RCMP Breeding Program and Management Techniques

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Dog Teams

- **138 General Duty Police Dog Teams Across Canada**
- **21 Single Profile Teams**
  - **Narcotics, or**
  - **Explosives**
- **16 Outside Agency Teams**
- **94% of all teams are from our Breeding Program**




Multi Purpose Police Service Dog

- Tracking Human Scent
- Searching Human Scented Evidence
- Narcotics / Explosives Searching
- Criminal Apprehension / Handler Protection
- Firearms Detection
- Cadaver Searching
- Obedience / Agility
- Avalanche

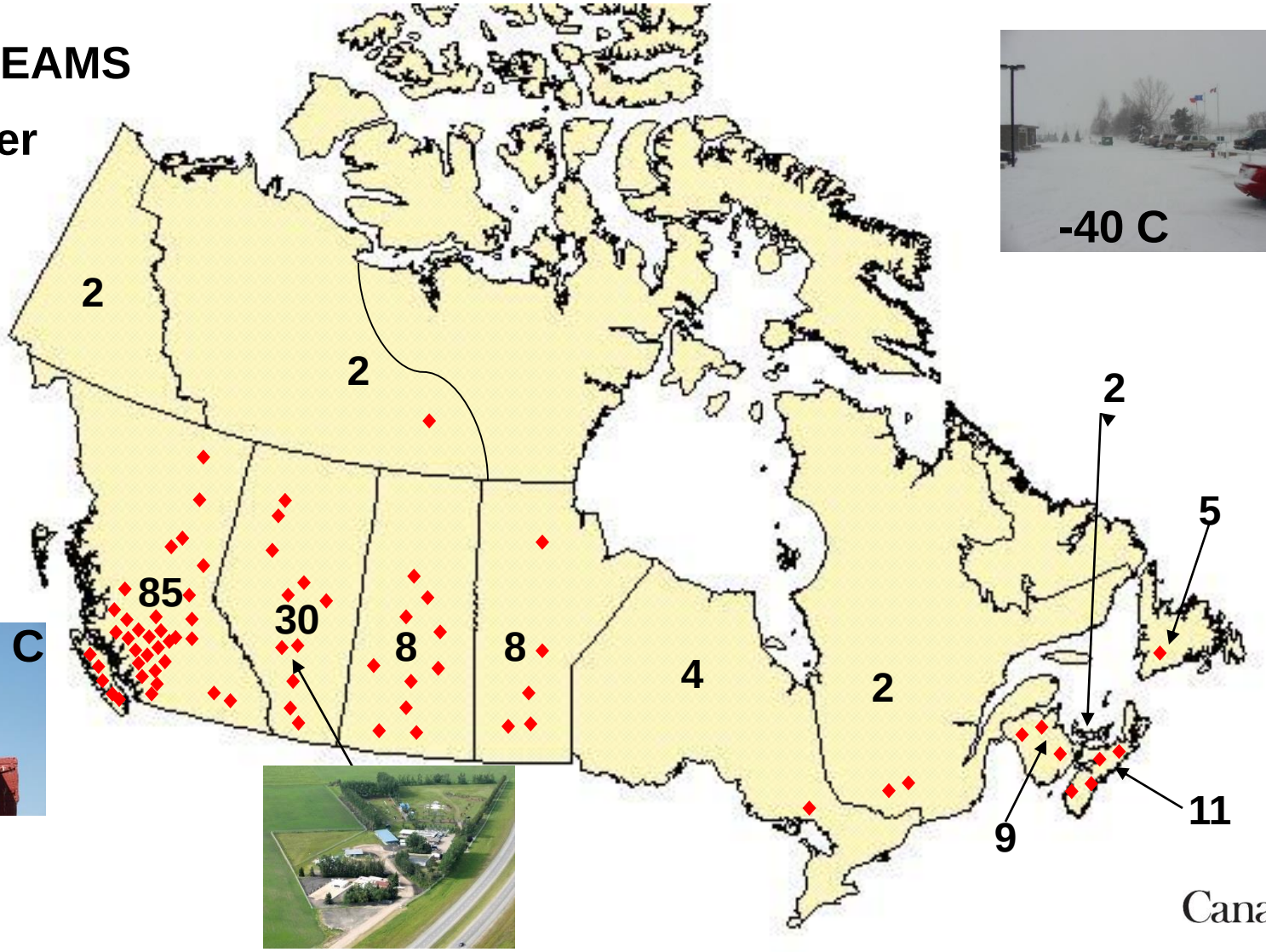
Canada


9-1-1
POLICE
GRC
RCMP
Canada

RCMP
ROYAL CANADIAN MOUNTED POLICE

175 PDS TEAMS

80 Imprinter



Canada

Police Dog Service Training Centre

- 25 Staff members
- 8 Whelping Units
- 42 Outdoor Kennels
- 21 Indoor Kennels
- 4 Quarantine Units
- 44 Acres

Dog Handler Training Courses

- New Dog Handler Course
- Retrain Dog Handler Course
- Re-Team Course
- Single Profile Detection Course
- Avalanche Searching Course
- On-site Explosive Searching Course
- Learning Assistance
- Yearly Validation for each team

Imprinting Program

- **Pups are raised by Police Officers (Imprinters)**
- **Dogs are evaluated at regular intervals (4, 8, 12 mths of age) to determine suitability for police work**
- **Dogs are imprinted in tracking, bite work and they are socialized and familiarized in a variety of environments**
- **Currently have 80 pups in the imprinting program**

Dogs are raised as police dogs not as pets

Pre-Train Unit

- **Police Dog Service Training Staff**
- **Oversee the Imprinting Program**
- **Evaluation and Testing of all dogs**
- **Travel Canada to evaluate dogs and potential handlers**
- **Problem solving individual dogs**
- **When training unit needs a dog; pre train unit must have a dog ready**

Evaluation and Testing

- **Seven week Puppy Evaluation: identify poor pups only**
- **Four month Testing: confirms seven week test**
- **Eight month Testing: performance issues**
  - ✓ – major issues – cull
- **Twelve month Testing : final evaluation**
  - ✓ – only minor issues remaining
- **Pre-Train Testing Prior to Training**

Environment and Imprinting

- **Higher success rate of dogs graduating with Imprinters who have raised > 1 pup**

- **90% average success rate of dog handlers who raise their next working dog**

Requiring a Breeding Program

- **Breeding Program (current) initiated in 1999**
- **Global Demand for Working Line German Shepherds**
  - Getting more difficult to acquire sufficient supply of quality dogs

Dilemma - No Dogs

- **1998: 2/10 (20%) dogs that were acquired, graduated**
- **We require 30-35 dogs per year to complete training**
- **Goal of providing a consistent supply of top quality working line German Shepherds**

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Breeding Program

- **Focused on producing superior dogs for police work (health and performance)**
- **Importance is placed on careful planning and then measuring and recording the results**
- **Information gathered is then used to make decisions into the future**
- **Behavior is the product of genes, environment and learning**
- **Our experience indicates that success the puppies is 35% genetics and 65% environment**

Civilian Broodkeepers

- **Breeding females stay with broodkeeper until whelping**
- **18 Broodkeepers**
- **Annual Broodkeeper Training Workshop**

Breeding Stock

55 Studs

- **Frozen Genetics**
- **Proven Working Dogs**

18 Breeding Females

- **90 over last 18 yrs**
  - 62 from within the program
  - 28 purchased

Selection of Breeding Pairs

- **Breeding is based on performance and health**
- **Phenotype (what you can see)**
  - **Performance and physical health**
- **Genotype (what you can't see)**
  - **Genes (dominant / recessive genes)**
- **Consider the animal itself but also take into account its genetic background: litter mates, parents, etc.**
- **1 parent must be proven**

Proof is in the Pudding

Puppies

- **Whelp in Pods at the Training Centre**
- **Week by week progression of activities**
- **Puppy Socialization / Familiarization**
- **Exposure to a variety of environments**

RCMP
ROYAL CANADIAN MOUNTED POLICE

Puppy Evaluation 7 Weeks

Traits we look for:

- **social**
- **dominant**
- **confident**
- **bold**
- **curious**
- **nerve stability**
- **energetic**
- **demonstrates - chase / pursuit**

Developmental Flow:

