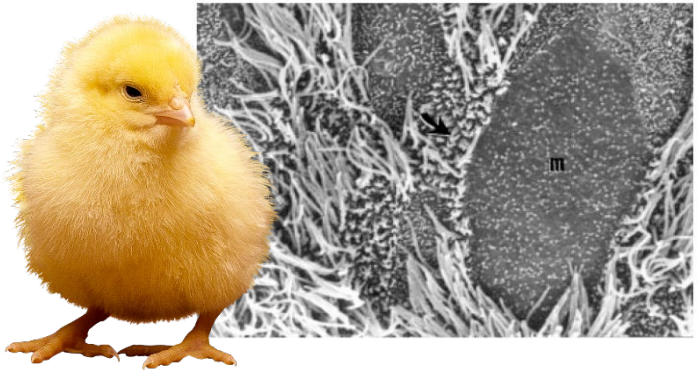
- Prevent red hocks
- Bottom of hatcher basket (toes)
- Chick handling
- Clean needles & a-septic vaccine preparation

Increasing the disease resistance

Trachea

Downside of formalin during the hatch

- Damage epithelial lining
- More infections in respiratory tract (although less yolk sac infections!)
  - Increased risk for post-vaccination reaction
- FCR negatively influenced with 23.5ppm from E19-21



Poll

Are you using any disinfectant during the hatch?

Increasing the disease resistance

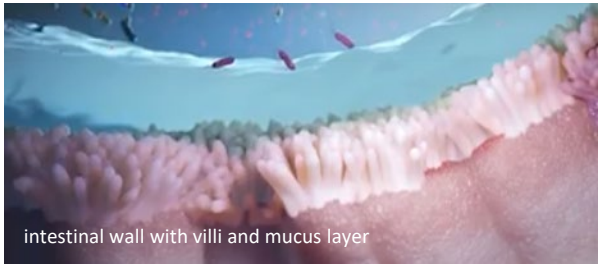
Intestinal wall

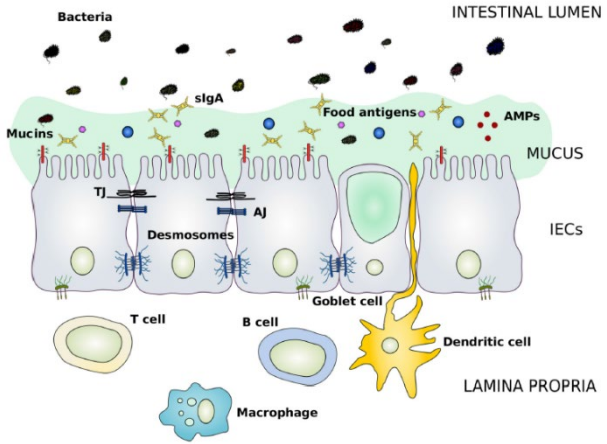
1st line of defense

- Mucus layer
- Epithelial lining
- Healthy gut flora → CE
  - pre/probiotics

Intestinal immune system:

- Represents 70% of total
  - Mostly innate





Immune cells play an important role in Gastro-Intestinal Tract = GIT,

Antibodies

Maternal antibodies in yolk (passive)

- Vaccination program breeders
- Should not be used as source of energy!

Adaptive immune system

- Hatchery vaccinations → production of antibodies
  - Thymus → T-cells
  - Bursa → B-cells
  - Others like Harderian Gland (spray vaccination)

Incubation temperature

Avoid over-heating of embryos (EST > 102 °F)

- Easier in single-stage than in multi-stage
- High embryo temperatures:
  - Yolk proteins used for energy (incl. maternal antibodies?)
  - Negative effect on size of Thymus and Bursa
  - Navel quality

Increasing the disease resistance

Feed access

Avoid delayed feed access

- Reduce hatch window & correct pulling time
- Smooth processing & timely delivery to farm
- Feeding in hatcher

Access to early feeding

- Stimulates development intestines
- Intestinal immunity develops in parallel
- Faster yolk sac resorption (maternal antibodies)
- Kick-starts microbial colonization
- Avoids maternal antibodies are used for energy

