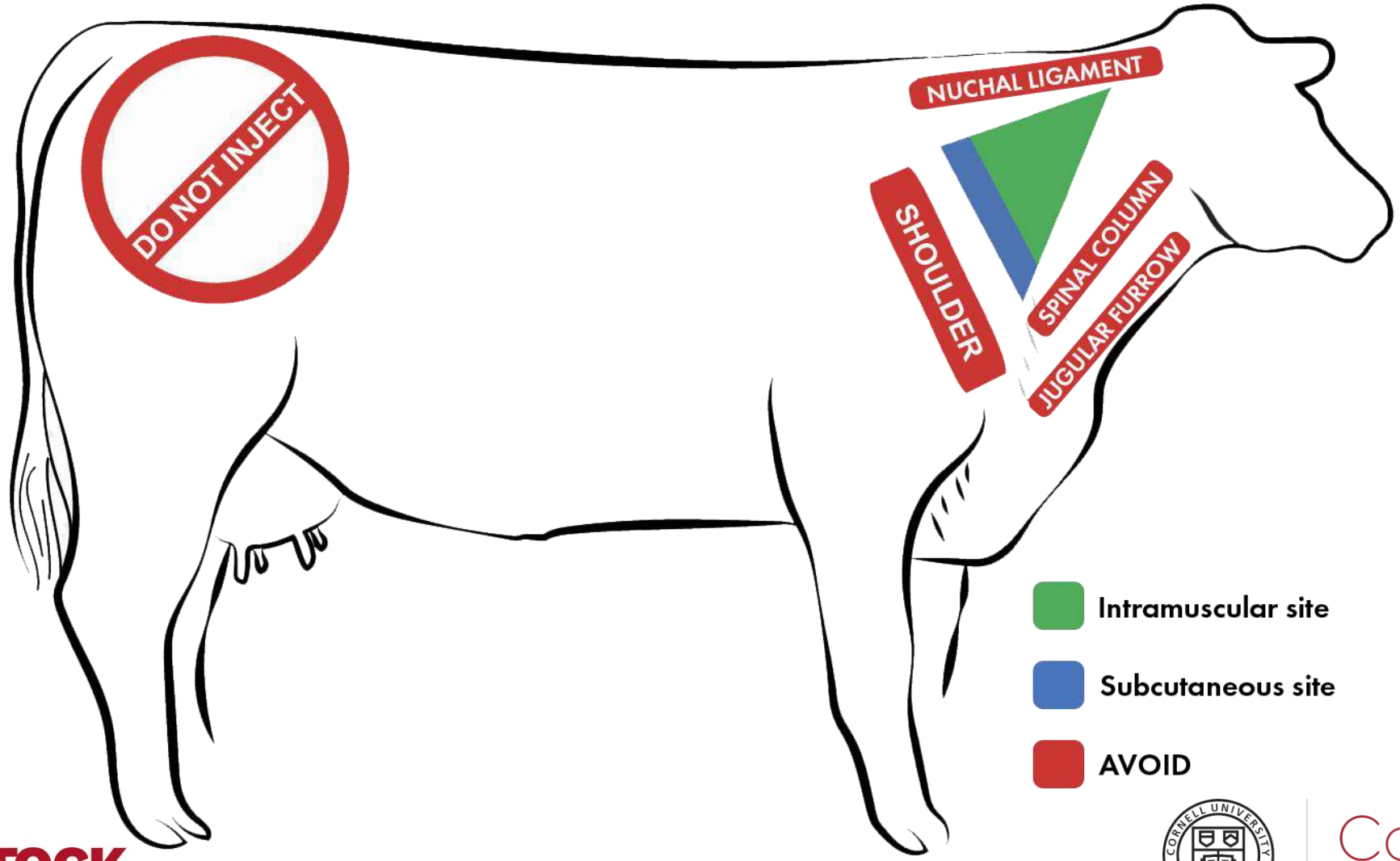
Vaccination & Receiving
Adam Murray, Ph.D.



PRO LIVESTOCK

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Why It Matters

What does is cost for you to keep cattle???

Why It Matters

- **A 1250 lb. cow costs $500 - $700 per year to maintain…in 2001** (Miller et al., 2001)
  - $25 - $36 for every 100 lbs. added to mature cow size (Lalman and Beck, 2019)