Breeding- Imprinting - Training

Breeding

Familiarization

Imprinting

Breeding Female Selection

Detection Dog Team

Annual

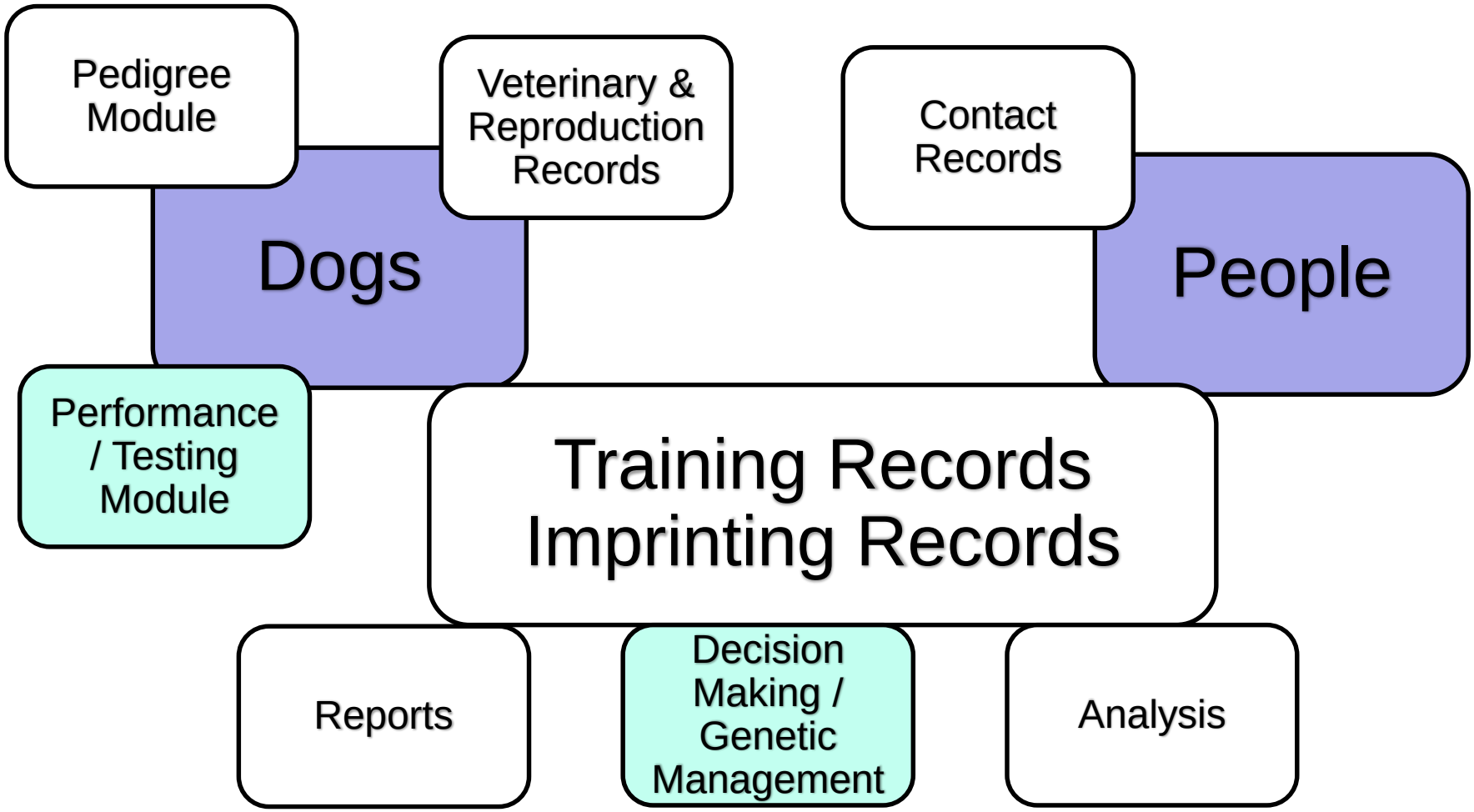
Validations

Stud Selection

General Duty Team

Training

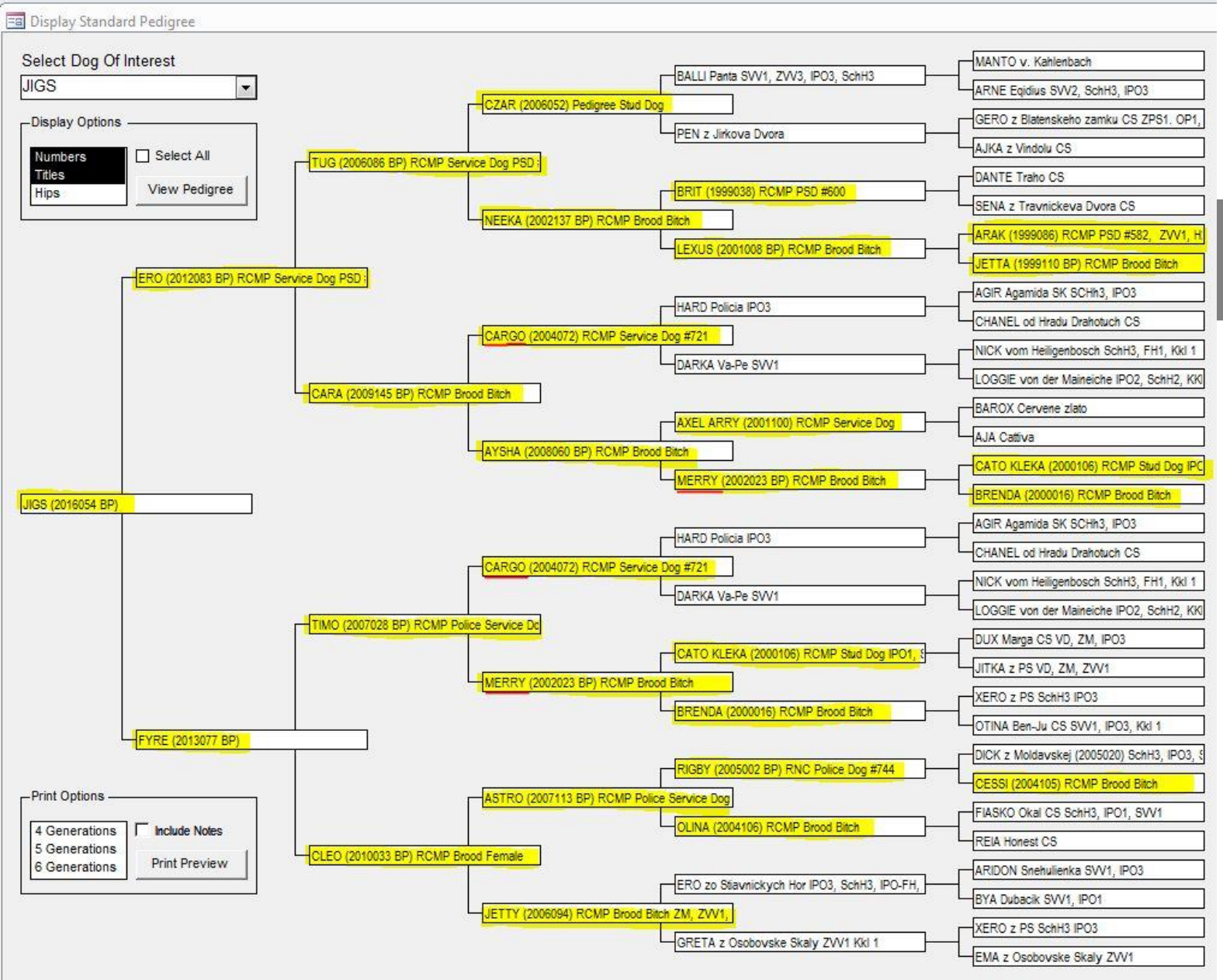
Relational Database



Genetic Improvement

- ✓ > 300 Breeding Program Dogs Graduated from RCMP Training
- ✓ > 60 Breeding Program Females Used
- ✓ 50-60 % of dogs become Working Dogs
- ✓ Genetic Improvement Through Health and Performance Data
- ✓ Increase in number of dogs that complete training (Performance)
- ✓ Reduction of hip dysplasia (Health)

6 Generations of Breeding



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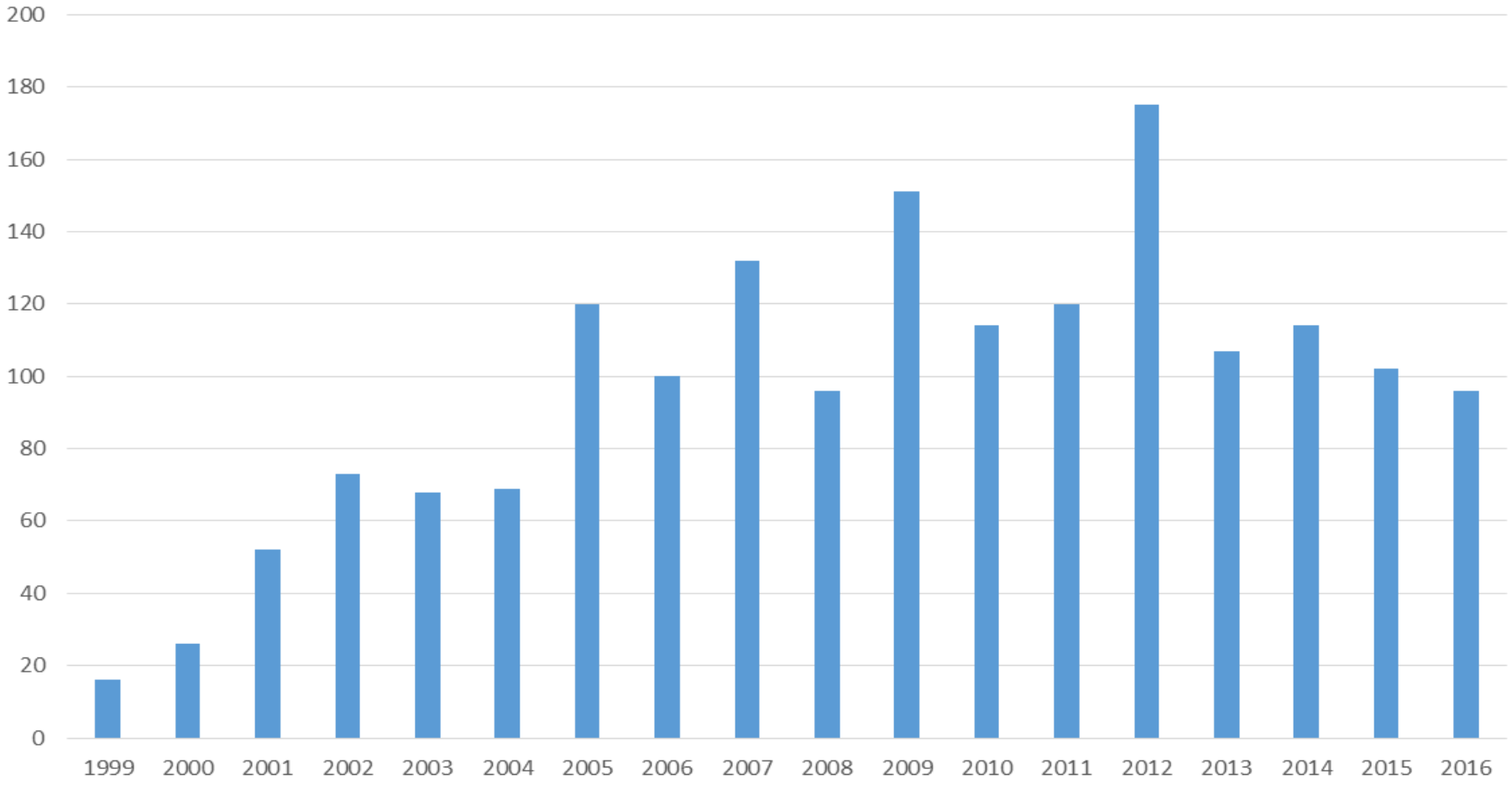
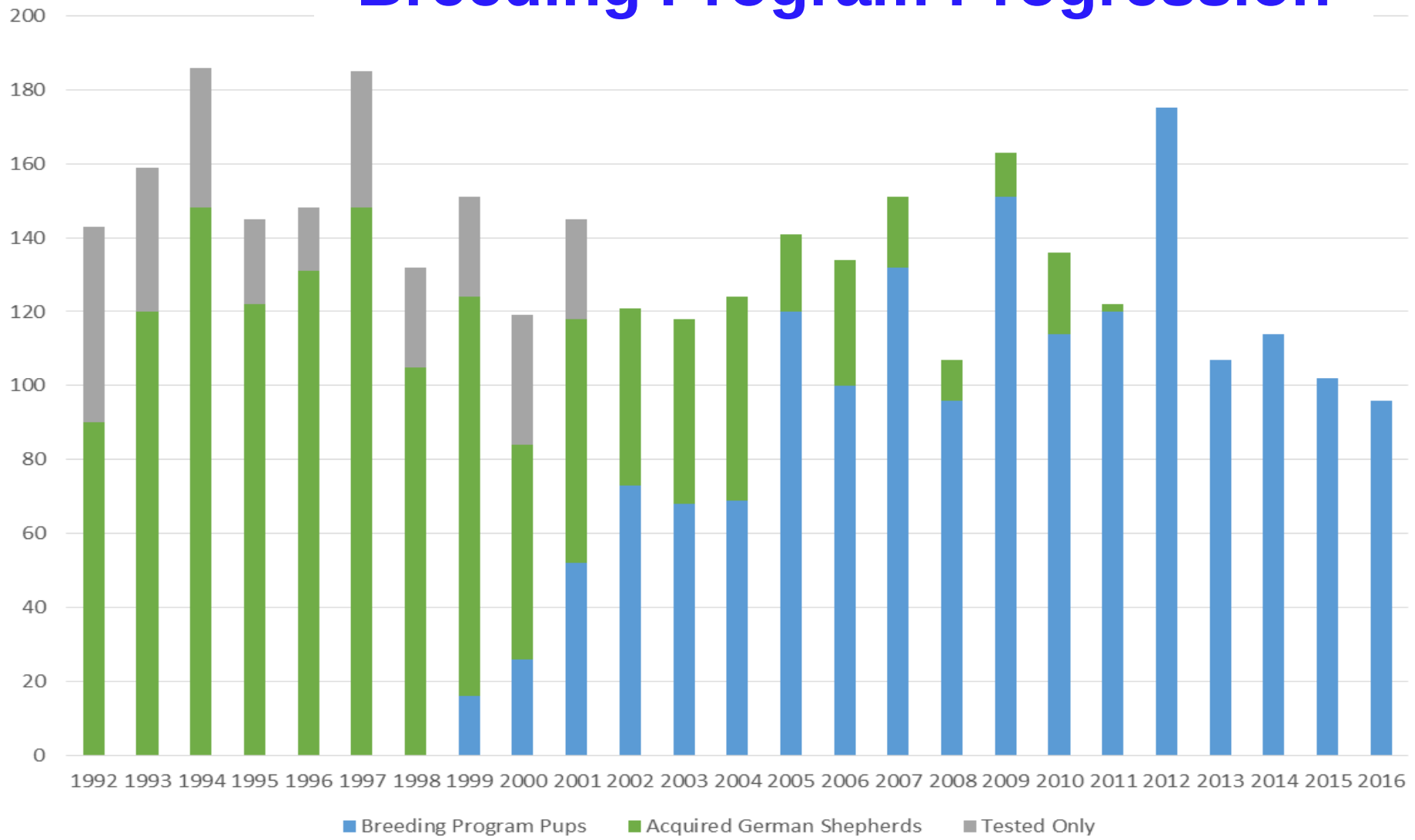
Canada

