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Solutions for Ulcerative Enteritis in Bobwhite Quail

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About RSI Poultry Veterinary Consulting LLC



DIAGNOSTICS AND SOLUTIONS IN AVIAN MEDICINE

INTESTINAL HEALTH, FOOD SAFETY, BACTERIOLOGY, GENOMICS

- Intestinal Health and Food Safety Interventions
- *Salmonella*, *Clostridium*, *Enterococcus* studies – Field and Laboratory
 - Source Investigation
 - Prevention and Control Intervention Assessment
 - Autogenous vaccines
 - Molecular detection and typing: *Salmonella* serotyping-ISR, PCR, qPCR, viability qPCR, genome sequencing analysis (assessment of virulence, antimicrobial resistance, acid tolerance, biofilm)



Study Background



- **Tuck Farms LLC - Alabama**
 - Ulcerative Enteritidis reported in bobwhite quail chicks
 - Presentation: Post-feed change
 - ABF feed
 - Antibiotic treatment



ULCERATIVE ENTERITIS

- Disease caused by *Clostridium colinum*, less commonly, by *Clostridium perfringens*
- Young quail (4 – 16 weeks), cases in adult quail are rare
- Transmitted by the **fecal–oral route, fomites**
- Disease course: about 3 weeks
- Predisposing conditions: **Stress**, Coccidia
- Signs: diarrhea, listlessness, ruffled feathers, emaciation, death
- **Carriers**
- **Immunity in birds recovered from natural infection**
- **No vaccines available**





Objective

Testing a protocol to prevent or control
Ulcerative Enteritis in young bobwhite
quail

Field Trial Description



04 barns (Frank 2, 3, 4, 6)
Bobwhite quail farm
Blountsville, AL



Total number of birds:
129,933 at placement

Flock	Citric Acid + Essential Oils Blend in the drinking water	UE status
Frank 2	3 days / wk starting at 7 wks of age	No UE
Frank 3	3 days / wk starting at 10 wks of age	UE at 7.4 wks
Frank 4	3 days / wk starting at 12 wks of age	No UE
Frank 6	3 days / wk starting at 16 wks of age	UE at 11 wks

- UE = Ulcerative Enteritis
- Reused litter
- Feed change: 6 – 8 weeks (Starter to Grower)
- pH post-acid blend application = 6.5

Artevida



Artevida was fully consumed before 24h



Prediction of Ulcerative Enteritis Onset (Days of Age)



BARN	2023	2024	Differential
Frank 2	53	(30)	-23
Frank 3	73	50	
Frank 4	120	97	
Frank 6	101	78	
Frank 7	108	42	
EOR 3	63	43	
EOR 4	39	56	