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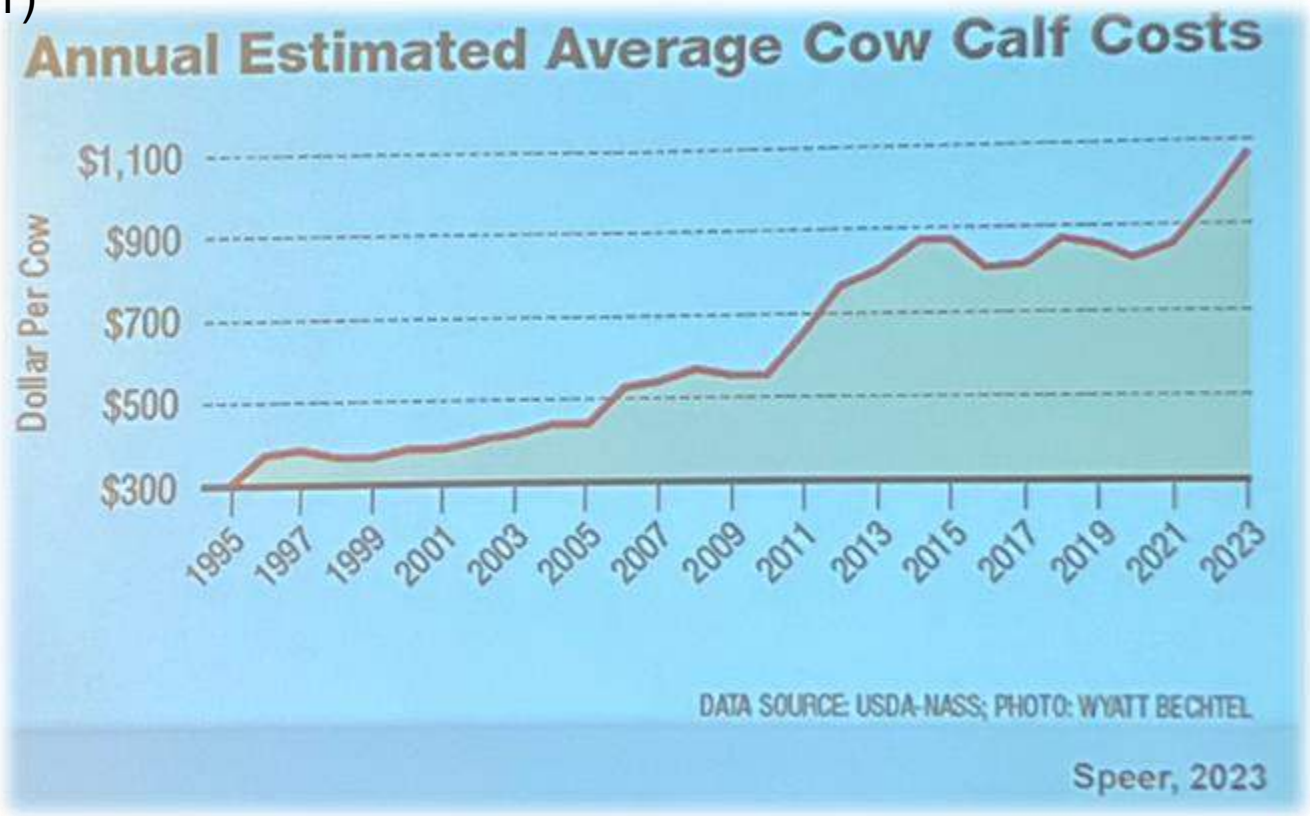
- **Avg NY herd size: 15 cows / farm**
  - $1,100 x 15 head = **– $16,500** / year

- **5/4/25 Canandaigua feeder calf sale:**
  - $309.33 / cwt (M/L 1&2 steers 500 - 640 lbs.)
  - $278.75 / cwt (M/L 1&2 heifers 500 - 640 lbs.)
  - Avg $294.04 x 577 lbs. = **~$1697**



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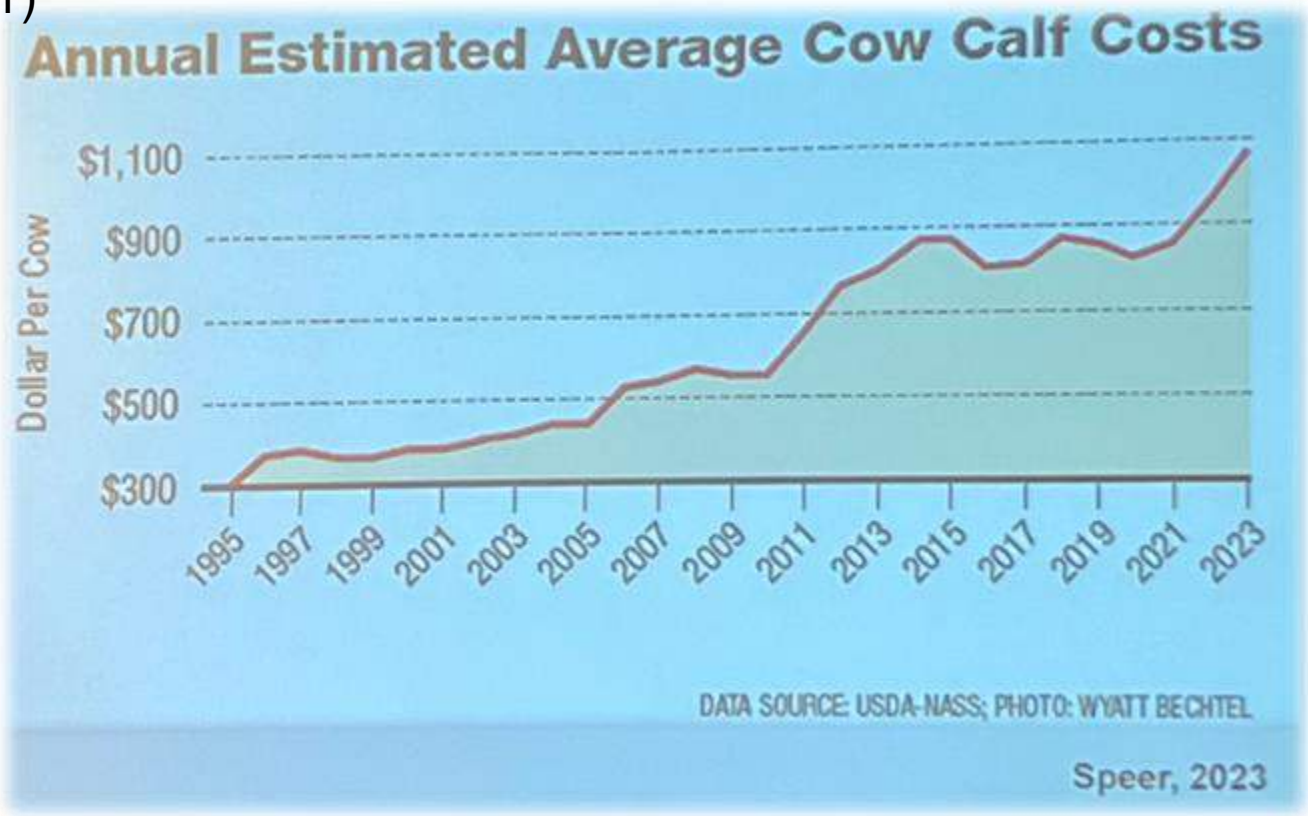
  - –$16,500 + (13 x $1697) = **~$370** / cow per year potential