Total Puppies Born

- **Average of 78% have gone into the Imprinting Program**

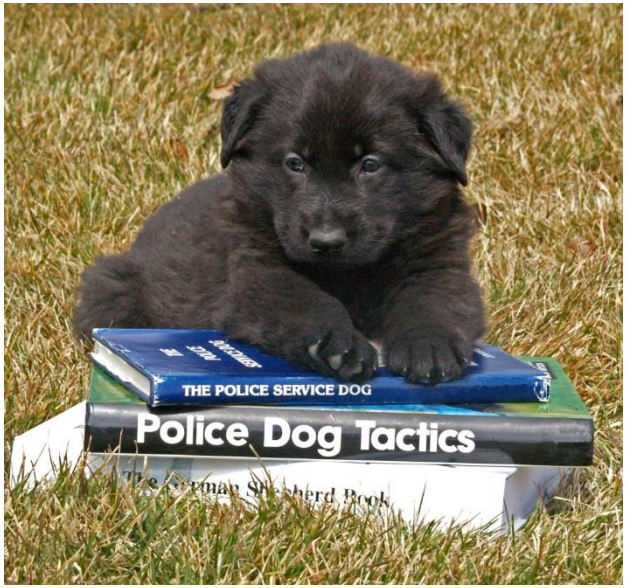


Breeding Program Progression



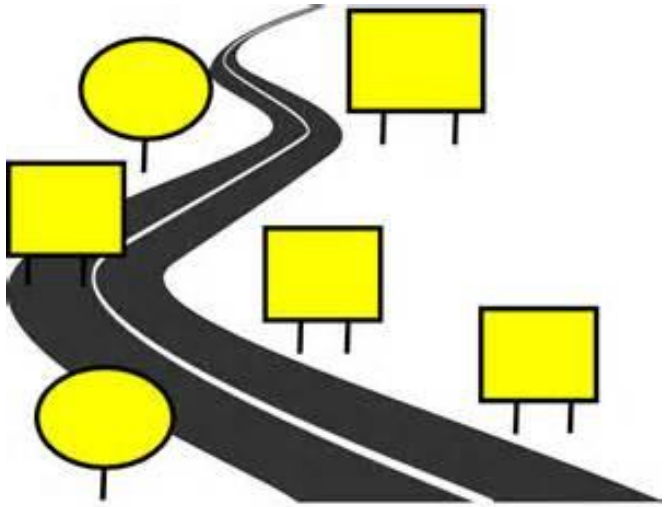
Summary of the Program

- **Long term vision**
- **Self sufficient for the last 6 years**
- **Each year brings new issues and challenges**
- **Genetics exchange with other agencies**
  - **RAAF Australia (frozen semen 2004)**
  - **New Zealand Police Dog Training Centre (brood bitch 2006 and Frozen Semen 2008)**



18 Year Journey — Making Use of Data
Dr. Ken Hubbard

- **What we have experienced**
- **How we have responded**
- **What we have learned**
- **The future**



Reproduction and Health Management

- **Cedarwood Veterinary Hospital**
  - Ken Hubbard DVM, Dagmar Schouten DVM, Ronnel Palmer RVT
  - Breeding Program based on Frozen Semen
- **Facility is 40 minutes away**
- **Broods are housed off site**

Reproduction Process

- **Brood Keepers**
- **Brought to PDSTC**
- **Insemination**
  - Trans-cervical Insemination (TCI) Frozen Semen---two 24 hrs. apart
- **Ultrasound: 26-30 days from breeding**
- **X-ray 5 days prior to whelping (into PDSTC to stay)**

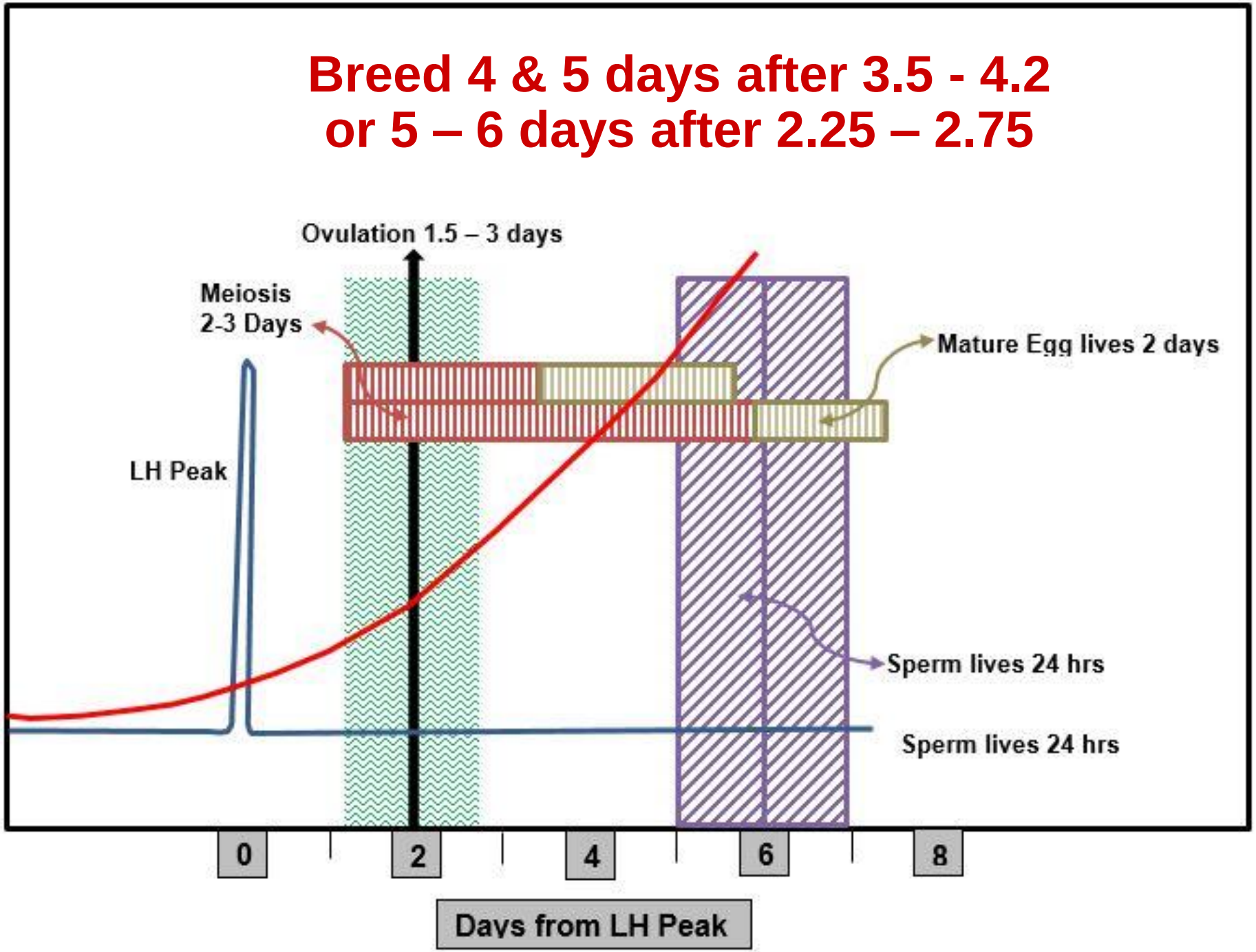
Reproduction Management Goals

- **Conception >80%**
- **Litter Size > 6**
- **Stillborn < 5%**
- **Neonatal Deaths < 5%**
- **Resorptions incidental**