Data collection



DAILY MORTALITY



ANTIBIOTICS USE

First Week Mortality Results



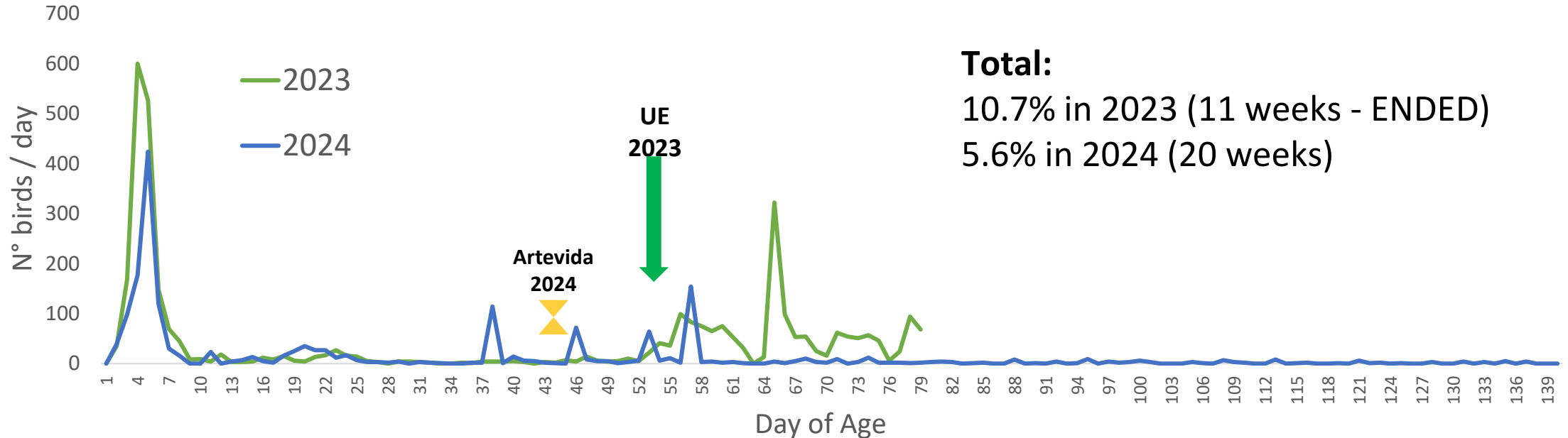
BARN	2023	2024	Differential
Frank 2	4.8 %	2.8 %	-2.0 %
Frank 3	2.1 %	1.3 %	-0.8 %
Frank 4	4.7 %	1.6 %	-3.1 %
Frank 6	0.6 %	1.8 %	1.2 %
Frank 7	2.6 %	0.8 %	-1.8 %
EOR 3	2.3 %	1.2 %	-1.1 %
EOR 4	1.5 %	0.7 %	-0.8 %

Average improvement 1 %



Frank 2 - Mortality

* 39 days on Citric Acid + Essential Oils Blend (3 days/week starting on Day 51)



Total:

10.7% in 2023 (11 weeks - ENDED)

5.6% in 2024 (20 weeks)

chicks at placement: 32,827 (2023)
32,000 (2024)

Frank 2 terminated early in 2023: 11 weeks

Frank 2 in 2024: No UE



2023: 25 days on antibiotics

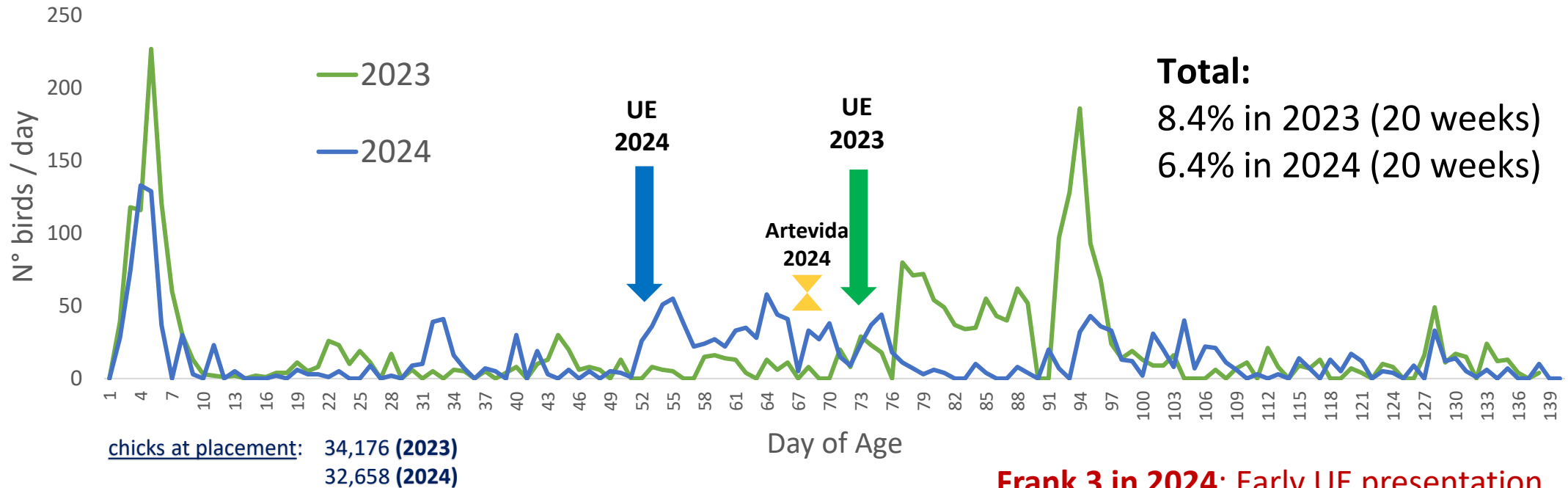
2024: No antibiotics used

Artevida used on Day 44 to support birds' gut health prior to the initiation of the Acid Blend on Day 51 (done due to the proximity to the predicted date of disease onset)



