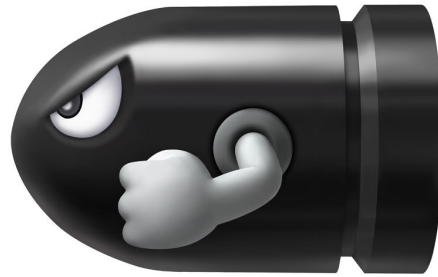


Embryo Transfer: Managing Recipients and Donors

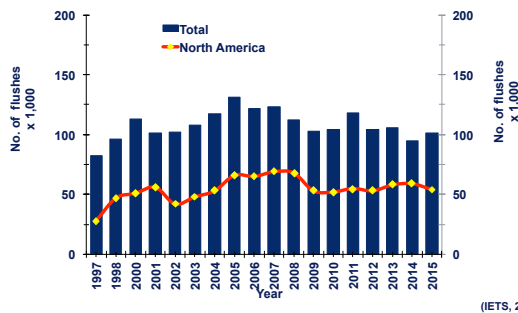
G. Cliff Lamb
August 30, 2017



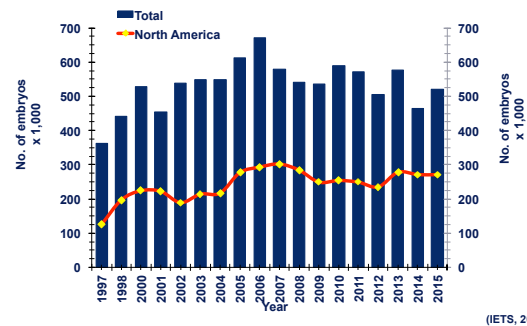
Is there a **SILVER BULLET** for enhancing embryo transfer success?



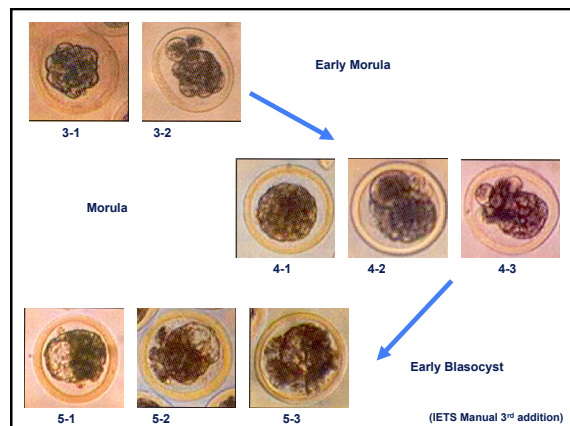
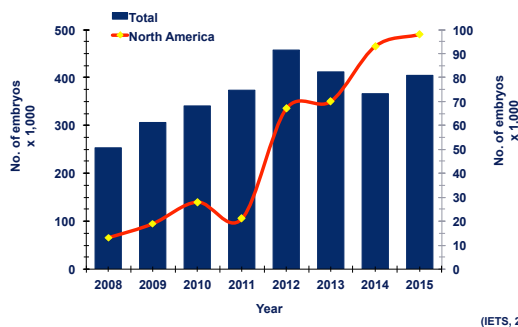
Average No. of Flushes

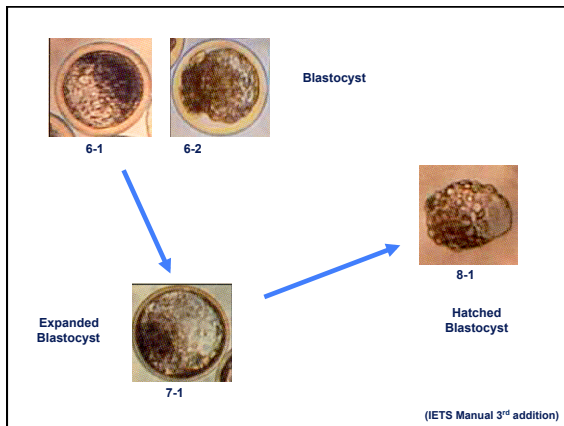


Average No. of Transfers of In Vivo Produced Embryos



Average No. of Transfers of In Vitro Transferred Embryos





Factors Affecting Superstimulation

- **Nutrition** (Arthington, Funston, Hall)
- **Stress/temperament** (Cooke)
- **Superstimulation protocol**
- **Sexed semen** (Seidel)
- **Semen quality** (Kastelic)

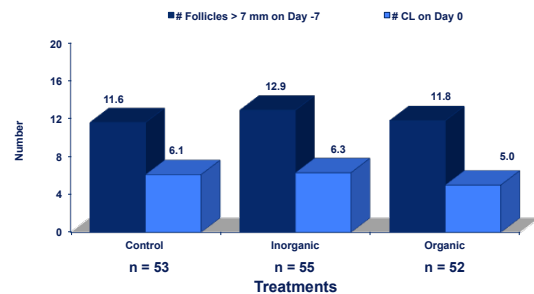
Average daily as fed intakes for three mineral treatments.