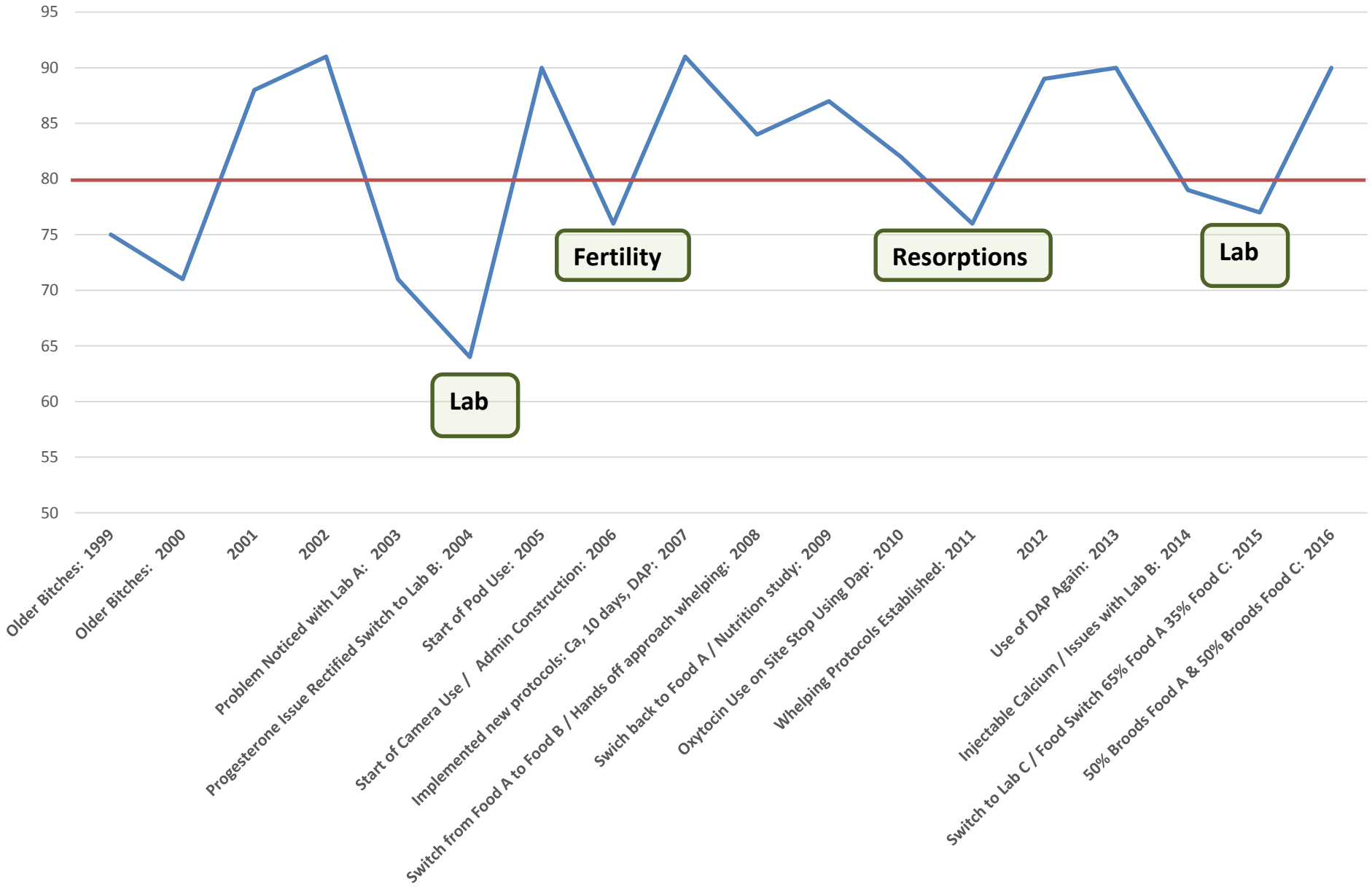
Factors Affecting Conception

- **Insemination Timing**
- **Fertility of Broods / lines of Broods**
- **Resorptions**
- **Semen quality—freezing center**

Breed 4 & 5 days after 3.5 - 4.2 or 5 – 6 days after 2.25 – 2.75

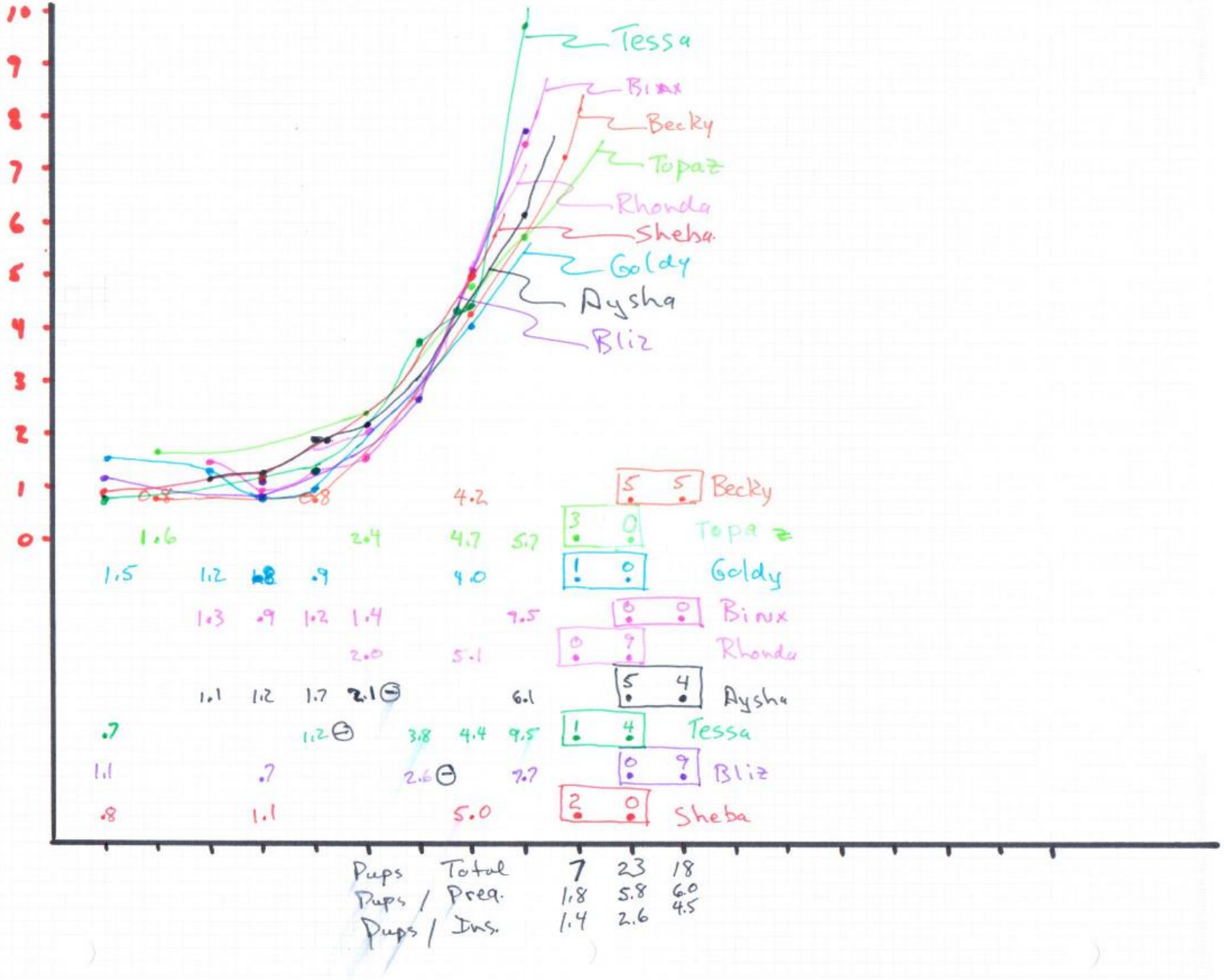


Conception Rates and Significant Events



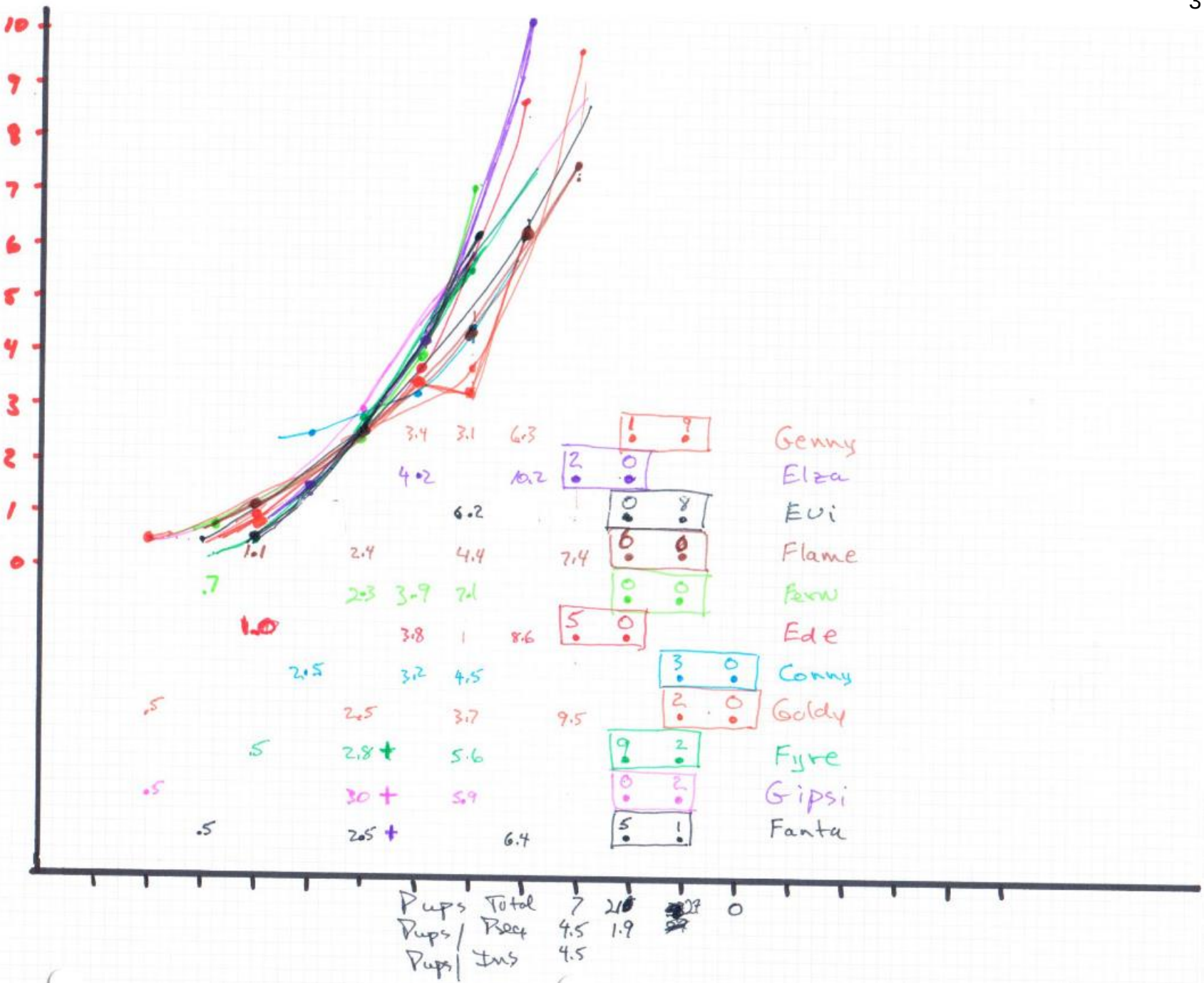
Double Sire Insemination 2011/ 2016

- **Method**
  - 2011--9 breedings using 2 sires
  - 2016-11 breedings
  - DNA testing on each pup to determine the sire
- **Purpose of the study**
  - Timing of breeding
  - Progesterone curves
  - Litter Size
  - Insights into two inseminations
    - Cost
    - Preserving supply of frozen genetics


Tessa
Binx
Becky
Topaz
Rhonda
Sheba
Goldy
Aysha
Bliz
Becky
Topaz
Goldy
Binx
Rhonda
Aysha
Tessa
Bliz
Sheba
Pups Total 7 23 18
Pups / Preg. 1.8 5.8 6.0
Pups / Ins. 1.4 2.6 4.5

Results

Prog 1.4-2.4	DAY		
	4	5	6
0		5	5
0		0	0
0		5	4
0		0	9
0	0	9	
0	3	0	
0	1	4	
0	1	0	
0	2	0	


10
9
8
7
6
5
4
3
2
1
0
Genny
Elza
Evi
Flame
Ferw
Ede
Conny
Goldy
Fyre
Gipsi
Fanta
Pups Total
Pups/ Preg
Pups/ Ins
7
4.5
4.5
1.9
0