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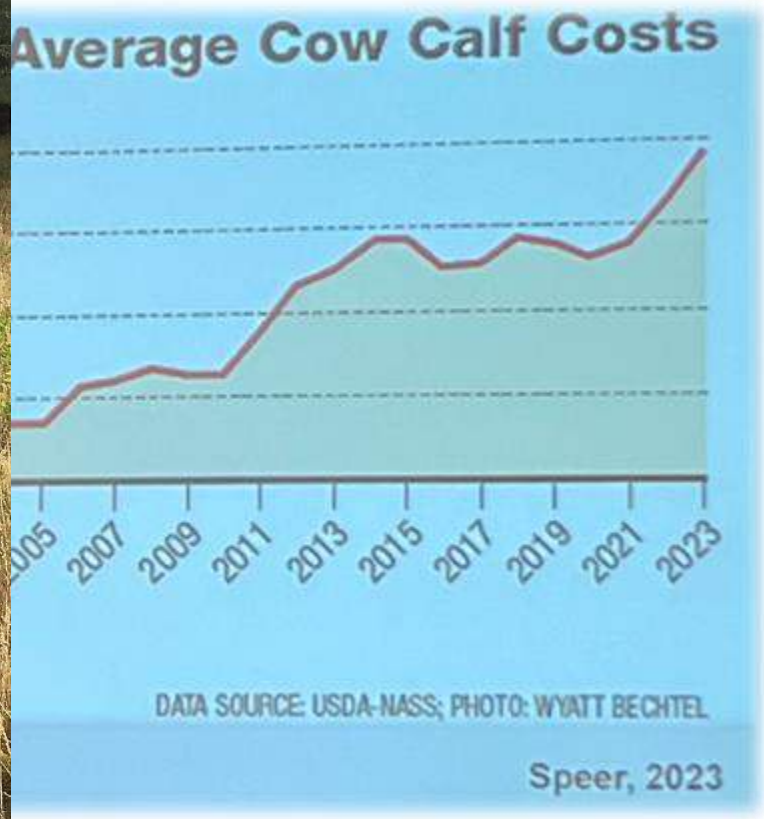

Cost of Disease

- **~$1 billion in annual treatment cost and production loss from BRD alone**
  (Dr. Matthew Scott, Texas A&M Veterinary Education, Research, & Outreach 6/30/2022)

- **Respiratory diseases account for 7% of total production costs from weaning to packer** (Harwell et al., 2025)
  - $23.60 / hd loss nationally in feedlots
  - Not accounting for lower QG & injection site lesion loss

Cost of Disease

Wilson et al., 2017 Oklahoma State

	BRD Treatment Frequency				
	0X	1X	2X	3-4X	*P* – Value
Pre Finishing wt., lbs.	714	697 (-17)	628 (-86)	573 (-141)	< 0.001
Final wt., lbs.	1252	1261 (+9)	1234 (-18)	1217 (-35)	0.04
Days on Feed	174	170 (-4)	193 (+19)	189 (+15)	0.002

- **Sale barn purchased calves w/ common start wt.**
  - Same finishing diet 2x daily + implant + Optaflexx
  - Feed $301.85 / ton
  - Additional receiving experiment on ancillary therapy + BVD antimicrobial

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Treatment Cost	–	**– $14.40**	**– $29.60**	**– $46.97**	< 0.001
Labor Cost	–	**– $7.25**	**– $14.50**	**– $25.38**	< 0.001
Feed Cost	–	$13.36	**– $60.25**	**– 48.56**	< 0.001
Total Calf Value	$1,643.80	**– $37.87**	**– $166.89**	**– $230.46**	< 0.001

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HCW, lbs.	820	813 (-7)	794 (-26)	778 (-42)	0.004
D%	65.5	64.6 (-0.9)	64.2 (-1.3)	64.0 (-0.6)	0.003
REA, in^2	14.2	14.6 (+0.4)	14.1 (-0.1)	13.5 (-0.7)	0.05
% Prime & Choice	70.3	56.5 **(-13.8%)**	60.2 **(-10.1%)**	36.2 **(-34.1%)**	0.06

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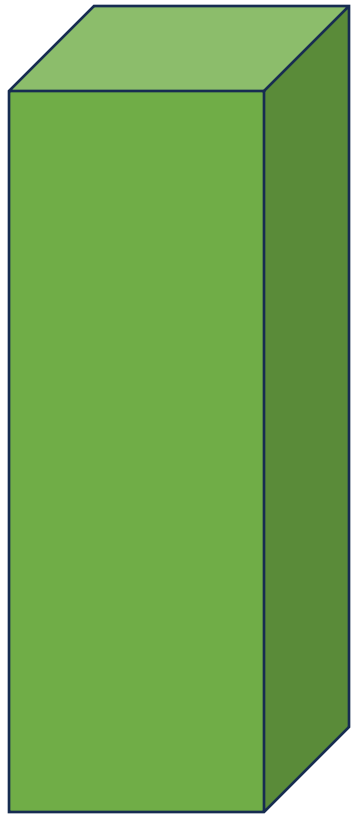
Overall, incidence of clinical BRD resulted in 2.3%, 10.2%, and 14.0% decrease in total calf value for calves treated 1X, 2X, and 3-4X, respectively

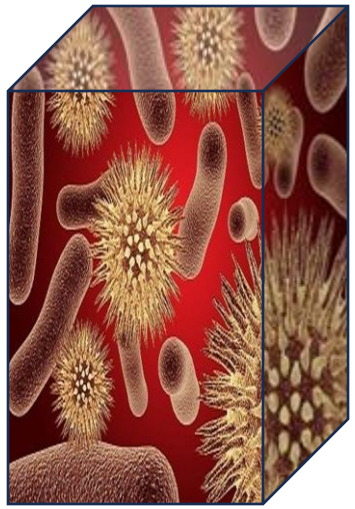
Cost of Disease

- **Over 1,300 steer and bulls received and followed over 12 stocker trials in OK, AK, and MS** (Beef Magazine 10/27/2022)
- **Receiving ADG:**
  - Untreated: 2.3 lbs. / day
  - 1 X: 2.1 lbs. / day **(-9%)**
  - 2 X: 1.6 lbs. / day **(-30%)**
  - 3+X: 1.5 lbs. / day **(-25%)**
- **Receiving + grazing ADG:**
  - Untreated: 2.3 lbs. / day
  - 1 X: 2.1 lbs. / day **(-9%)**
  - 2 X: 1.8 lbs. / day **(-22%)**
  - 3+ X: 1.7 lbs. / day **(-26%)**