Item ^a	Treatments		
	Control	Inorganic	Organic
.....kg.....			
Supplement:			
Mineral	0.00	0.11	0.11
Soy Bean Meal	0.50	0.48	0.48
Corn	3.14	3.08	3.09
Hay	12.3	12.2	12.5
Total	16.0	15.9	16.1

^a Heifers were individually fed supplement daily, but given ad libitum access to hay.

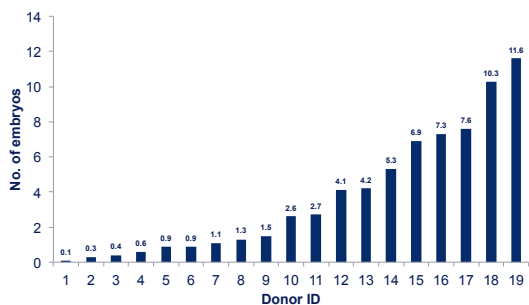
(Lamb et al., 2010)

Superovulation response of all heifers treated



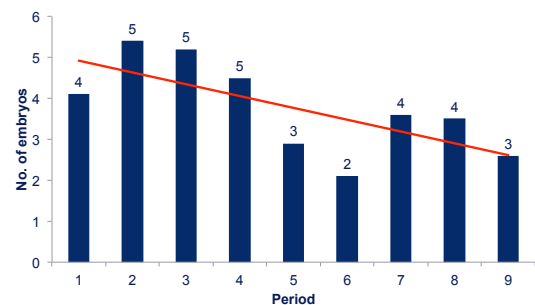
(Lamb et al., 2010)

Effect of Donor on Total Number of Embryos Recovered

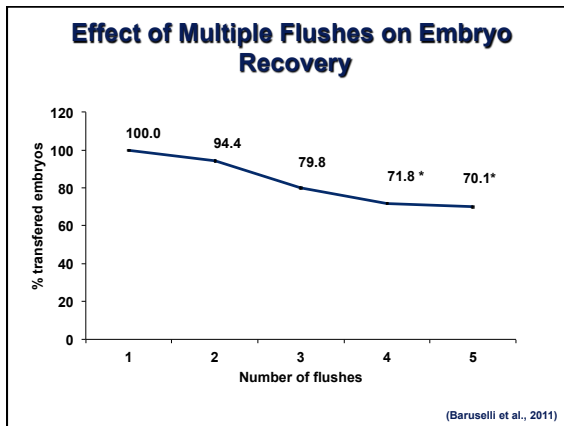


(Lamb et al., 2010)

Effect of Flush Period on Total Number of Embryos Recovered



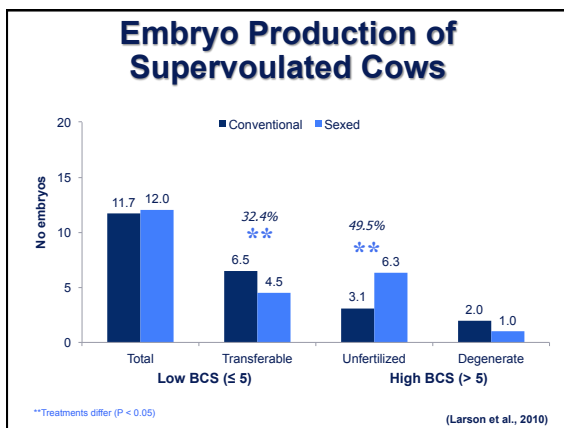
(Lamb et al., 2010)



Use of Sexed Semen for Embryo Transfer

- 32 Angus cows were superstimulated and embryos were collected in a switch-back design.
- Two treatments
 - Four inseminations of conventional semen (15-18 mil. sperm)
 - Four inseminations of sexed semen (2.1 mil. sperm)
- Cows were inseminated at 0 (1x), 12 (2x), and 24 (1x) hr after estrus.
- Embryos were collected on day 7 after estrus.
- Embryos evaluated for embryo stage and quality grade