Frank 3 - Mortality

* 30 days total on Citric Acid + Essential Oils Blend - post-UE application (3 days/week starting on Day 73)



Frank 3 in 2024: Early UE presentation

Artevida used on Day 68 and 71 to support birds' gut health (UE outbreak still active) prior to the initiation of the Acid Blend on Day 73

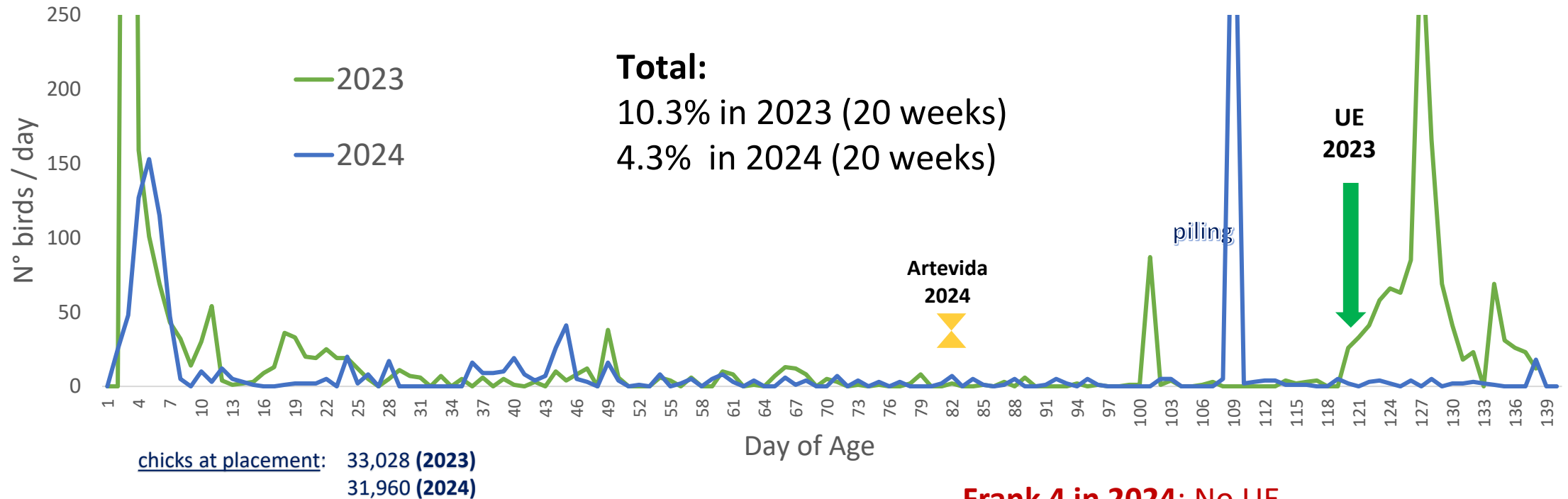


2023: 27 days on antibiotics
2024: 25 days on antibiotics



Frank 4 - Mortality

* 25 days total on Citric Acid + Essential Oils Blend (3 days/week starting on Day 87)



