

A young brown calf is lying in a bed of straw in a barn. The calf's head is resting on the straw, and its large, pinkish ears are prominent. The background shows a metal fence and the interior of a barn.

SIMPLE STEPS, BIG IMPACT FOR CALVES

Dr. Stephanie Gauta

ABOUT ME!

- Veterinarian
 - 9 months private practice
 - 6+ years with ST Genetics at the Ohio Heifer Center
 - Maternity Barn Manager
- Hobbies/Interests:
 - Novice Gardener
 - Brown Swiss Breeder
- Fun facts:
 - Grew up waitressing at my family's pizzeria
 - Aiming to start my own dairy in the next few years!



ST GENETICS

- World leader in bovine genetics, genomic testing, chromosomal mating and reproduction technologies
- The best way to predict the future is to create it



OHIO HEIFER CENTER

- 75 hectares
- 13 barns for cattle
- 4,000-6,000 head
- 3 sheds for manure recycling and composting
- Feed center – 2 barns and 3 forage bunkers



MATERNITY BARN

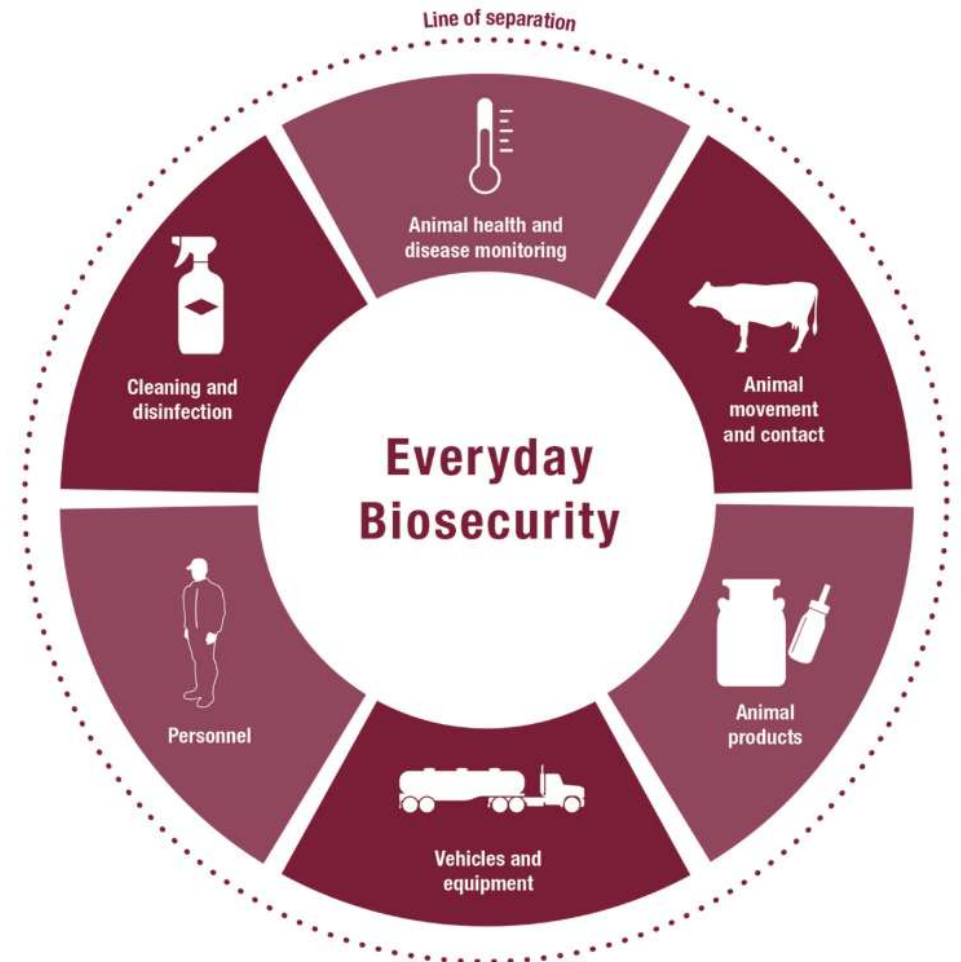


HEIFER HOUSING

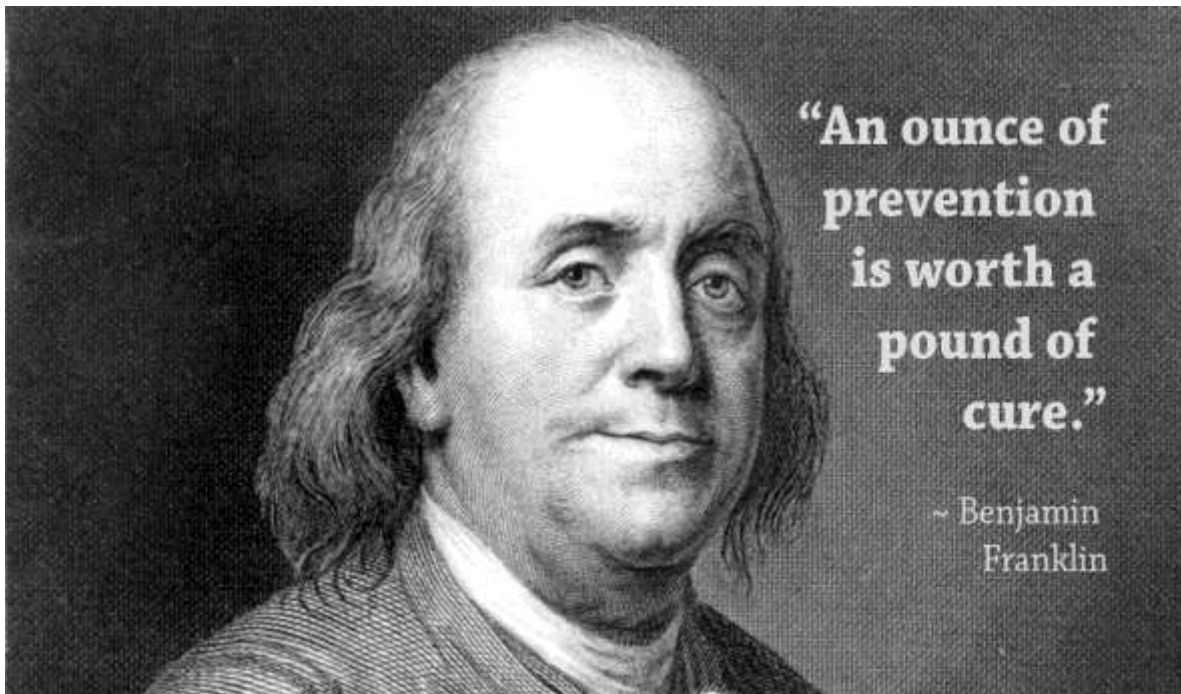


WHAT IS BIOSECURITY

- Biosecurity refers to proactive management practices designed to prevent the introduction and spread of infectious diseases, pests, and contaminants within a dairy farm.
 - **External Biosecurity**
 - Strategies to keep pathogens out of the herd
 - **Internal Biosecurity**