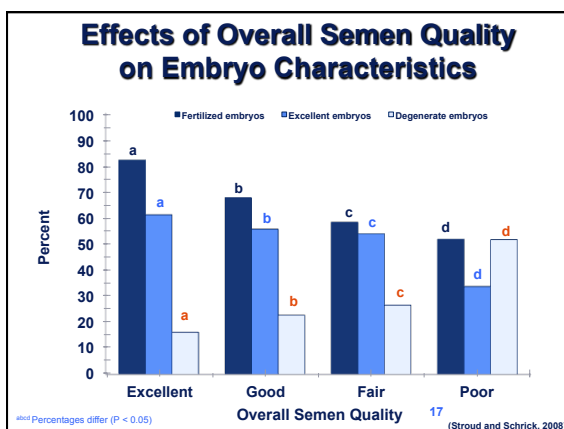
(Larson et al., 2010)



Effect of Semen Quality on Embryo Quality

- Superovulation (4-d)
- Semen was evaluated on 277 bulls comprising 33 breeds (beef)
- Artificial Insemination (2x @ 12/24 h)
 - 0.5 ml straws
- One Semen Evaluator and AI Tech

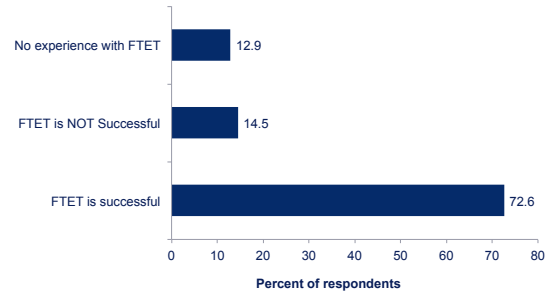
(Stroud and Schrick, 2008)



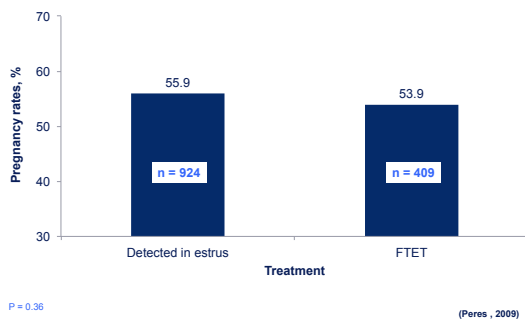
Survey Overview

- Surveys requested from 218 AETA Professional members
 - 139 (64%) were AETA Certified
 - 79 (36%) were not AETA Certified
- Responses from 63 members
 - 47 (75%) were AETA Certified
 - 16 (25%) were not AETA Certified
- 4 members indicated that they could not access the survey tool

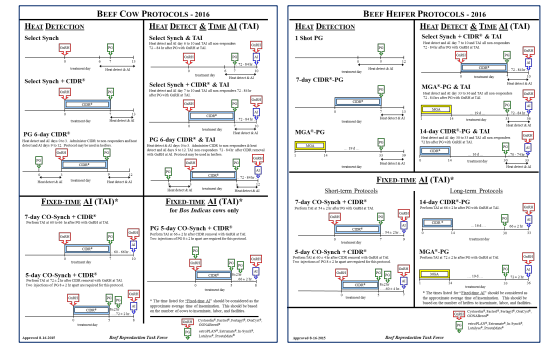
Use of Fixed-Time ET (FTET)



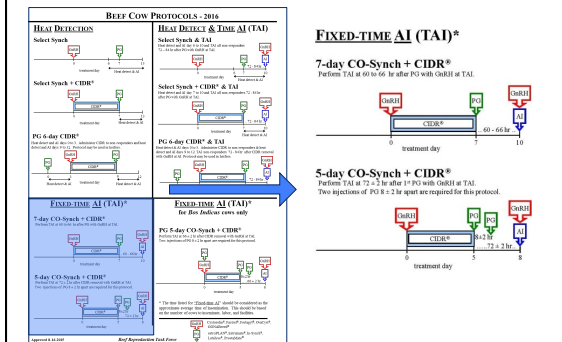
Fertility After Transfer to Recipients Detected in Estrus or to FTET (Frozen Embryos)