Increasing the disease resistance

Chick comfort

Avoid overheating and chilling after hatch

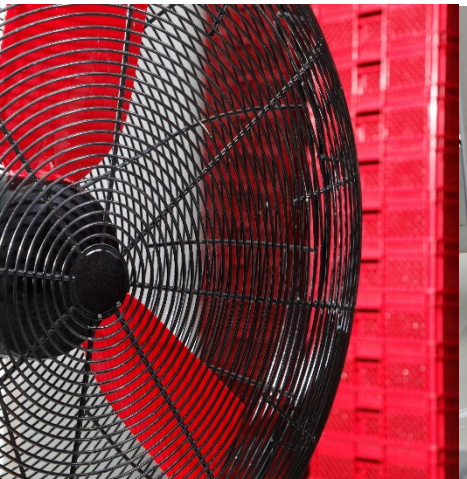
- Overheating → dehydration
- Stress → prevents immune system from functioning properly




Spray vaccination

Wet chicks more prone to chilling

- Droplets (< 100 µm) → post-vaccination reaction

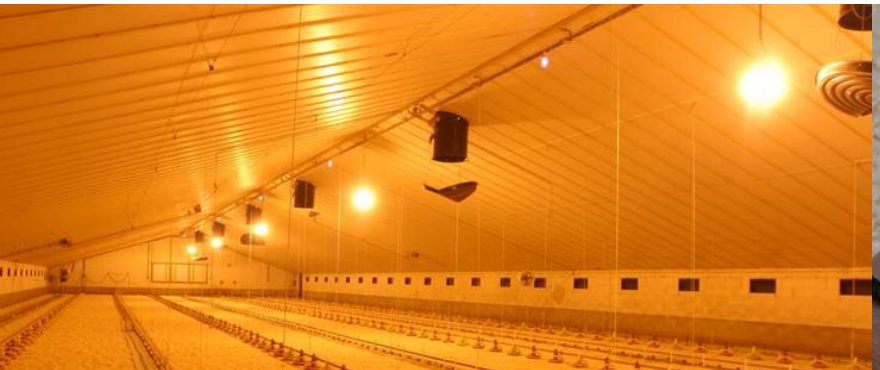


Increasing the disease resistance

Transport & brooding

First class transport & warm welcome

- Temperature and air flow combined determine chick comfort
- Ensure floor is 28 – 30 °C
- Fresh, clean water & feed

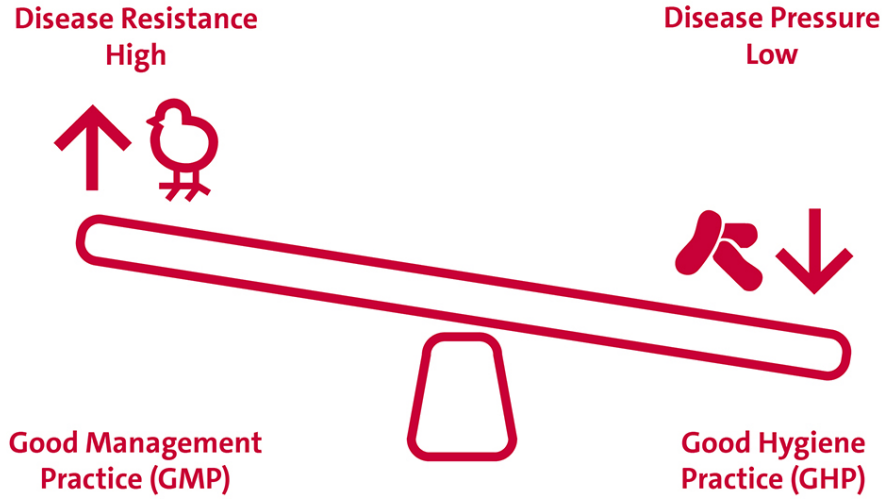


Hatchery Talks

Summary: What can the hatchery do?

ABF: What is the weakest link in the hatchery?

If you know … fix it!



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- Webinar-replay + hand-out
- Knowledge section at our website

See you at our next webinar!

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