Immune Function

Pathogens & Disease





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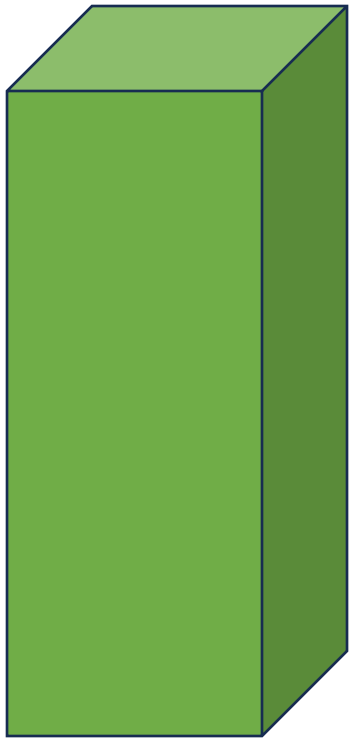

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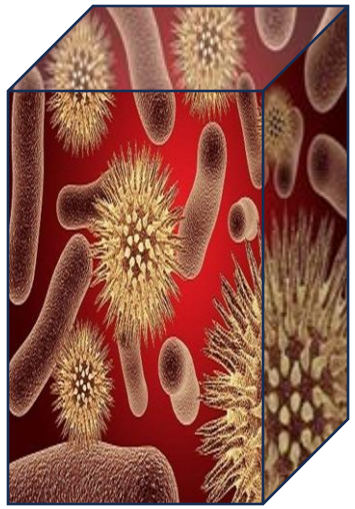

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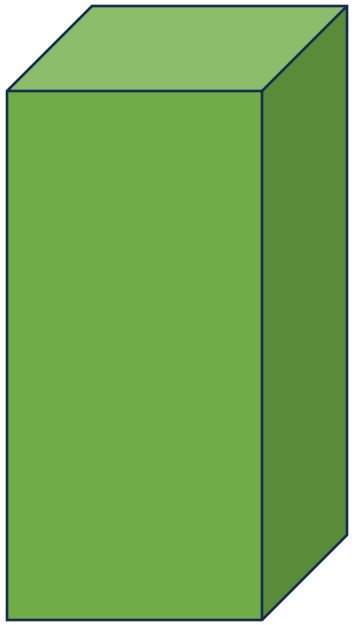

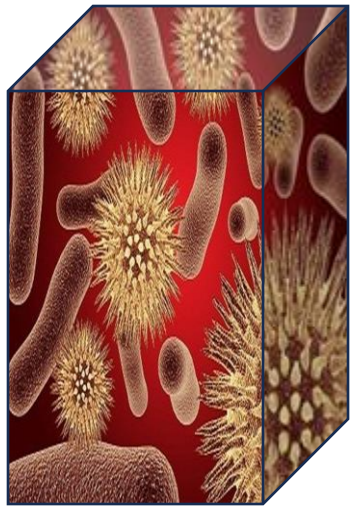

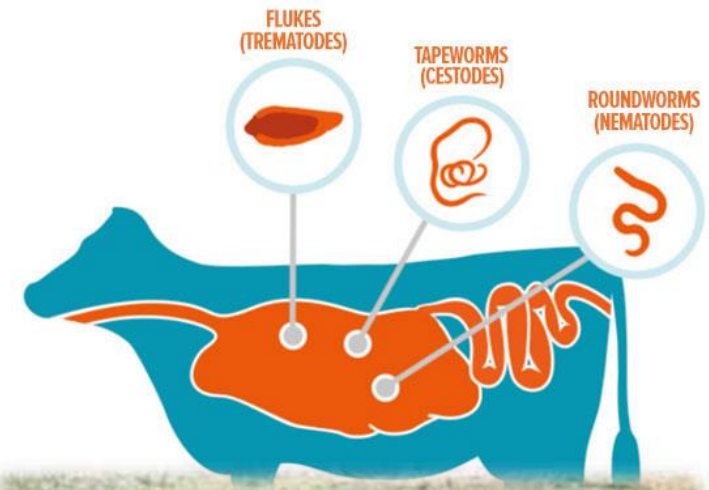

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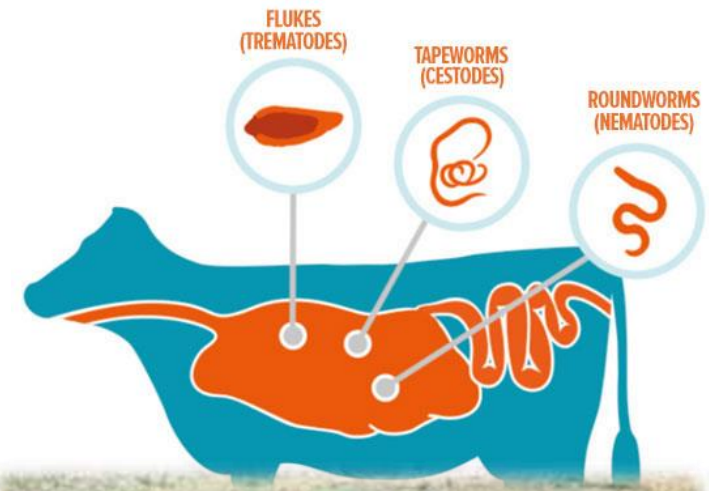