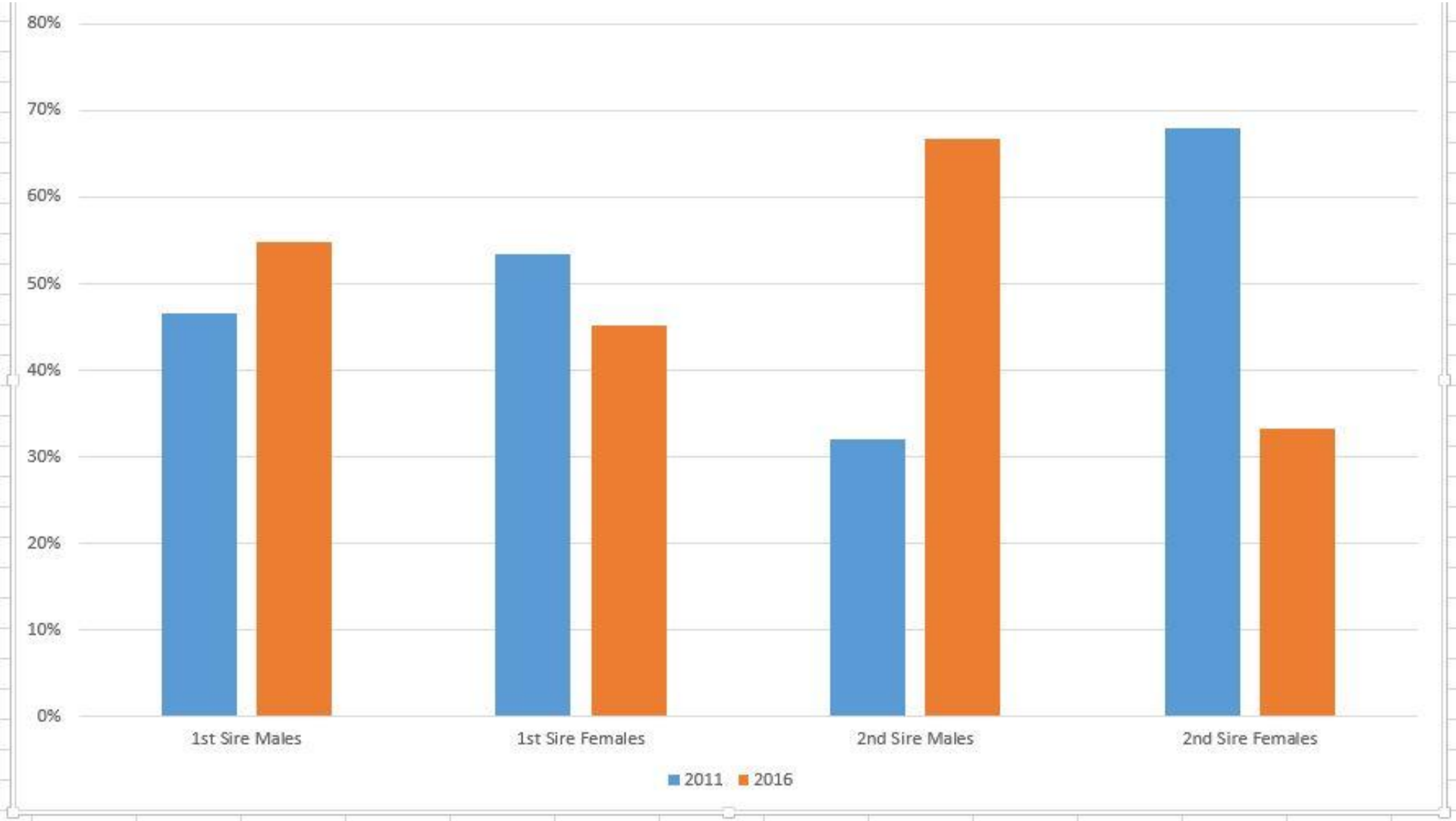
Results

Prog 2.5—2.75	DAY			
	4	5	6	7
0		1	9	
0		0**	8	
0		6	0**	
0		0	0	
0		9	2	
0		0	2	
0		5	1	
0	5	0**		
0	2	0**		
0			3	0
0			2	0

Double Sire Insemination - Conclusions

- Conception Rates were good --89%, 91%
- Progesterone curves appeared very good
- Largest litters with day 5 + 6 insemination
- Double inseminations important
- Progesterones appear adequate to predict
- Imported semen a factor ??
- Litter size good 6

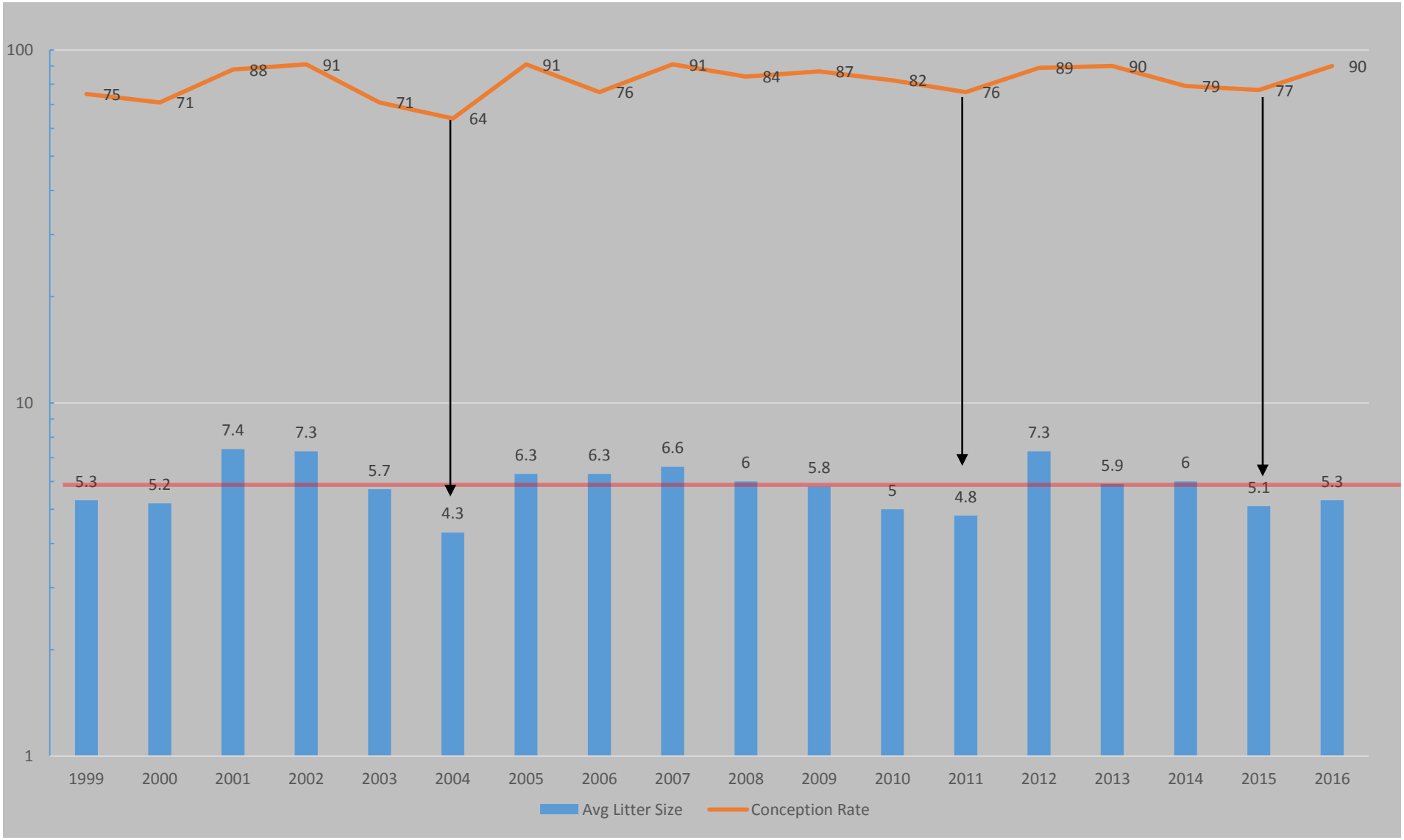
Double Sire Inseminations
Males vs Females



Factors affecting Litter Size

- Goal is >6 pups
- Timing of insemination
- Fertility of Female
  - Age
  - Lines
- Fetal Resorptions

Litter Size


100
10
1
75
71
88
91
71
64
91
76
91
84
87
82
76
89
90
79
77
90
5.3
5.2
7.4
7.3
5.7
4.3
6.3
6.3
6.6
6
5.8
5
4.8
7.3
5.9
6
5.1
5.3
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg Litter Size
Conception Rate

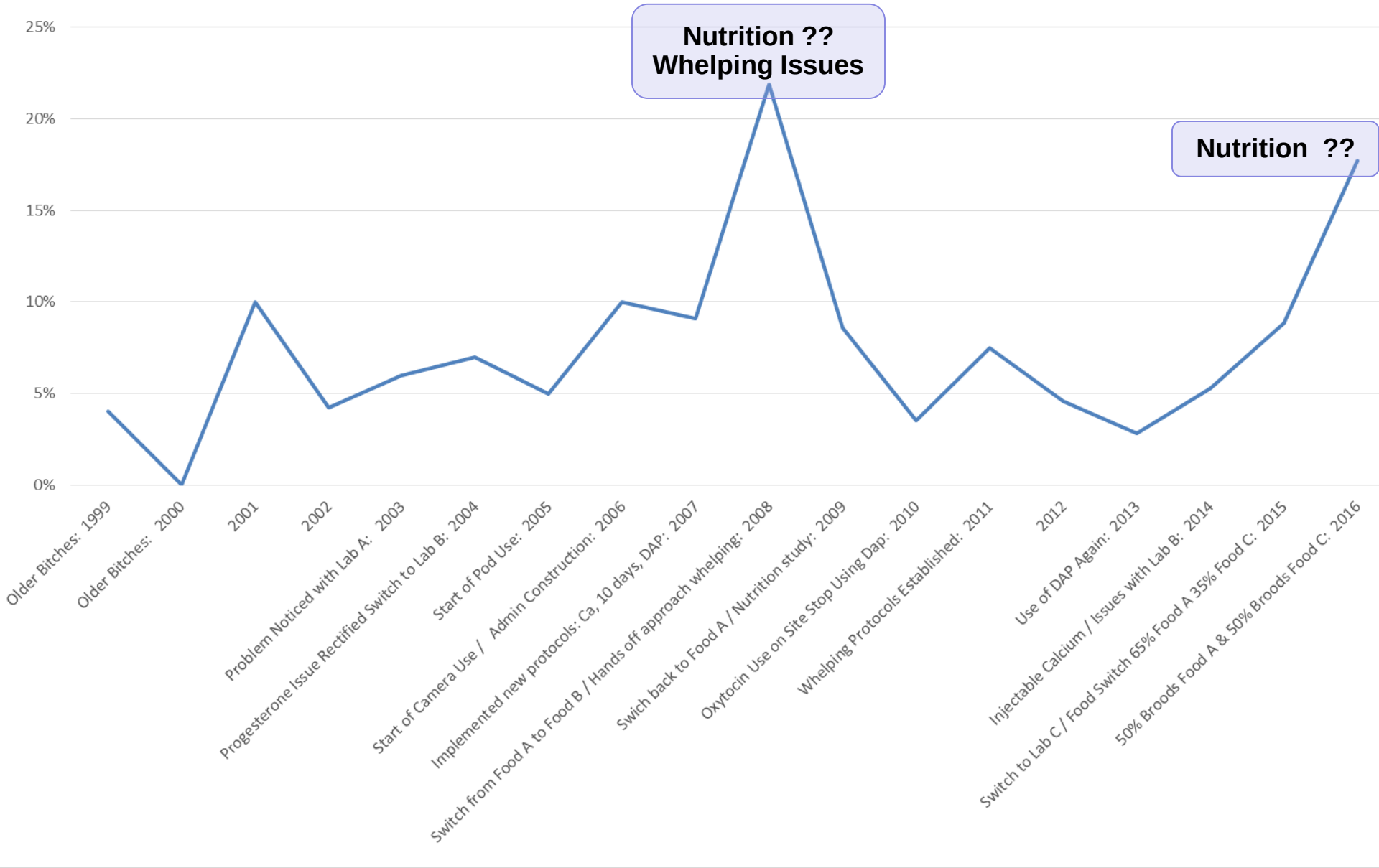
Fetal Resorptions

- 30 day U/S—several resorption sites
- Some entire litter
- Pursued aggressively
  - Nothing confirmed diagnostically
  - Suspicious of infection??
- 2-3 week course of antibiotics post TCI
- Resorptions decreased ?????