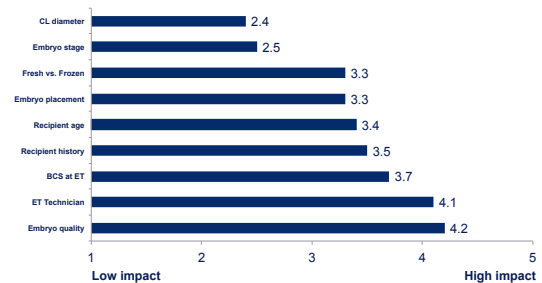
Fixed-Time ET (FTET) Protocols

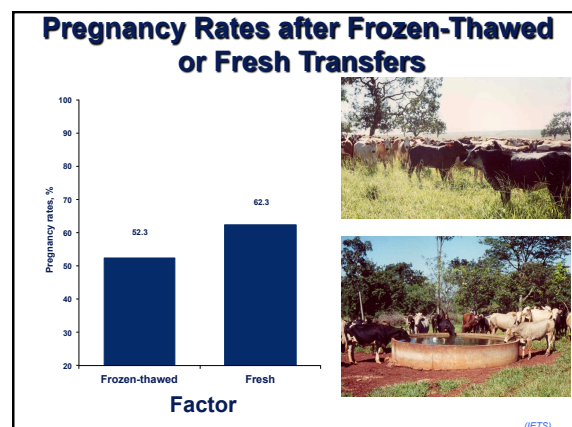
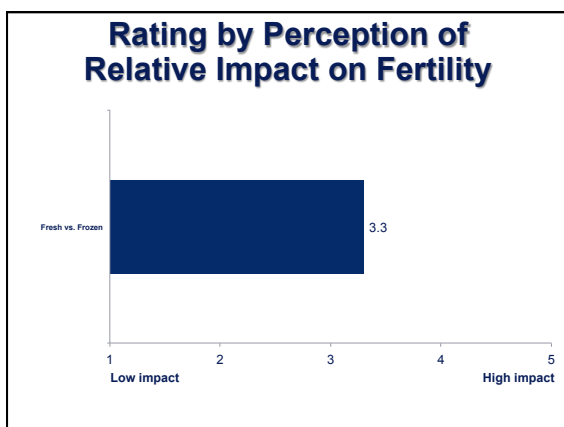
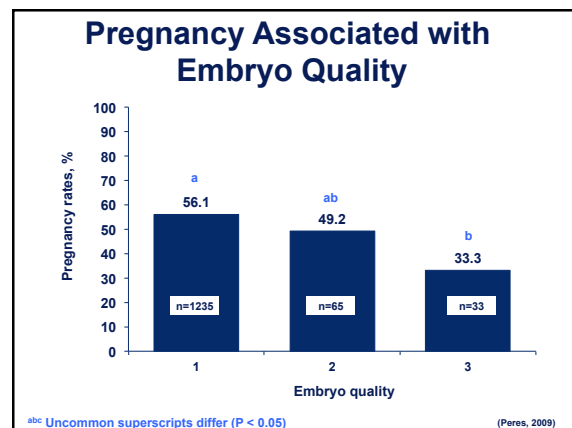
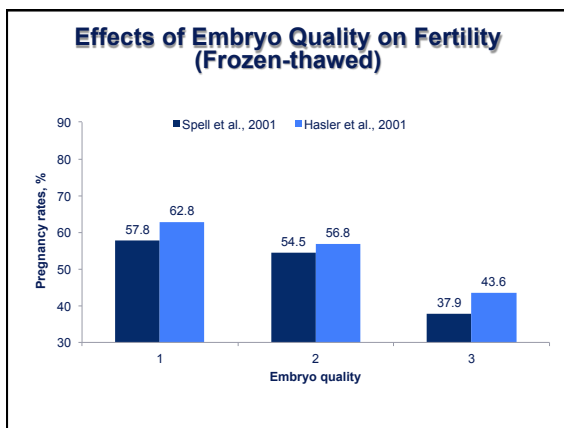
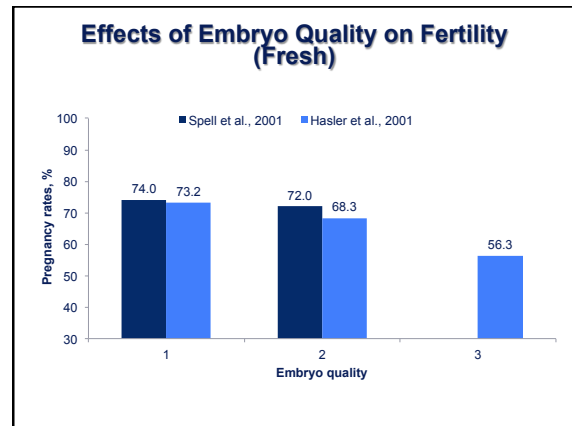
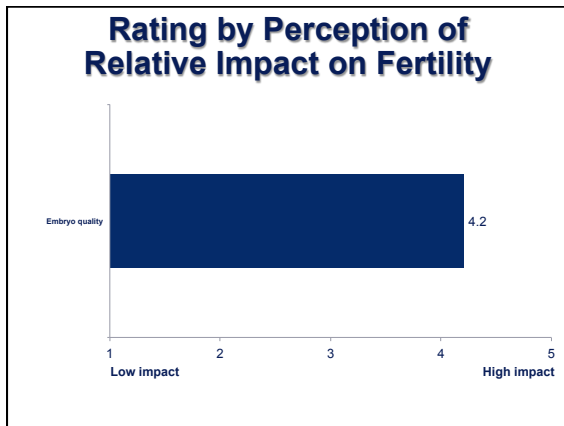