 - Strategies to stop the spread of disease within the farm



WHY BIOSECURITY MATTERS ON YOUR FARM?



- Significant Financial Losses
 - Lost of genetic potential
 - Veterinary expenses
 - Increased labor costs
- Reduced Herd Productivity
 - Milk yield and quality
- Human Health Risk
- Impact on Employees

WHAT ARE WE TRYING TO PREVENT?

- Enteric Pathogens
 - E. coli
 - Rotavirus
 - Coronavirus
 - Cryptosporidium
 - Salmonella
- Respiratory Pathogens
 - Bovine Respiratory Syncytial Virus (BRSV)
 - Pasteurella multocida
 - Mannheimia haemolytica
 - Mycoplasma bovis
- Zoonotic Risks

Fecal Consistency Scoring

Fecal Score: 0
Normal consistency;
firm, but not hard



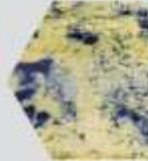
Fecal Score: 1
Semiformed, soft, or
pasty stool















Fecal Score: 2
Loose or runny stool
that spreads easily



Fecal Score: 3
Watery feces that
splatters



Calf Health Scoring Criteria			
0	1	2	3
Nose Score – nasal discharge			
Normal serous discharge	Small amount of unilateral cloudy discharge	Bilateral cloudy or excessive mucus discharge	Copious bilateral mucopurulent discharge
			
Eye Score - discharge			
Normal – no discharge	Small amount of ocular discharge	Moderate amount of bilateral discharge	Heavy ocular discharge
			
Ear Score			
Normal	Ear flick or head shake	Slight unilateral droop	Head tilt or bilateral droop
			