Factors Affecting Stillborn Births

- **Goal is < 5% SB**
- **Whelping Issues**
- **Nutrition**
- **Pregnancy Issues**

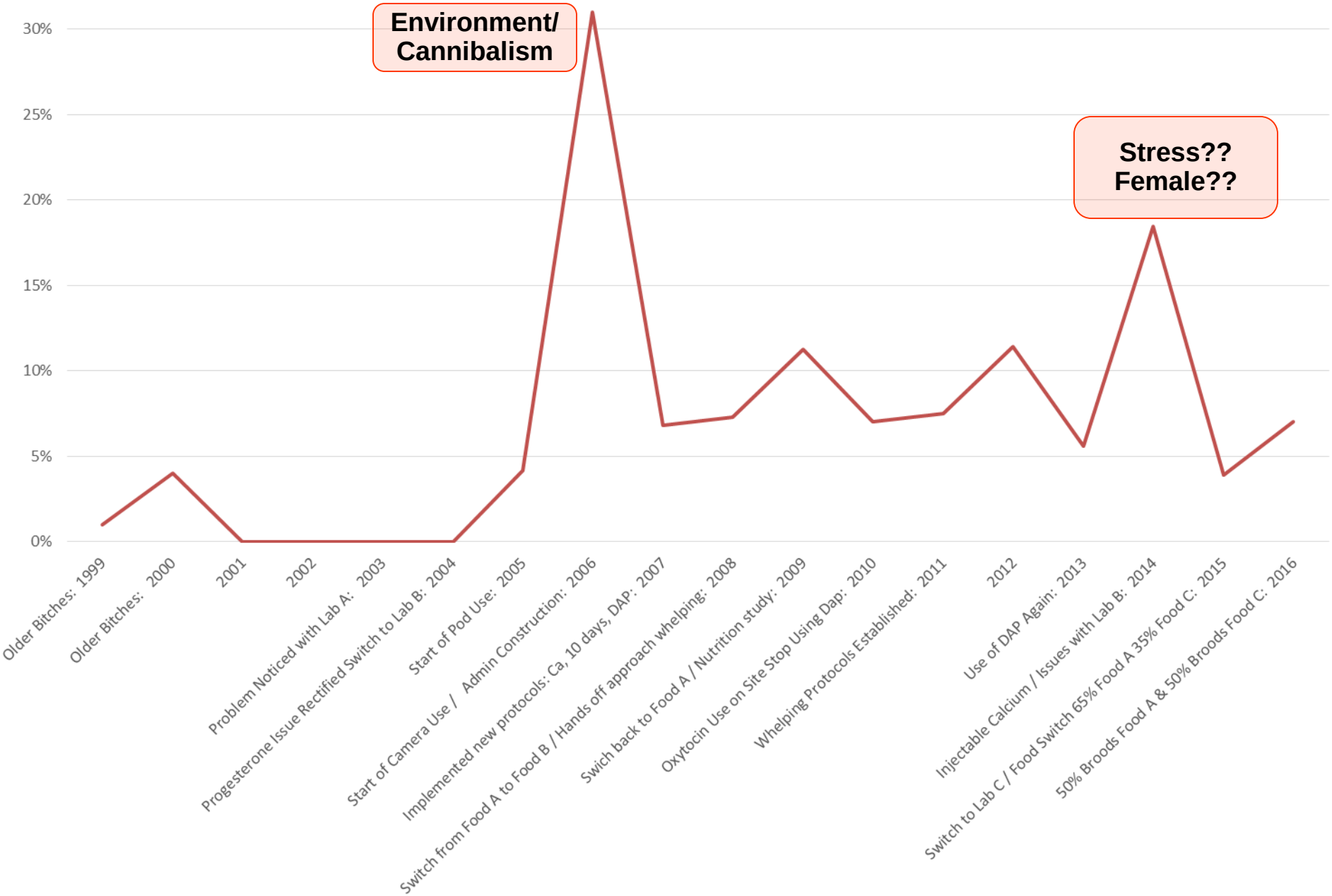
Stillborn Births and Timeline

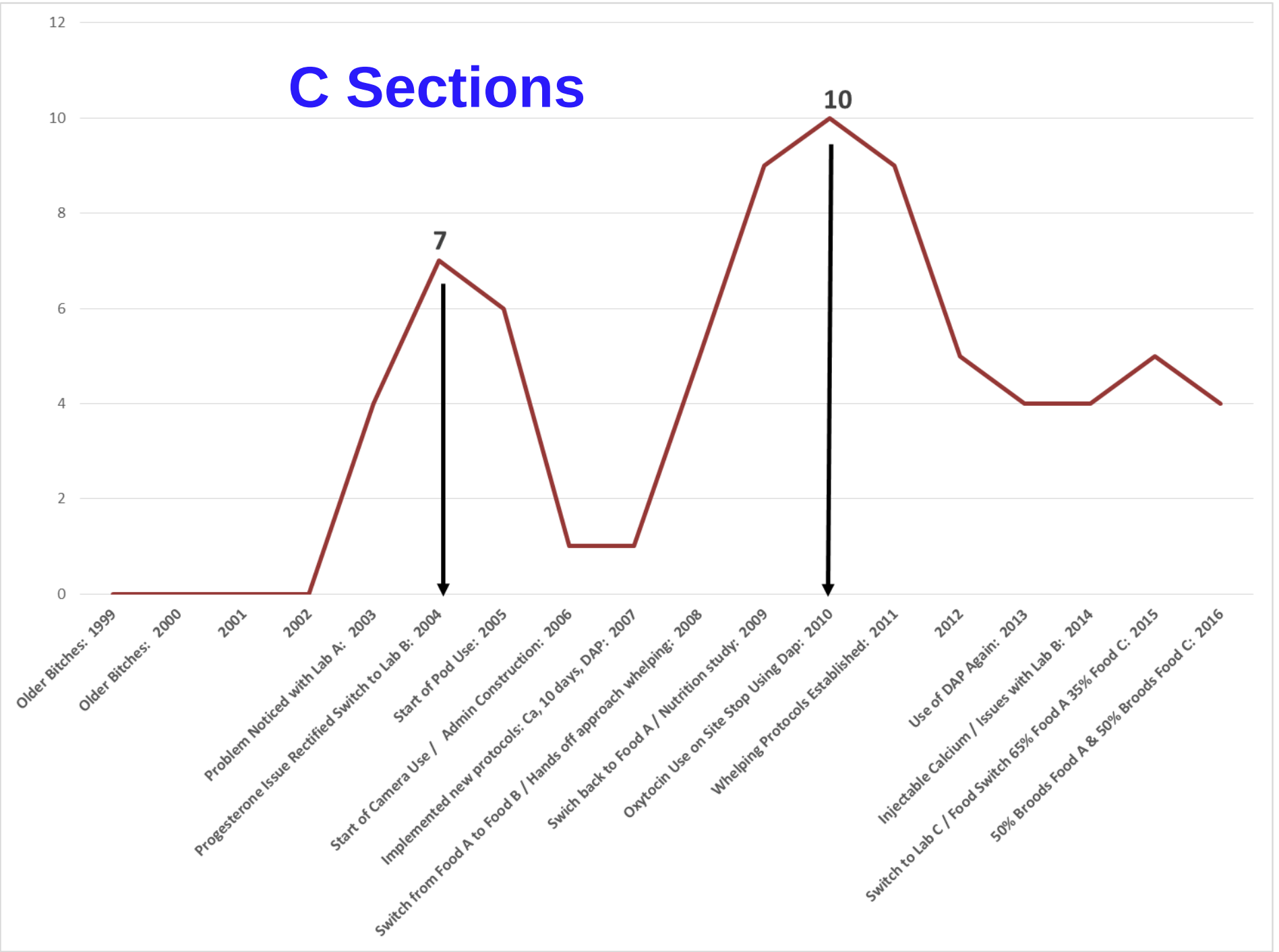


Neonatal Deaths

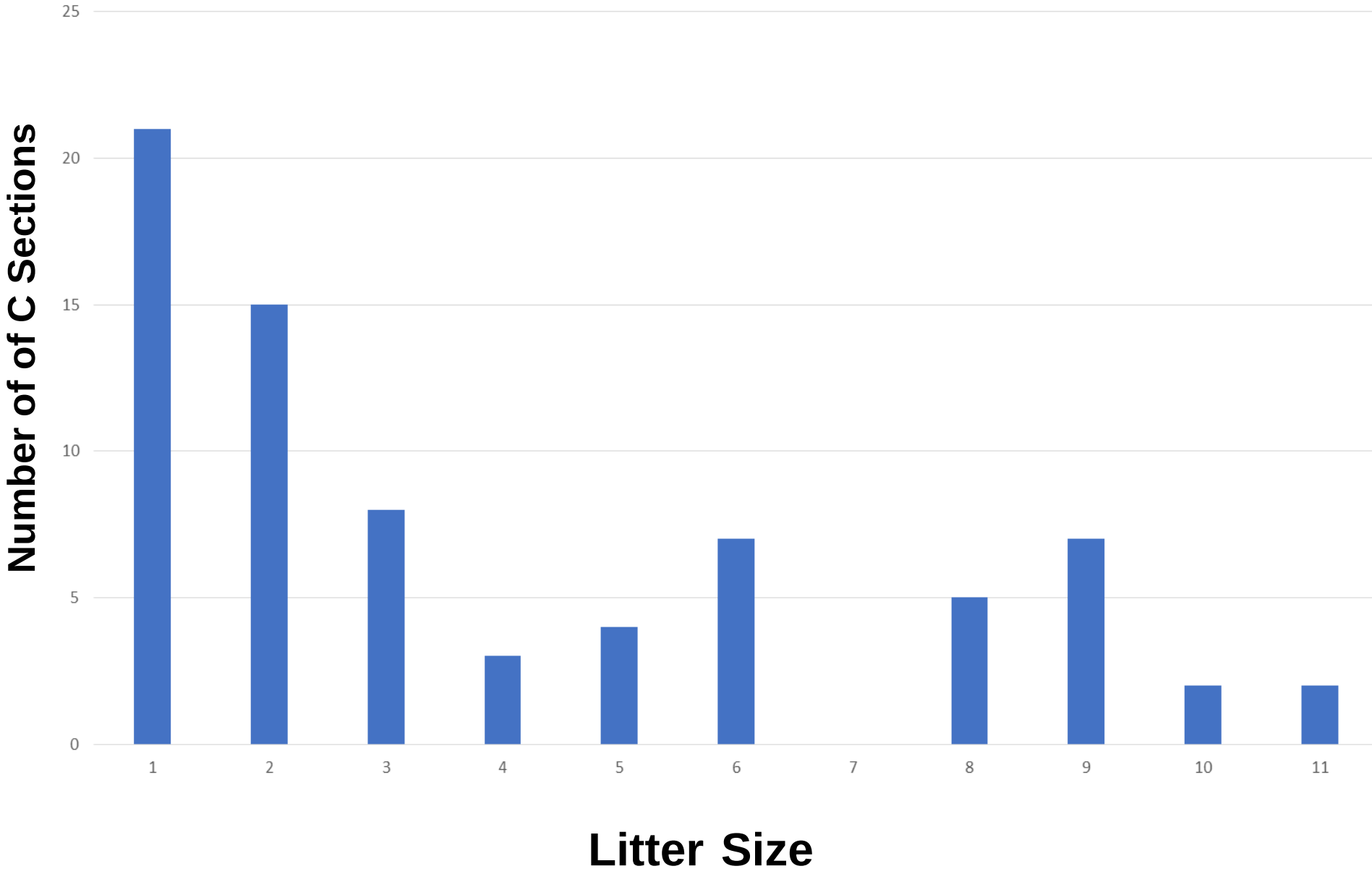
- **Goal is < 5% Neonatal deaths**
- **Female Factors**
  - High prey Drive
  - Stress
- **Mothering Ability---hereditary????**
- **Environmental Factors**

Neonatal Deaths and Timeline

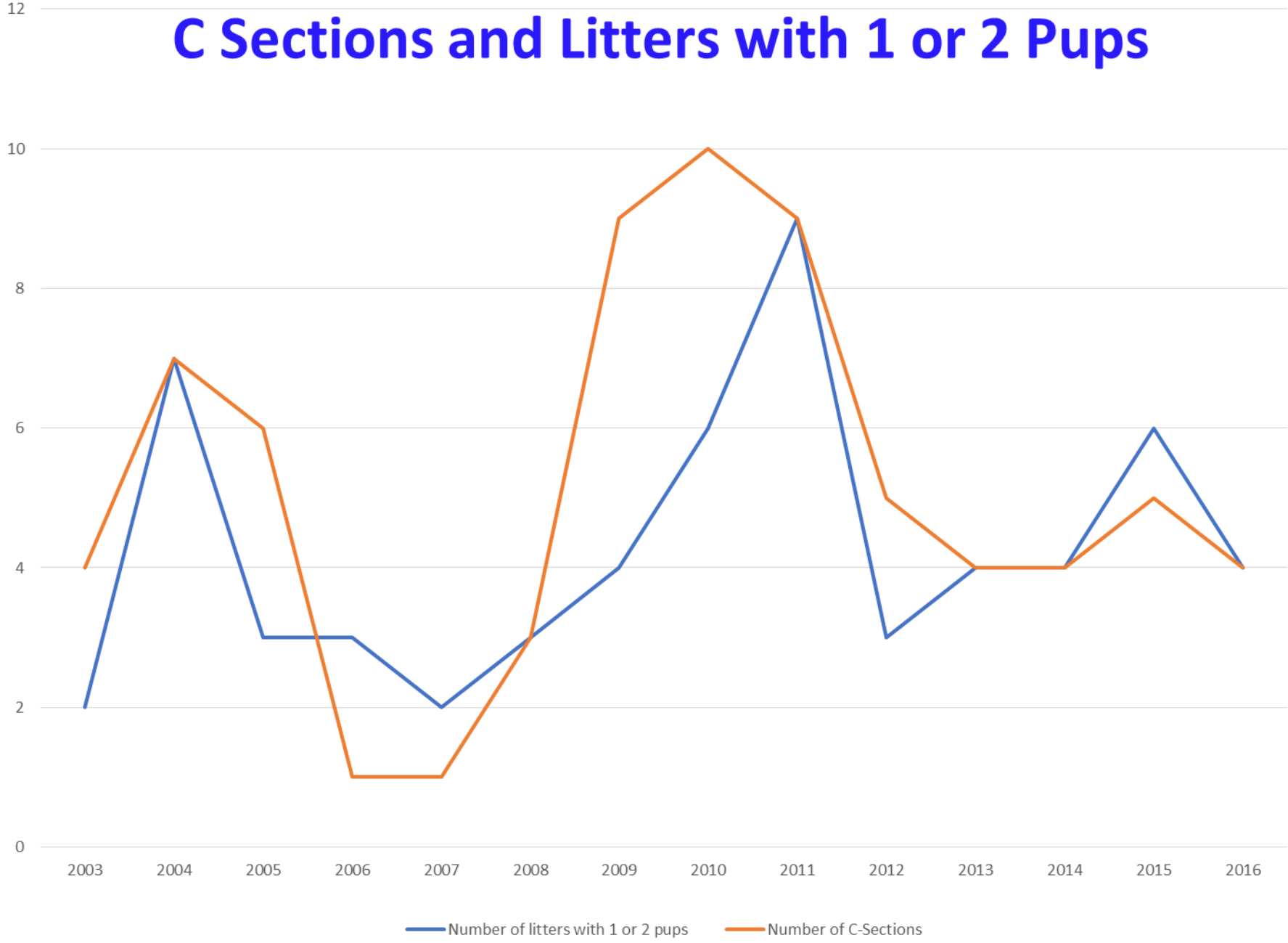



C Sections
12
10
8
6
4
2
0
7
10
Older Bitches: 1999
Older Bitches: 2000
2001
2002
Problem Noticed with Lab A: 2003
Progesterone Issue Rectified Switch to Lab B: 2004
Start of Pod Use: 2005
Start of Camera Use / Admin Construction: 2006
Implemented new protocols: Ca, 10 days, DAP: 2007
Switch from Food A to Food B / Hands off approach whelping: 2008
Swich back to Food A / Nutrition study: 2009
Oxytocin Use on Site Stop Using Dap: 2010
Whelping Protocols Established: 2011
2012
Use of DAP Again: 2013
Injectable Calcium / Issues with Lab B: 2014
Switch to Lab C / Food Switch 65% Food A 35% Food C: 2015
50% Broods Food A & 50% Broods Food C: 2016