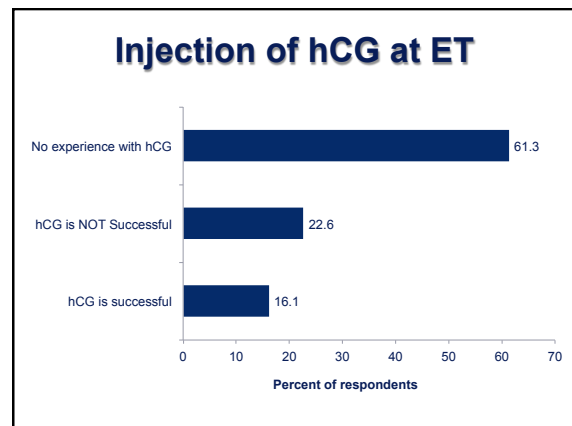
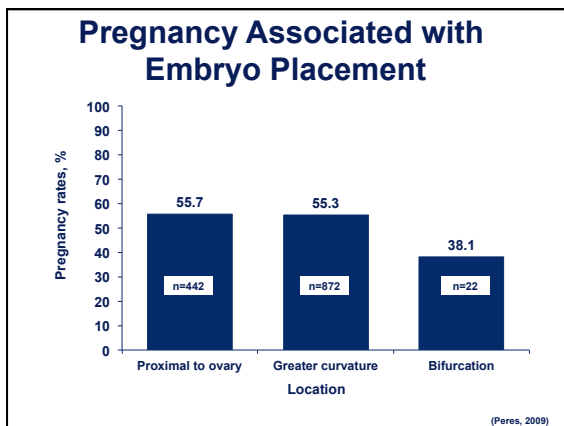
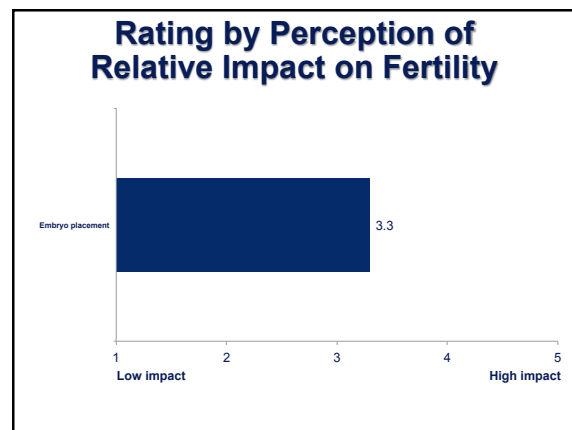
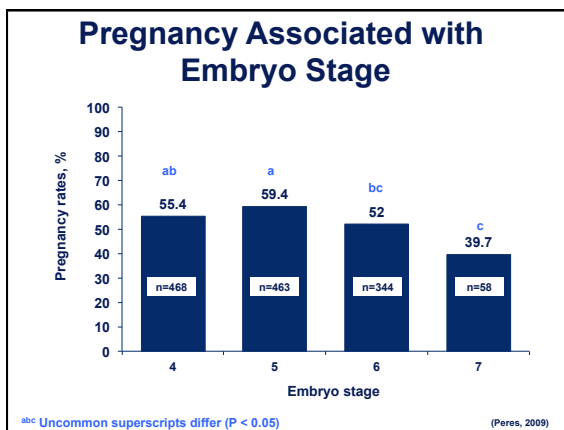
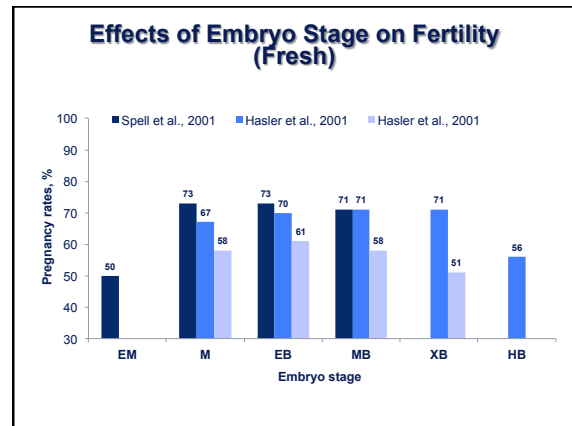
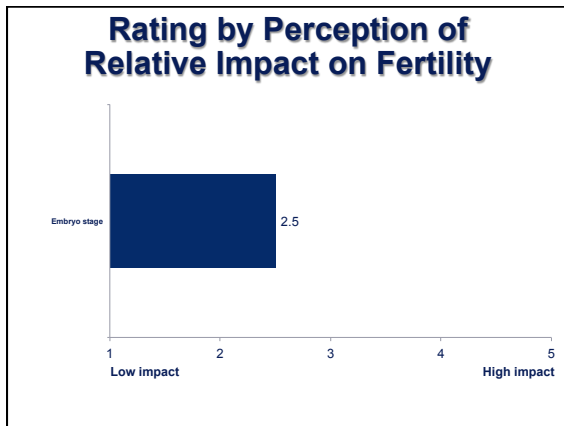
Fixed-Time ET (FTET) Protocols