Frank 4 in 2024: No UE



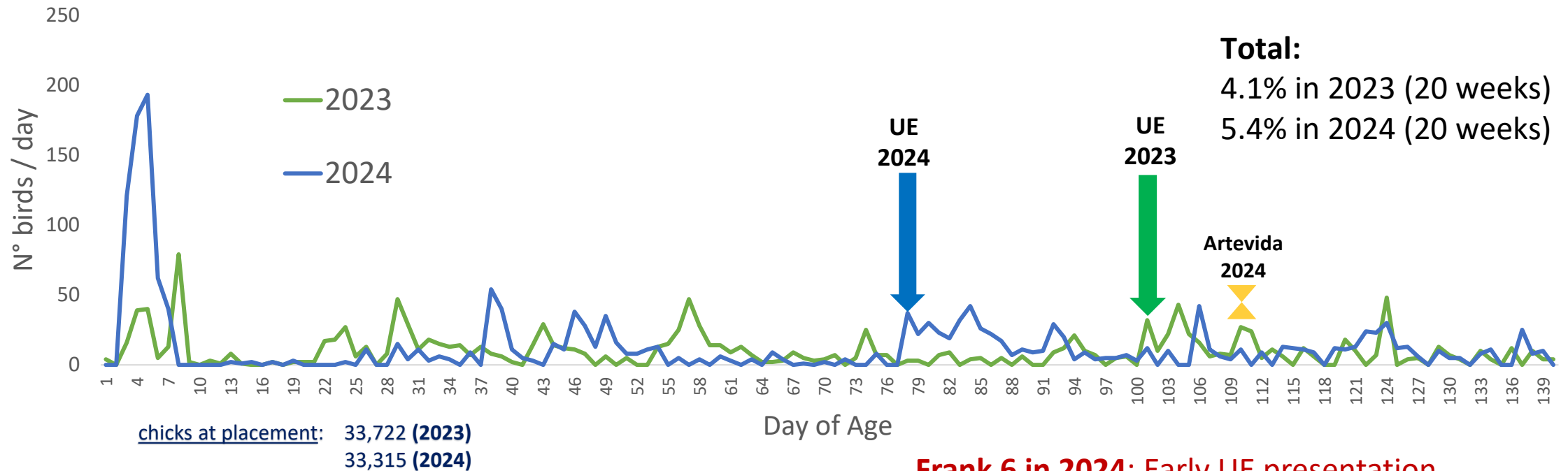
2023: 18 days on antibiotics
2024: No antibiotics used

Artevida used on Day 82 prior to the initiation of the Acid Blend on Day 87. Predicted date of disease onset: Day 97.



Frank 6 - Mortality

* 14 days total on Citric Acid + Essential Oils Blend post-UE application (3 days/week starting on Day 115)



Frank 6 in 2024: Early UE presentation

Artevida used on Day 110 to support birds' gut health during an outbreak recovery phase and prior to the initiation of the Acid Blend (Day 115)



2023: 11 days on antibiotics
2024: 20 days on antibiotics

Summary



Barn	Age Weeks		% Cumulative Mortality		% UE Mortality		Days on Antibiotics		UE Status
	2023	2024	2023	2024	2023	2024	2023	2024	
Frank 2	11.0	20.0	10.7	5.6	4.9	0.0	25.0	0.0	Pre-UE outbreak
Frank 3	20.0	20.0	8.4	6.4	4.0	2.6	27.0	25.0	Post-UE outbreak
Frank 4	20.0	20.0	10.3	4.3	3.5	0.0	18.0	0.0	Pre-UE outbreak
Frank 6	20.0	20.0	4.1	5.4	0.6	1.0	11.0	20.0	Post-UE outbreak

Differential Results



Barn	Difference in % Total Mortality (2024 – 2023)	Difference in % UE Mortality (2024 – 2023)	Difference in days on Antibiotics (2024 – 2023)	UE Status
Frank 2	- 5.1	- 4.9	- 25.0	Pre-UE outbreak
Frank 3	- 2.0	- 1.4	- 2.0	Post-UE outbreak
Frank 4	- 6.0	- 3.5	- 18.0	Pre-UE outbreak
Frank 6	+ 1.3	+ 0.4	+ 9.0	Post-UE outbreak
TOTAL/ *Average	- 3.0*	- 2.4*	- 36.0	



Conclusion

Favor Prevention vs Control



- ✓ Improve first week mortality and chick conditioning
- ✓ Water quality (pH 6.0 – 6.5)
- ✓ Plan to apply the intervention prior to the onset of Ulcerative Enteritis (UE) to:
 - ✓ Lower mortality
 - ✓ Eliminate the need for antibiotics

References

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