Water In A World of ABF

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Most of us are having to grow some percentage of our birds without the use of antibiotics.

In this new world, the absence of antibiotics has revealed underlying issues.

Many of these underlying issues were unknown or thought to be irrelevant.

Now is an opportunity to solve the root problems rather than treat the symptoms.
Where Are We Finding These Root Problems?

- Litter
- Ventilation System
- Bio Security Failings
- Water
How Are The Underlying Issues in Water Manifesting in Our Flocks?

- High mortality
- Enteric issues
- Poor flock performance
- Disease flock after flock
- Low vaccination effect
- Low water consumption

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We have disease come into the flock. This gets trapped in the water system.

Every time the birds take a drink they re-inoculate the water system.

Naturally occurring flora land on the drinkers and work their way back up into the system (e. coli, pseudomonas).

We provide the perfect environment for growth, and even feed it!!

Then, when we do an incomplete job of treating water we actually promote the resiliency of the organisms.
The Problem Can Work It’s Way Backwards Through the System

Algae growth in the filter – this can start in the Barns and grow Backwards in The system
We have removed a “fixer” tool (antibiotics)

We have replaced that tool with unfamiliar supplements

We continue to treat our water as though we still have the “fixer” tool available

The overload of information and “magic pills” leaves us confused as to where to start
Supplements – Know Your Stuff

- Common Supplements
  - Probiotics
  - Prebiotics
  - Essential Oils
  - Acids
  - Electrolytes
  - Vitamins
  - Various Minerals

Each one of these products have bacteria, yeast, mold, algae, fungus, etc. that can use it for an energy source.
Some supplements have shown real promise in bird health.

This is a discussion about what these supplements do inside the water line, not a statement about their effectiveness.
How Are Supplements an Issue?

- **Probiotics** – you are literally adding bacteria to the water line. Even good bacteria can clog up a drinker! (These have shown promise, but you still have to manage the water system)

- **Prebiotics** – carbohydrate or plant source that is used to enhance the growth of bacteria in the gut. It does not discriminate – prebiotics will enhance the growth of ALL bacteria when administered through the water line.

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Essential Oils – There are hundreds of different essential oils, and combinations of essential oils that are being tested and used in poultry production.

While there may not be an agreement on their benefits, one thing is certain – they are some of the stickiest and most difficult supplements to clean out of a water line. Short term use followed by at least a week of water treatment is recommended to keep drinkers from sticking closed and bacteria from flourishing in the safety of the film in the water lines.

Most importantly, if you use essential oils you MUST have a water line cleaning program when the facility is empty.
How Are Supplements an Issue?

- **Acids** – We use acids for all kinds of issues on the farm:
  - “Tighten the gut”
  - Lower pH in water
  - Entice feed/water intake at feed change
  - De-scale water lines

Among Several Other Uses

Long term use of acids with no water treatment program promotes the growth of acid loving algae, molds, fungus and yeasts.

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Result of Unchecked Acid Use

Mold in the water line

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How Are Supplements an Issue?

- **Electrolytes and Vitamins** – naturally, if it is a product that will encourage our birds’ health, it will encourage bacteria health!

- **Various Minerals** – again, if it’s helping the birds, it’s helping the bacteria! Are you providing mineral supplements? Is your well?
  - Bacteria live on iron, sulfur, magnesium, etc. There are even bacteria that use Copper as an energy source........
Several complexes are now using Copper Sulfate as a treatment for enteritis – just keep an eye out for:

- **Increased bacteria numbers** – Copper Sulfate will kill off a high percentage of bacteria, but there are bacteria that live on copper sulfate (and now you’ve killed off the competition)

- **Sealed drinkers** – Long term use of Copper Sulfate (over 5 days) tends to lead to drinkers that are sealed over by the precipitate of the copper
Iron itself may not be a problem for the birds, but it’s a problem for our equipment.

Iron promotes the growth of bacteria that ARE damaging to bird health.

This slimy mess is indicative of an iron bacteria problem.
What Do You Think of When You See This?

Debris flushed from A water line
I See a Grower That is Trying

- A farm that probably has an actively involved manager/owner
- A manager/owner that is well read
- A manager/owner that is willing to try new things
- An Antibiotic Free Farm
- A Farm with no set effective water program
An actively involved grower wants to do his best for his birds and, as a result, his bottom line. He is open to try new methods.

The removal of antibiotics has made us pay attention to prevention rather than treatment.