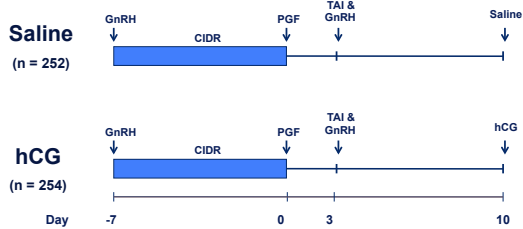
Rating by Perception of Relative Impact on Fertility







Fixed-Time AI Protocols for Beef Cows



(Marquezini et al., 2011)

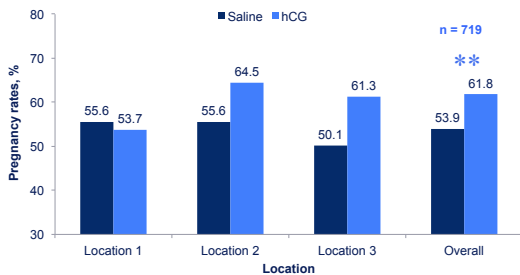
Pregnancy Rate

Item	Saline	hCG
Pregnancy rates, d 33 ----- % (total no. of cows) -----		
Location 1	40.0 (40)	51.2 (41)
Location 2	45.7 (35)	72.7 (33)
Location 3	58.8 (51)	50.0 (52)
Location 4	46.3 (41)	47.4 (38)
Location 5	59.3 (27)	62.1 (29)
Location 6	50.0 (58)	59.0 (61)
Total	50.0 (252) ^m	56.3 (254) ⁿ
Pregnancy rate, d 68	78.3 (249)	80.2 (253)

^{m,n} Means differ ($P = 0.05$)

(Marquezini et al., 2011)

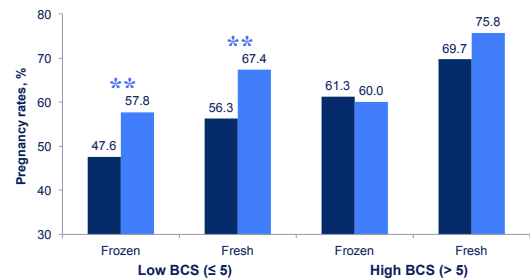
Effects of 1,000 IU hCG at ET (Fresh and Frozen Combined)



^{**}hCG differs from Saline ($P = 0.03$)

(Wallace et al., 2010)