HOW DISEASE SPREADS IN CALF AREAS

- **Fecal-Oral Transmission**
- Colostrum/Whole Milk
- Nose-to-nose Transmission
- Aerosol spread
- Fomites
 - Boots, clothing, feeding equipment, hands

Infectious Agent	Age of affected calves	Most common methods of Transmission
Bacteria		
<i>Escherichia coli (E. coli)</i>	Usually less than 3 to 5 days.	Fecal/oral
<i>Salmonella (S. typhimurium)</i>	Usually 2 to 6 weeks but can occur at any age.	Fecal/oral Colostrum or milk Saliva/Nasal In-utero
<i>Clostridium perfringens</i> type C	Usually 5 to 10 days but can occur up to 2 months.	Fecal/oral
Viruses		
<i>Rotavirus</i>	Usually 7 to 14 days.	Fecal/oral
<i>Coronavirus</i>	Few days to several weeks.	Fecal/oral
<i>Bovine virus diarrhea (BVD)</i>	Any age.	Fecal/oral Colostrum or milk Saliva/Nasal In-utero
Protozoal Parasites		
Coccidiosis (genus <i>Eimeria</i>)	Usually from 17 days to 6 months.	Fecal/oral
<i>Cryptosporidium</i>	5 to 35 days.	Fecal/oral

CORE BIOSECURITY PRINCIPLES FOR CALVES



Keep Keep pathogens out

Reduce Reduce pathogen load

Prevent Prevent calf-to-calf spread

Protect Protect the most vulnerable calves first

MATERNITY PEN BIOSECURITY

“What happens in the maternity pen,
does **not** stay in the maternity pen”

- Individual boxstalls for active calving
 - Limit time the cows are in the stall
 - Fresh bedding between uses
 - Hand pitch manure/placenta
- Ideally, clean and disinfect after every calving
 - Practical, every 3-5 calvings disinfect/clean
- Calf transport
 - **GLOVES!!**
 - Disinfected between uses
 - Only used for calves!



COLOSTRUM MANAGEMENT = BIOSECURITY



- Colostrum is the calf's first “vaccine”
- Harvesting Colostrum
 - **GLOVES!!!**
- Pasteurization
 - Effective kills Salmonella, E coli, Mycobacterium avium ssp. paratuberculosis (MAP), etc. (Ganz)
 - Improves IgG absorption (Elizondo-Salazar)



COLOSTRUM STORAGE

- Record keeping – cow #, date, brix, volume
- Prompt Storage
 - Bacterial growth can double every 20 mins at room temp.
 - < 24 hours refrigeration, < 6 months freezer
- Freezing – lay it flat!



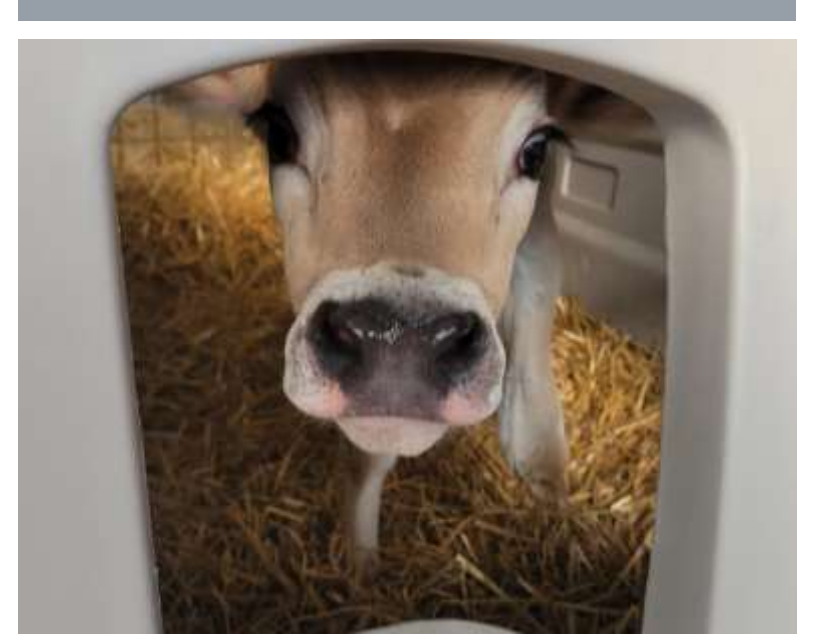
FEEDING EQUIPMENT & HYGIENE



- **GLOVES!!**
- Disinfection Protocols
 - Physical brushing
 - Chemical mixing ratio
 - Follow recommendations!
- Organized/Deliberate Storage
- Replace Equipment Often
 - Brushes, bottles, nipples, hoses, etc.

