

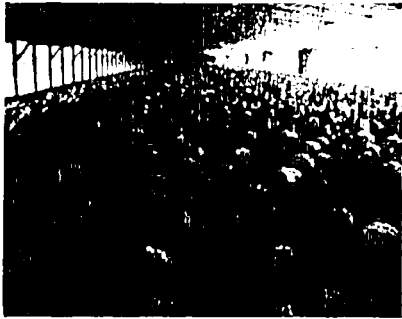
SECTION 2

Emily Brown

Nipple Drinkers for Turkeys



Contrary to popular belief –
these are not big chickens!!

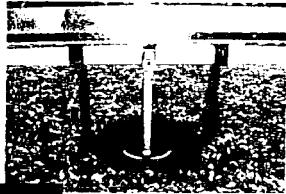




Lubing Brooder Drinker



Luring Adult Drinker





The New

The Old



Ziggy Systems



Ziggy 2.5"

Ziggy 3 75"



Other Options



Pleason Pin Line



Bell Drinker Brood



Nipple Line Brood



Drinkers : A Source of Contamination ??

- Disassemble at least once a year and thoroughly clean to remove build up.



- Nipple drinkers : a larger bacterial source than we realize. Out of sight – out of mind



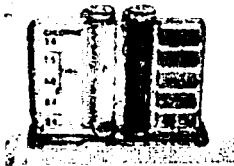
Is Water Quality Acceptable ?

- Loose droppings
- Higher than normal water consumption
- Wet litter
- Repeated E. coli or Bordetella breaks
- Comparative farm performance poor
- Medication failures
- Roundheart
- Scale on drinkers

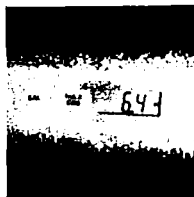


Evaluating Effectiveness of Water Sanitation

- Chlorine / pH Test Kits



- pH Testers



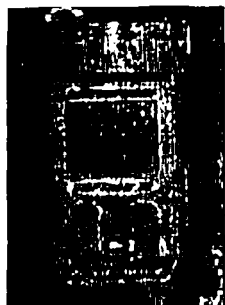
Move from "I THINK to I KNOW my Water is Clean"



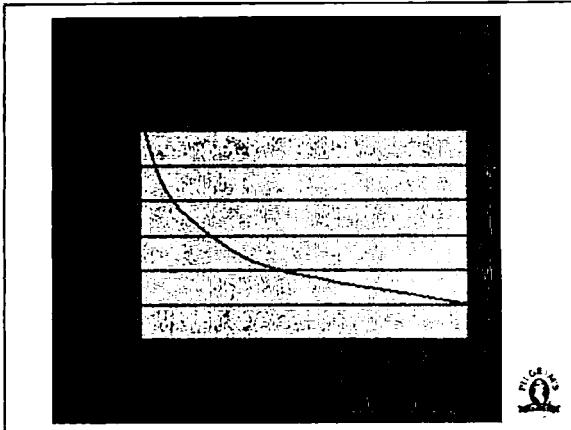
Oxidation-Reduction Potential (ORP)

- Measures the residual energy in water
- Free chlorine present- energy will be high
- Water dirty or no free chlorine, energy is low
 - Can even be a negative number
- Optimum ORP level- 650 to 750
 - Free chlorine levels of .2 to .4 ppm adequate









Water Sanitation

- Rule of Thumb:
3-5 ppm free chlorine at end of line
- But ...Measuring Free chlorine doesn't tell you which form is present so must check pH (6 to 7)
- Goal = ORP 750 mV



Bottom Line

- Just because a producer is using bleach, does not mean he is effectively using chlorine
- Use indicators to check effectiveness – water samples, blood tests
- Monitor effectiveness – chlorine test kits, pH meters, ORP meters
- If you measure something it will improve



Delivery Systems





Chlorine treatment

Chlorine only eliminates "free" bacteria

Bacteria which are still present after treatment with chlorine

Water Sanitation: maintaining bacteria free system, from source to bird.

Has a greater impact on flock performance than we think

Our definition includes:

- Coliform free source
- Entry area plumbing
- Removal of debris – filters
- Removal of biofilms – sanitation between flocks and during flock
- Consistency
- Monitor, monitor, monitor



Why be concerned with sanitation?

- Part of our total BMP package –
 - Dry litter
 - Gut health – reduction of bacteria and viruses
 - Respiratory health – ORT, Bordetella (Blood Profiling)
 - Improved immune response – effective vaccination
 - Improved bird health and lower medication costs
- Animal welfare
- Loss of antibiotics – FDA
 - Neomycin, Nitrofurans
 - Baytril, Erythromycin
 - 3-Nitro-Penicillin combination
 - What's next???



Aerobic Bacteria Levels in Water

Farm	CFU/ml
A-- At source	2,700
A-- At end of line	26,600
B-- At source	203,000
B-- At end of line	2,340,000
C-- At source	0
C-- At end of line	4,775,000

CFU = Colony Forming Unit



Bordetella found in this regulator

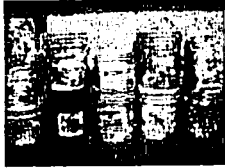


What are the Options Now ?

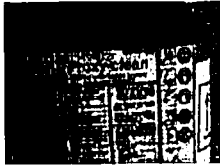


Biofilms

- Once a bacteria attaches to the biofilm it :
 - Begins to excrete a slimy material
 - “turns on” a whole different set of genes
- Biofilm greatest where water flow is slowest
- C&D of waterlines critical between flocks followed by consistent, effective water sanitation



Non Corrosive Oxidizers for Waterlines



Other Potential Products

- Chlorine Dioxide – (chlorine dioxide and pH reducer) currently testing this system
- Effective against
 - Bacteria
 - High manganese
 - High iron
- Consistent delivery system – less opportunity for error

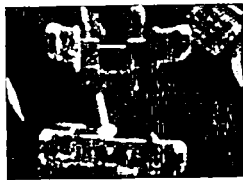


Water Line C&D Key Points

- **Water System Sanitation Critical**
 - Keeps biofilm minimized
 - Optimizes quality of water for birds
- **Know the limitations of your water**
- **Sanitizers have strengths and weaknesses**
- **Flush water lines**
 - Reduces sediment buildup
 - Removes loose material



Lubing Line Trouble Shooting



Lubing Pendulums

Lubing Pins