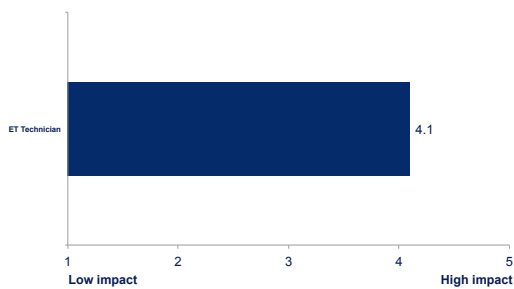
Effects of 1,000 IU hCG at ET



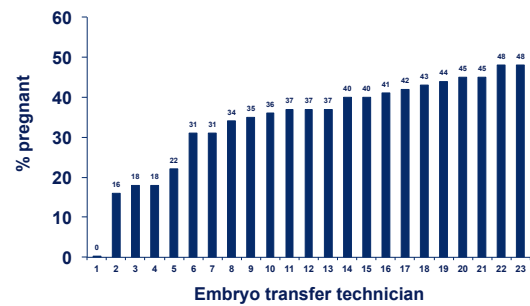
^{**}hCG differs from Saline within in category ($P < 0.05$)

(Wallace et al., 2010)

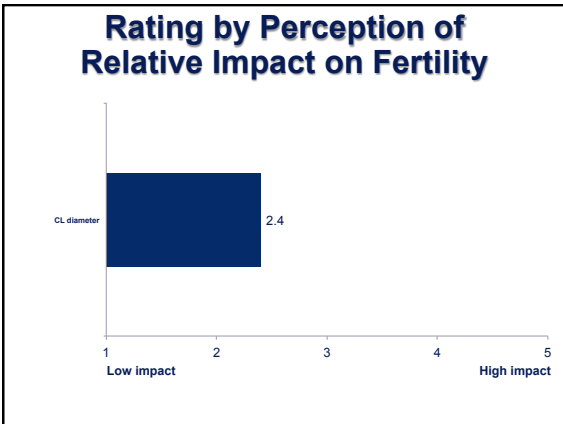
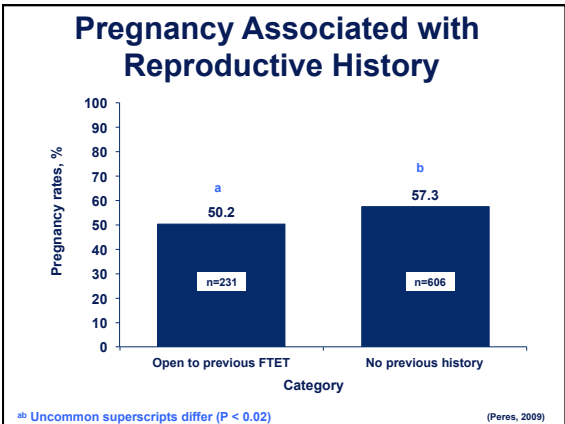
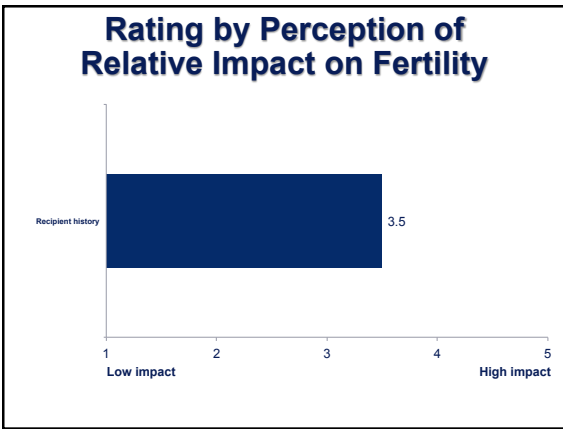
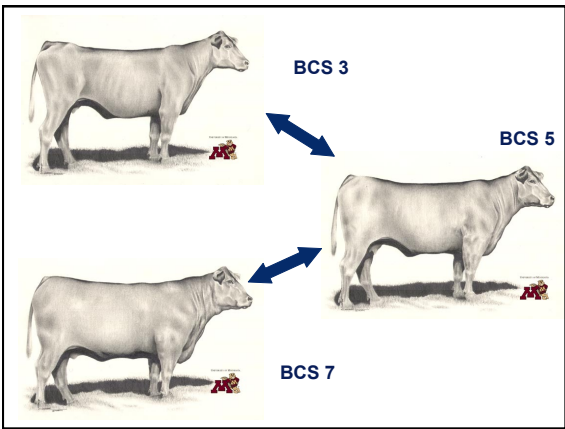
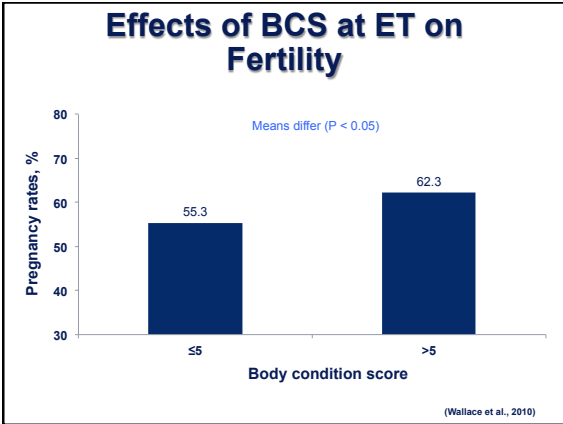
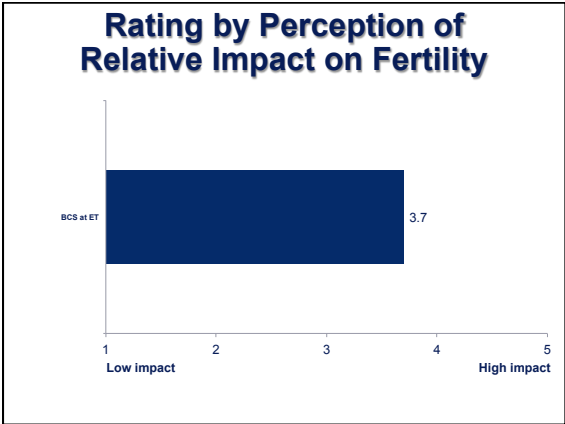
Rating by Perception of Relative Impact on Fertility