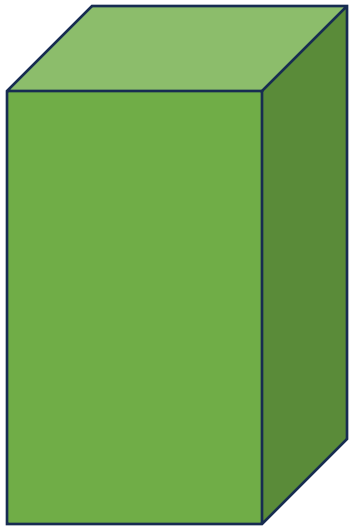

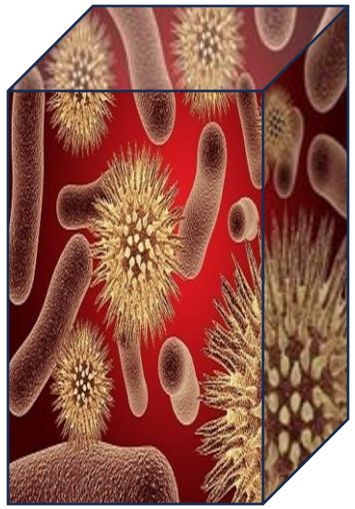

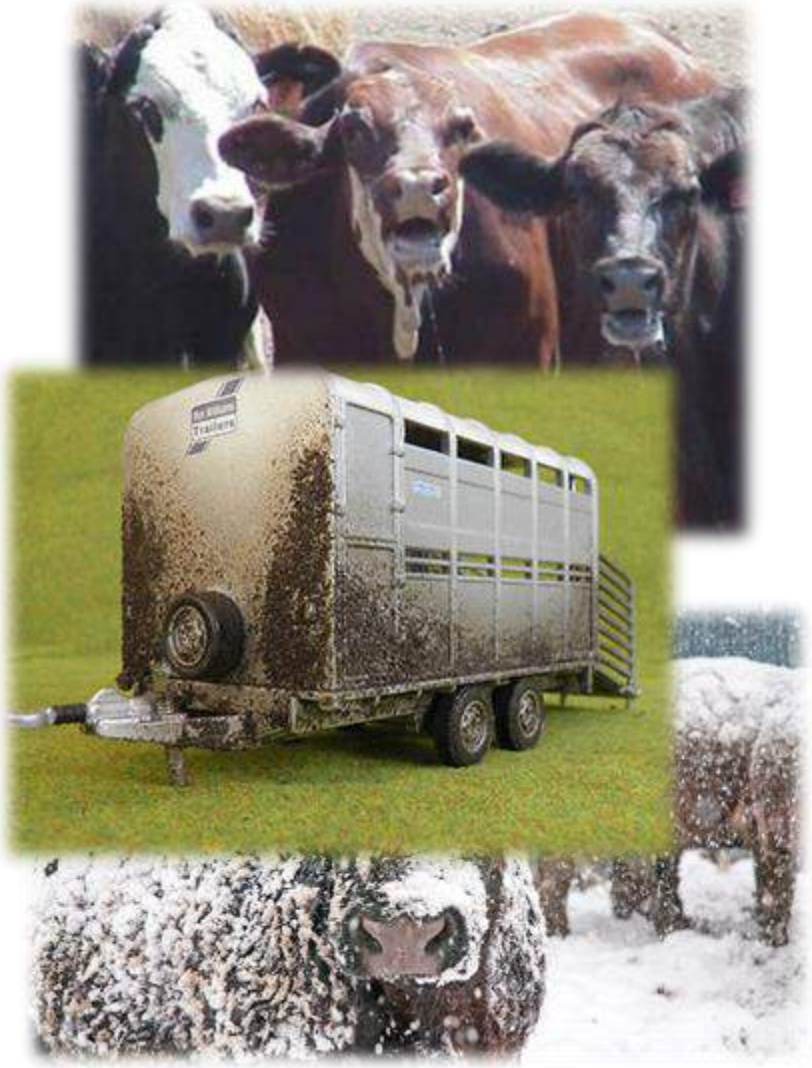

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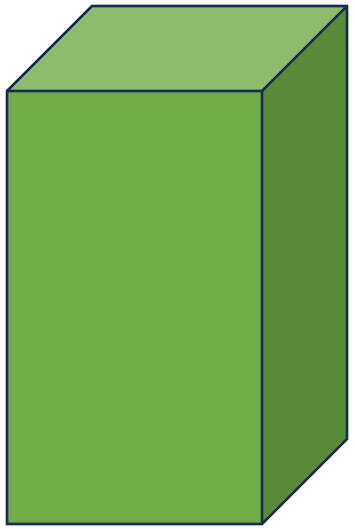