New products, new research, new territory has us trying new programs.

Active management may try 2, 3 or 4 new and different things in one flock – then they can’t say which new thing worked, or didn’t.
We add our “magic pill” through the water line, not only providing a supplement to our birds, but usually providing a supplement to the bacteria.

We come in with a little acid here, a weak chlorine there and we give the bacteria a chance to produce a protective slime layer; e. coli and pseudomomonas are notorious for this.

Then, thinking we’ve treated the water, we add a little more magic pill.
We come in with a little acid here, a weak chlorine there and we give the bacteria a chance to produce a protective slime layer.

The grower tries several things, but he has no consistent plan to clean water lines or treat his water. It’s hit and miss which gives the bacteria all the opportunity they need to flourish.
What Do I Do, Now?

- Start at the source and test for Minerals – this is easier than you think
- Determine if you need additional filtration
- Clean underground lines
Next, Clean the Water Lines When the Barn is Empty

When the barn is empty is the time to use a product that can clean the water lines – that can be a stronger solution of what you are using during the flock (make sure it is designed for that) or a product designed specifically for cleaning water lines.

Be Aware:

- Some products damage the rubber components of the water line
- Bacteria build resistance to chlorine products – if regularly using chlorine, rotation of different products is recommended
Example of Chlorine Resistant Bacteria

Use alternative products for 2 flocks if you find your chlorine is not doing as good a job as it used to.
If the product you are using calls for a 2% or 3% solution you **CAN NOT** get this with a medicator. Get a proportioner pump or use a sump pump and barrel.

This is a proportioner pump.

It goes on the water line at the same spot the medicator does.

Only use when the barns are empty.
If You Don’t Have a Proportional Pump You Can Use a Sump Pump and Barrel

A 3% solution would be about 1 gallon of product into 30 gallons of water.
Helpful Hints When Cleaning Water Lines

- It will take twice as long for the first lines to fill than the subsequent lines.

- Be sure the product is completely through the system – look for bubbles, use test strips, look for color change, etc.

- Trigger all the drinkers.

- Be sure product sits the recommended amount of time.

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Daily Water Treatment Choices

After you clean the lines, help them stay clean. Remember, the water system is NOT a closed system.
The 2 most common products: Chlorine, Hydrogen Peroxide

**Chlorine** – Education on the forms of chlorine is vital

- Liquid chlorine – often misused because of pH issue
- Chlorine Dioxide – More effective than liquid, requires mixing time and special handling
- Gas chlorine – most effective form but requires special handling
How pH Affects Chlorine Ratio of Hypochlorous Acid to Chloric Ion

% In Solution

pH of Water

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If You Use Liquid Chlorine

Be Aware:

- Liquid Chlorine damages the rubber components of the water line
- Bacteria build resistance to liquid chlorine products
- Use alternative products for 2 flocks if you find your chlorine is not doing as good a job as it used to

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What Do I Use?

The 2 most common products: Chlorine, Hydrogen Peroxide

Hydrogen Peroxide –

- Several different percentages on the market ranging from 20% to 50% - ask for corresponding directions

- Certain products have additives that significantly increase the active stability of Hydrogen Peroxide (Generic, technical grade and most food grade Hydrogen Peroxides do not contain these added ingredients)
Use Daily Water Treatment

- The first two weeks of a flock – warm, slow moving water that is continuously re-inoculated needs to be treated.
- After you have added any supplements – this includes acids.
- For 7 days after the injection of a vaccine through the water line.
- Anytime you are not injecting probiotics or vaccines.

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Just A Few Notes:

- Filters do not get rid of all the bacteria

- A water softener is not a method of water disinfection

- Reverse Osmosis and Ultra Violet light do clean the incoming water, but there is NO RESIDUAL as this water goes into the barn where the birds will be adding bacteria, viruses, molds, yeasts, etc. to the system – you must have a water treatment program in conjunction with these
Be proactive about a water program. Don’t wait for the problem to show up. Get specific, get it in writing, educate yourself.

Water programs are 2-step programs:

- A set, specific method for cleaning water lines when the facilities are empty
- A set, specific method for treating water when there are birds in the barn

Know what you are adding to your water lines as a supplement - don’t depend on your neighbor to educate you.

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Take Home Message

Although our focus seems to be on daily water treatment, no matter what you have as a daily treatment program you MUST have a plan to clean the water system when the facilities are empty.

Make a choice, make a plan and follow through.
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WE COULDN'T GET A SITTER.