Technician Effects



(Marquezini et al., 2005)

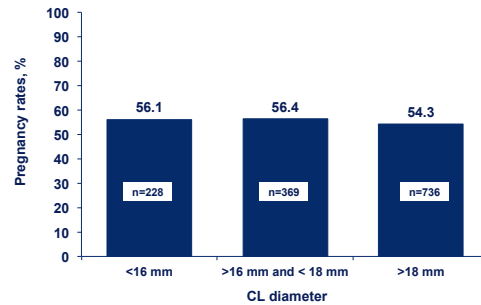


CL and Progesterone Characteristics in Pregnant and Nonpregnant Recipients.

Item ^a	Treatments	
	Pregnant	Nonpregnant
CL Diameter	24.1	24.0
Luteal volume, cm ³	7.1	6.8
CL with cavity, % of recipients	77	83
Concentration of Progesterone, ng/mL	4.1	3.9

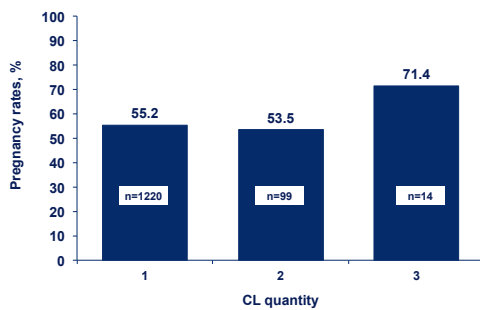
(Spell et al., 2001)

Pregnancy Associated with CL Diameter



(Peres, 2009)

Pregnancy Associated with CL Quantity



(Peres, 2009)

Acknowledgments

People

Dr. John Arthington
Dr. Reinaldo Cooke
Dr. Carl Dahlev
Dr. Alfredo DiCostanzo
Dr. Nicolas DiLorenzo
Dr. Jamie Larson
Dr. Travis Maddock
Dr. Vitor Mercadante
Dr. Jeff Stevenson
Mrs. Tara Black
Ms. Luara Canal
Mr. Jim Cassidy
Mrs. F. Cinco-Henry
Mr. Pedro Fontes
Mr. Darren Henry
Mr. Guilherme Marquetini
Ms. Nicky Oosthuisen
Mr. John Rodgers
Mrs. Carla Sanford
Ms. T. Schulmeister
Mrs. Kaly Waters
Technical staff
Support staff
Collaborators
Co-authors
Beef cattle producers

Funding and Product Support

ABS Global, Inc.
Blandin Foundation
Intervet Animal Health
IVX/Teva Animal Health
Merial Animal Health
MN-AURI
NAAB
Pfizer Animal Health
Select Sires, Inc.
Univ. of FL
Univ. of MN
OR State Univ.
USDA-AFRI
USDA-CSREES
USDA-TSTAR



Thank You!



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