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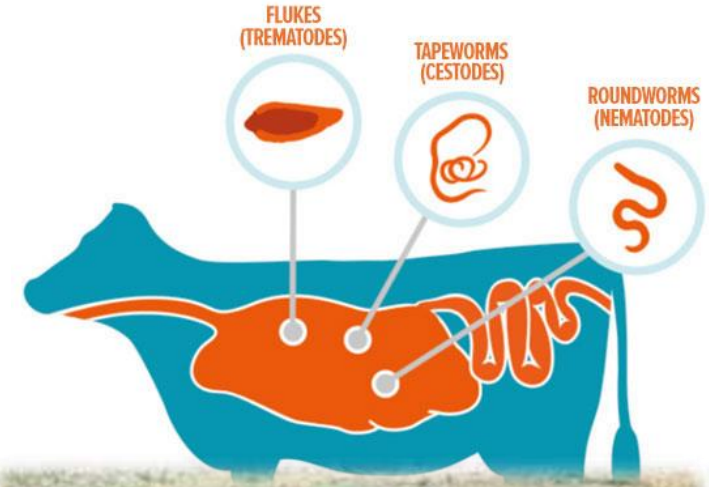
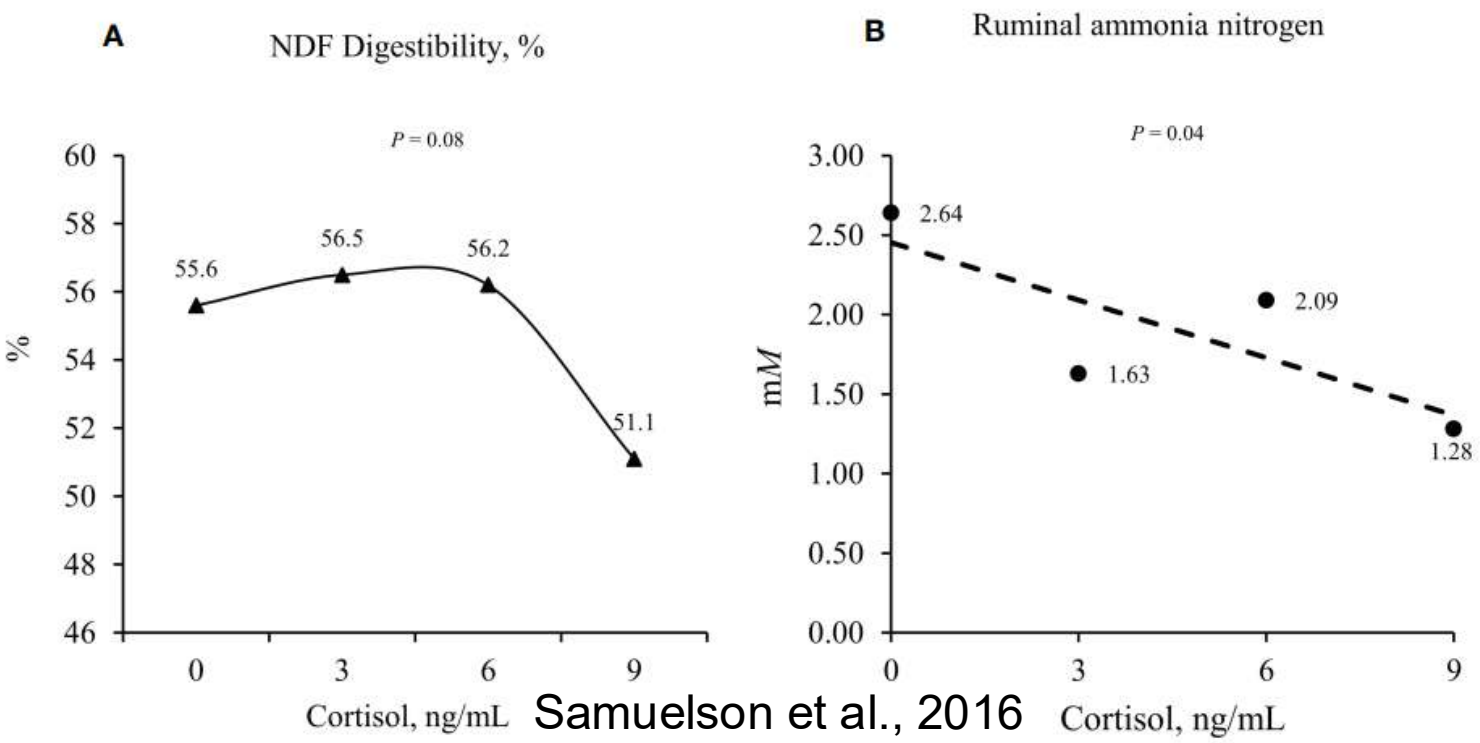
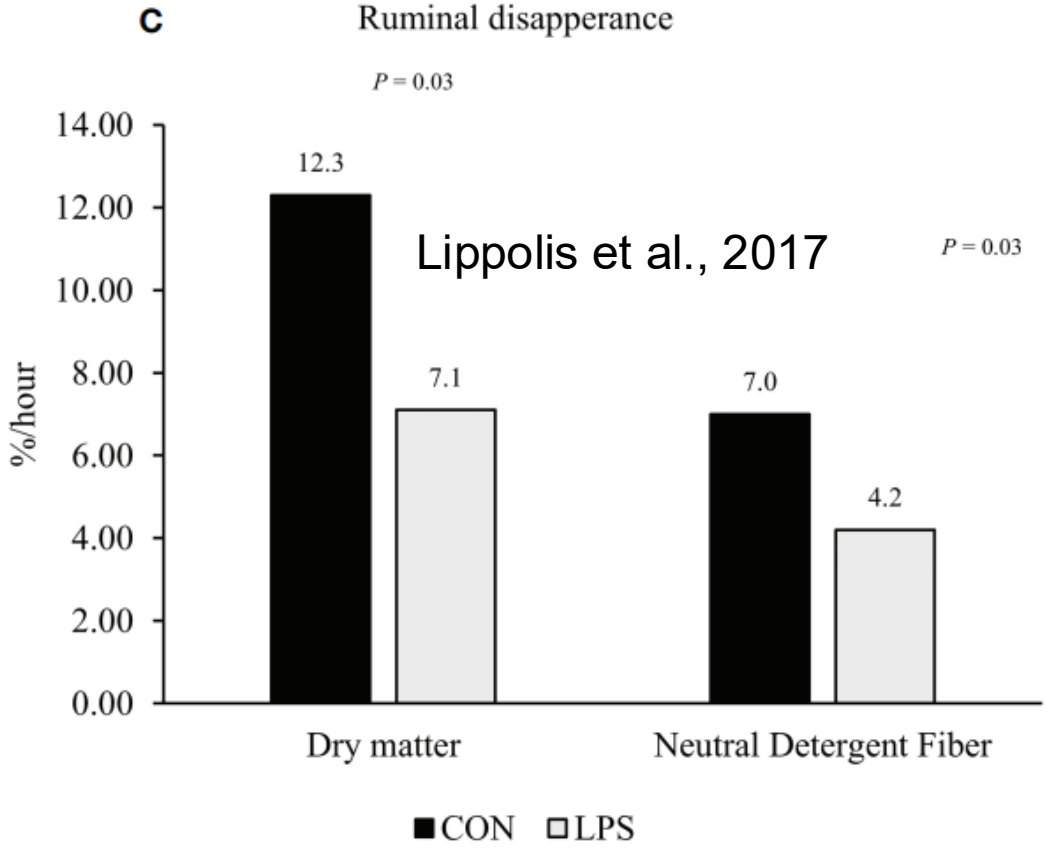