CALF HOUSING & ENVIRONMENT

- Sanitation, Disinfection, and Drying
- Clean, dry bedding
- Navel Care – clean dippers!
 - Multiple dips in the first 24 hours
- Crib = safe zone for the calf
 - Limit traffic
 - Minimize trips into crib
 - Clean boots and change gloves between each crib
- Keep aisles clean



PEOPLE, PROTOCOLS, VISITORS



- Structure Daily Movement based on Biosecurity Level
 - Youngest to Oldest to Sickest
- Limit Traffic flow
- Personal Hygiene and Disinfection
 - Foot baths in high-risk areas
 - Dedicated clothing/footwear
 - **GLOVES!!**
- Equipment/Vehicles
 - Limit vehicle movement on-farm
 - Clean/disinfect shared equipment

SICK CALF MANAGEMENT

Calf ID	Treatment Plan	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
6707	Fluorfen 2.5ml IM q12h														
6708	Fluorfen 2.5ml IM q12h														
6717	Fluorfen 2.5ml IM q12h														
6587	Fluorfen 2.5ml IM q12h														
6757	Fluorfen 2.5ml IM q12h														
6744	Fluorfen 2.5ml IM q12h														
6741	Fluorfen 2.5ml IM q12h														
6659	Fluorfen 2.5ml IM q12h														
6750	Fluorfen 2.5ml IM q12h														



- Communication
 - Clear identification on pen/crib
 - Treatment boards
- Isolation Protects the Group
 - Limit traffic into pen
 - Plan treatment times
 - Clean and disinfect after entering
- Dedicated Equipment
- **GLOVES!!**
- Clean, dry bedding!!

CLEANING & DISINFECTION: IS IT WORKING?

- **Listen to your calves!**
 - Track scours and pneumonia
- ATP testing
 - Adenosine Triphosphate (ATP)
 - Molecule in all living cells
 - Monitors your cleaning protocols



	1/31/2025	
Calf Equipment:	ATP Level	Interpretation
Bottle Holder (in use or clean)	0 clean	Excellent
Bucket (in use or clean)	21 clean	Excellent
Clean Bottle Cart	1	Excellent
Clean Colostrum Bottle	13	Excellent
Clean Nipple	1	Excellent
Colostrum Nipple	0	Excellent
Tube Feeder	0	Excellent
Mixing/Colostrum Room Equ	ATP Level	Intrepretation
Milk Mixer	0	Excellent
7 Spicket Milk Dispenser	1	Excellent
Dispensing Hose	7	Excellent
Colostrum Funnel	6	Excellent

CONTINUOUS IMPROVEMENT

- Nobody is perfect, strive for improvements everyday
 - Mistakes happen, learn from them!
- Communicate with co-workers and managers
 - Offer ideas
 - Be an advocate for the calves!



KEY TAKEAWAYS



- Biosecurity is a mindset
- Consistency beats complexity
- High Risk/Reward Areas
 - Maternity Pens
 - Colostrum
 - Feeding Equipment
 - Calf Pens
- “Our barn, our success”



**THANK YOU!
ANY QUESTIONS?**

CITATIONS

1. McGuirk, S. (n.d.). *Calf Health Scoring Chart*. Department of Medical Sciences, School of Veterinary Medicine, University of Wisconsin-Madison. https://www.vetmed.wisc.edu/fapm/wp-content/uploads/2020/01/calf_respiratory_scoring_chart.pdf.
2. Godden, Sandra. “Calf Health Management.” *Engormix*, 9 Sept. 2013, en.engormix.com/dairy-cattle.calf-health/calf-health-management_a35779/.
3. Ganz S, Failing K, Hassan AA, Bülte M, Wehrend A. Influence of first colostrum pasteurization on serum immunoglobulin G, iron, and activity of gamma-glutamyltransferase in newborn dairy calves. *Vet World*. 2021 Aug;14(8):2267-2272. doi: 10.14202/vetworld.2021.2267-2272. Epub 2021 Aug 29. PMID: 34566348; PMCID: PMC8448656.
4. Elizondo-Salazar, J.A., and A.J. Heinrichs. 2009. “Feeding Heat-Treated Colostrum or Unheated Colostrum with Two Different Bacterial Concentrations to Neonatal Dairy Calves.” *Journal of Dairy Science* 92 (9): 4565–71. <https://doi.org/10.3168/jds.2009-2188>.