Cattle Immune System

- **Innate System**
  - White blood cells, skin and membranes, etc.
  - Fast, but non-specific (general stress)
  - Fever & inflammation decrease intake, digestion, and can alter rumen microflora (Gouvêa et al., 2022)



Samuelson et al., 2016



Lippolis et al., 2017

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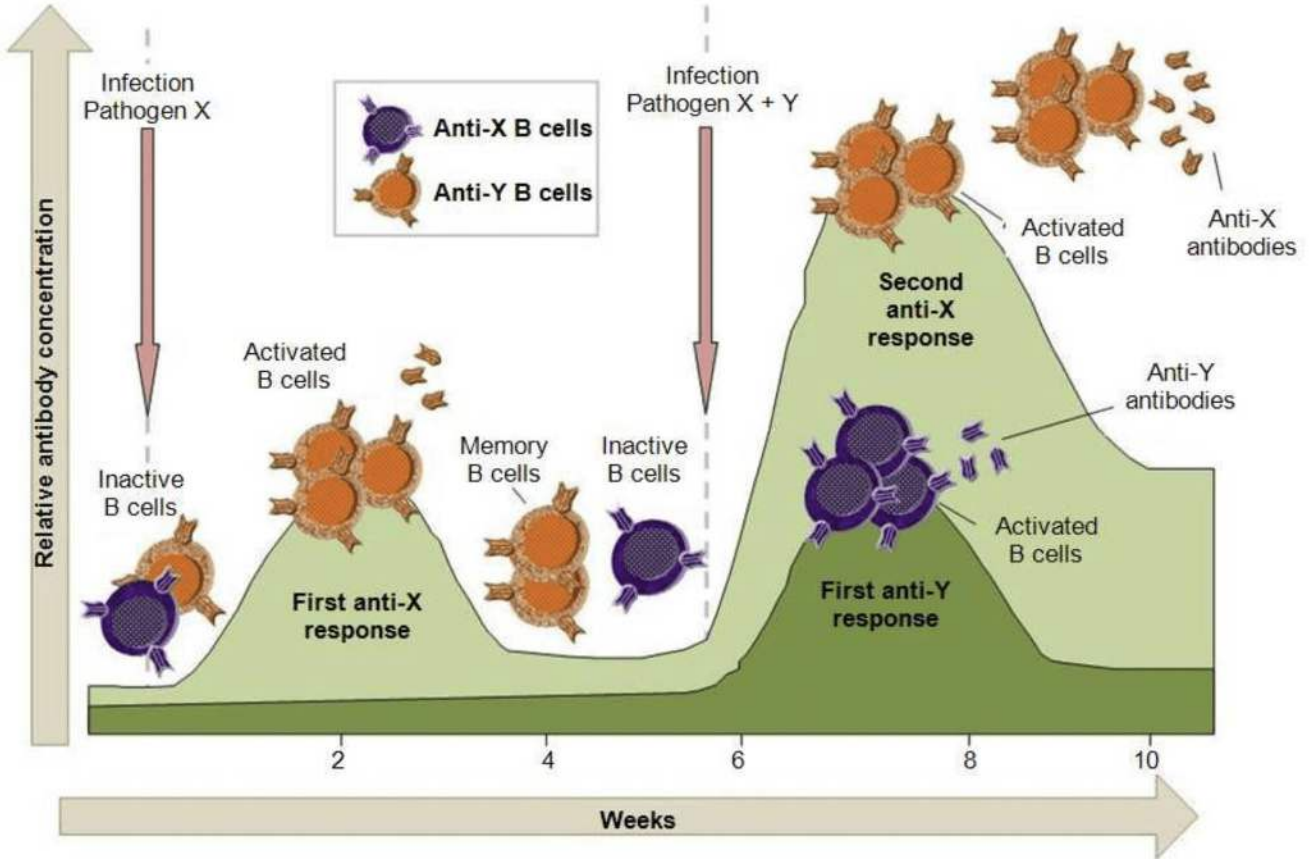
- **Adaptive System**
  - B cells, T cells, antibodies
  - Takes time to mobilize UNLESS “memory” cells activated



Building Cattle Immunity

- **Minimize stress**
  - Low stress handling, proper restraint & transportation, strategic cattle working
  - 1 hour rest for every 1 hour traveled

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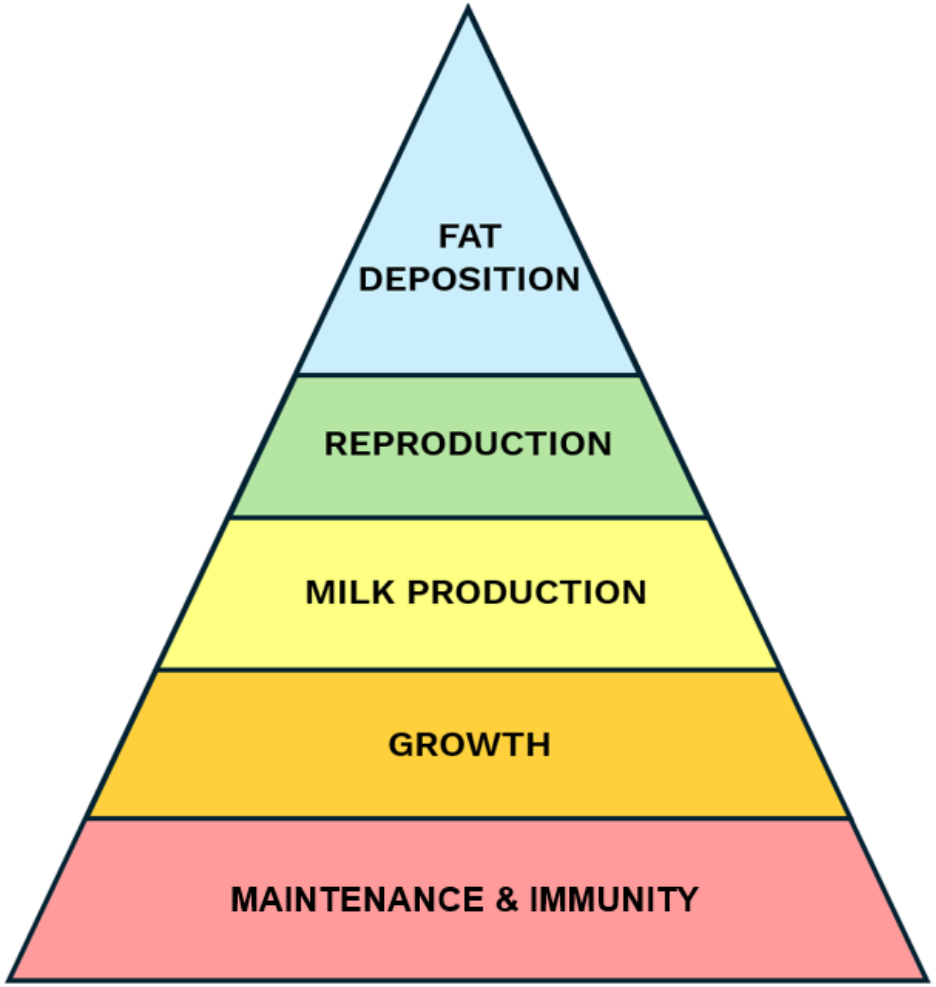

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  - 7-8 way clostridial (blackleg)
  - Respiratory complex (IBR, BVD, pasturella, etc.)
  - Pre-breeding (vibrio, brucellosis / bangs)
  - QUARANTINE PEN

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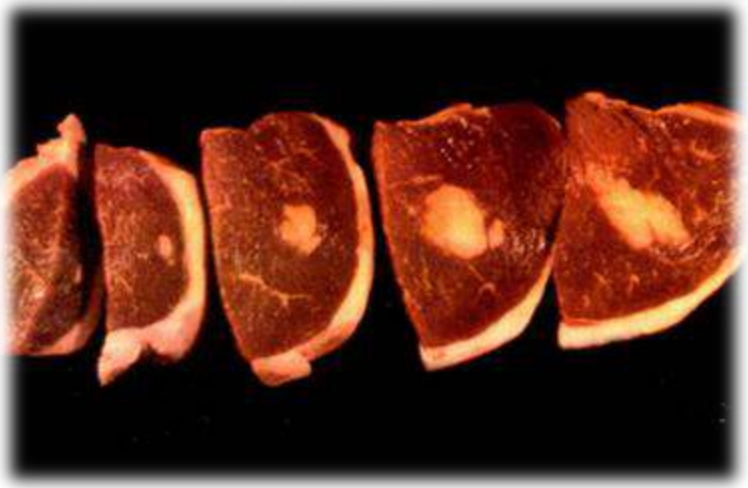

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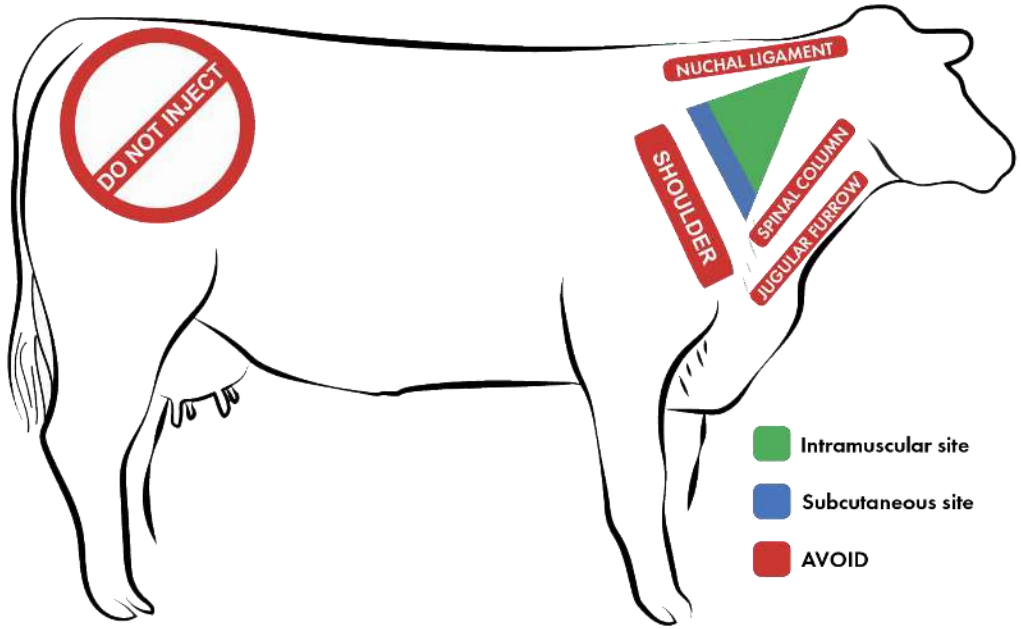
  - Correct vaccine storage, usage and timing aka **BEFORE** stressful / pathogen events

Vaccine and Medication Handling

- **<u>ALWAYS</u> follow product label directions unless specifically prescribed by a veterinarian**
  - Route of administration, dosage rate, **<u>withdrawal time</u>**, storage conditions, etc.
  - Refrigerated? Light sensitive? Modified live?
- **Give shots in the neck, sub-Q preferably**
- **Do not give more than 10 mL in one injection site**
  - Space injection sites by at least 5-6 inches apart
- **Keep records for withdrawal time!!!**
  - WHICH animal(s)…receiving WHAT treatment…HOW much…and WHEN



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