Number of C Sections and Litters Size

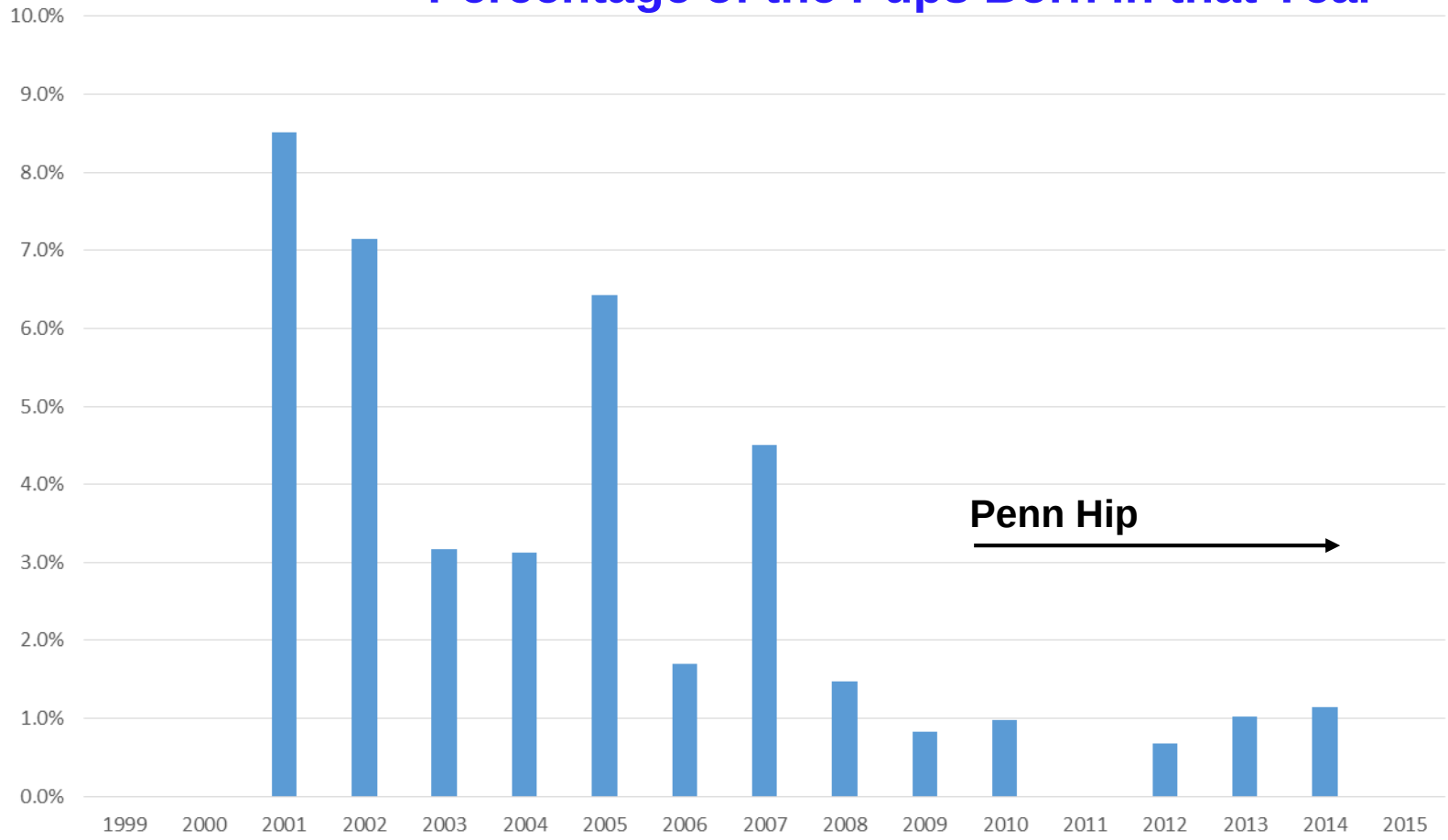


C Sections and Litters with 1 or 2 Pups

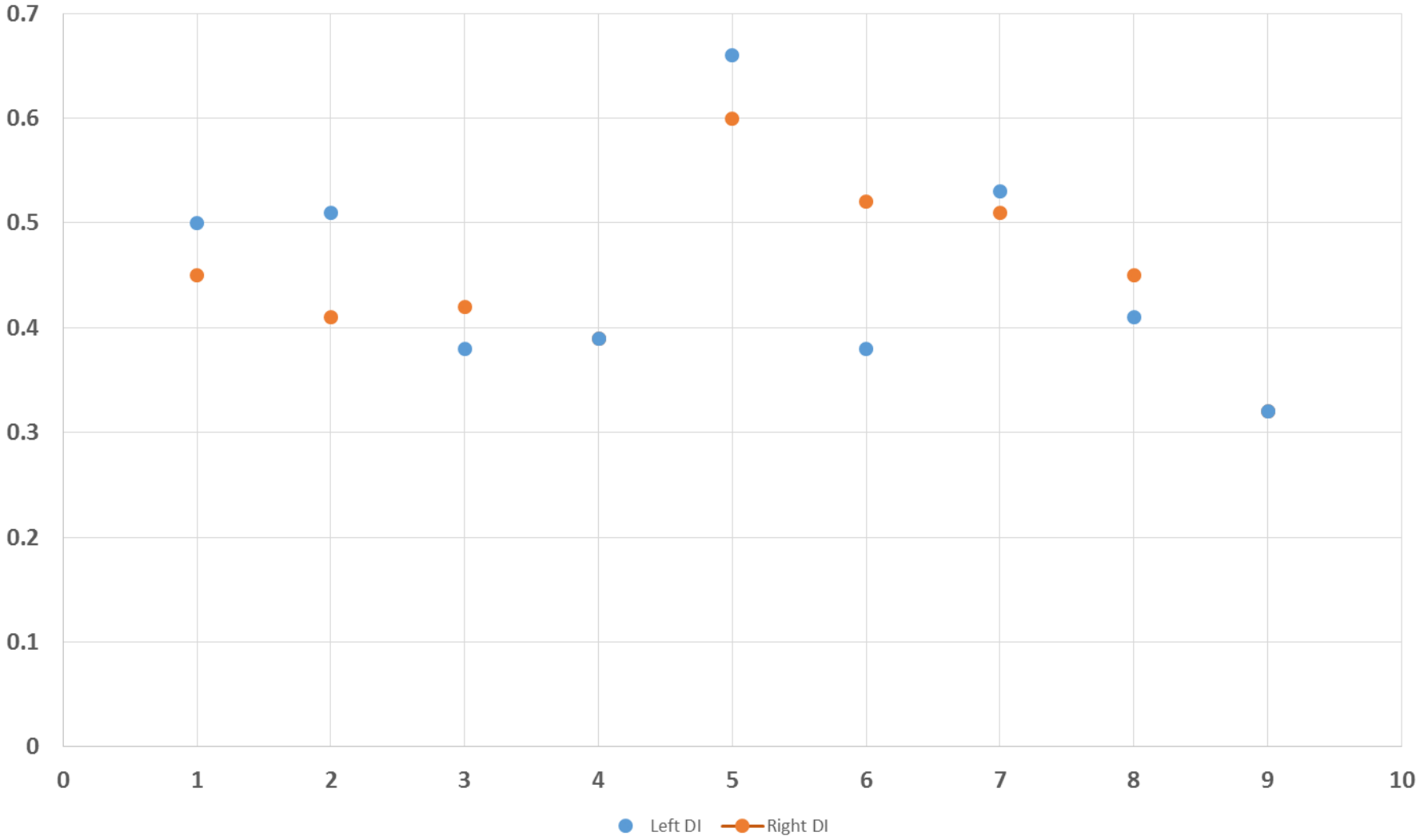


Hip Dysplasia

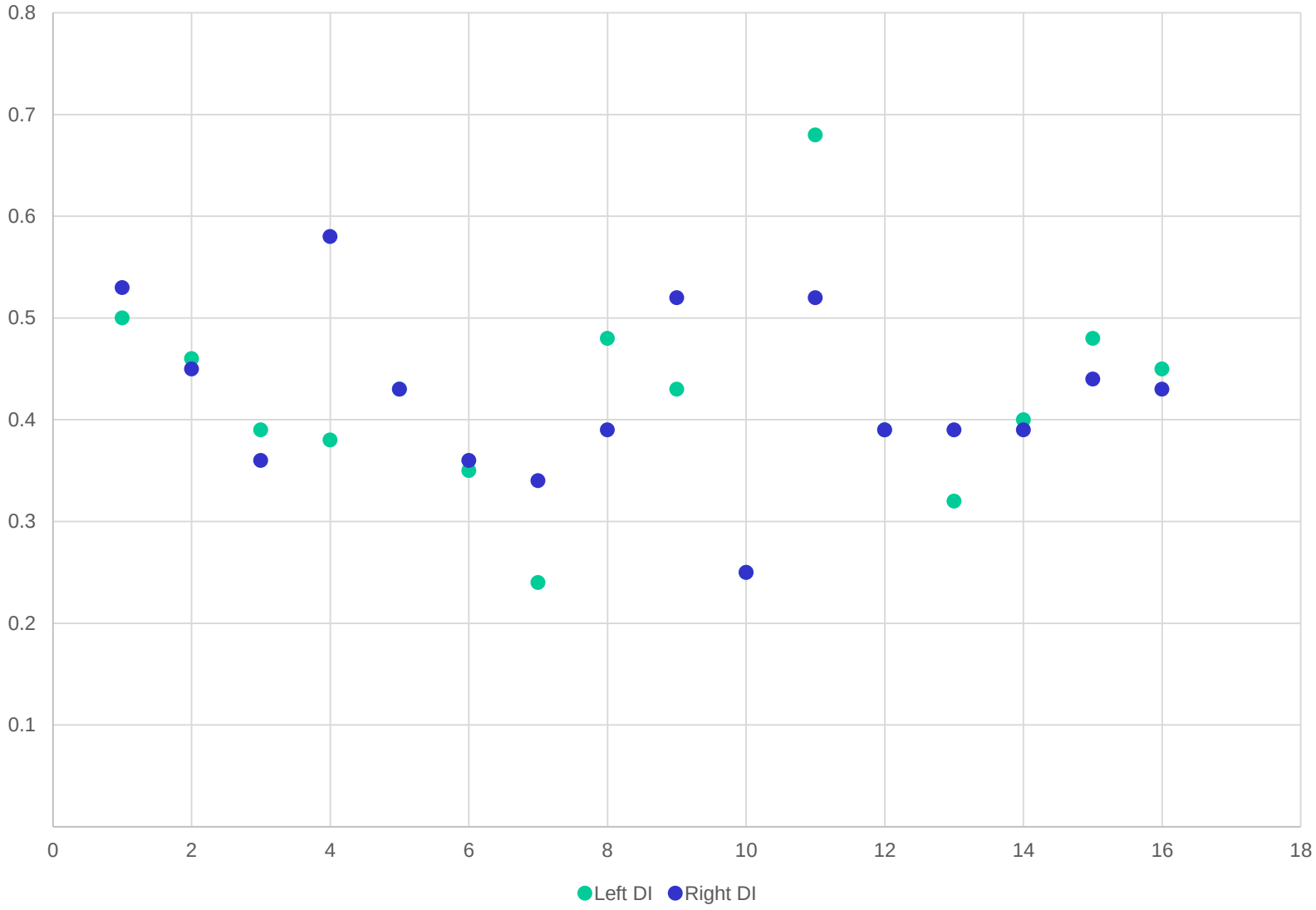
Percentage of the Pups Born in that Year



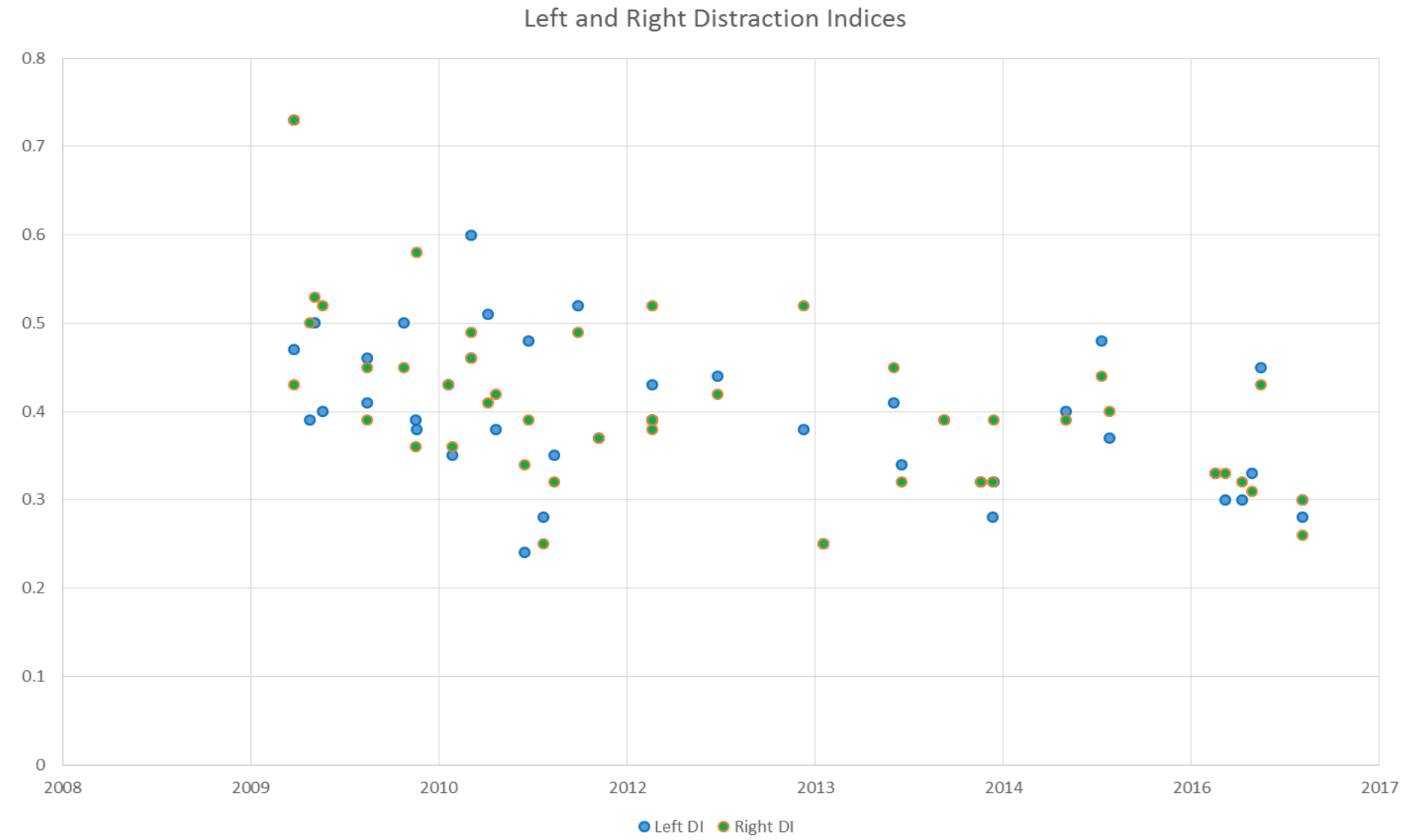
VD Hip X-rays ``Good-Excellent”



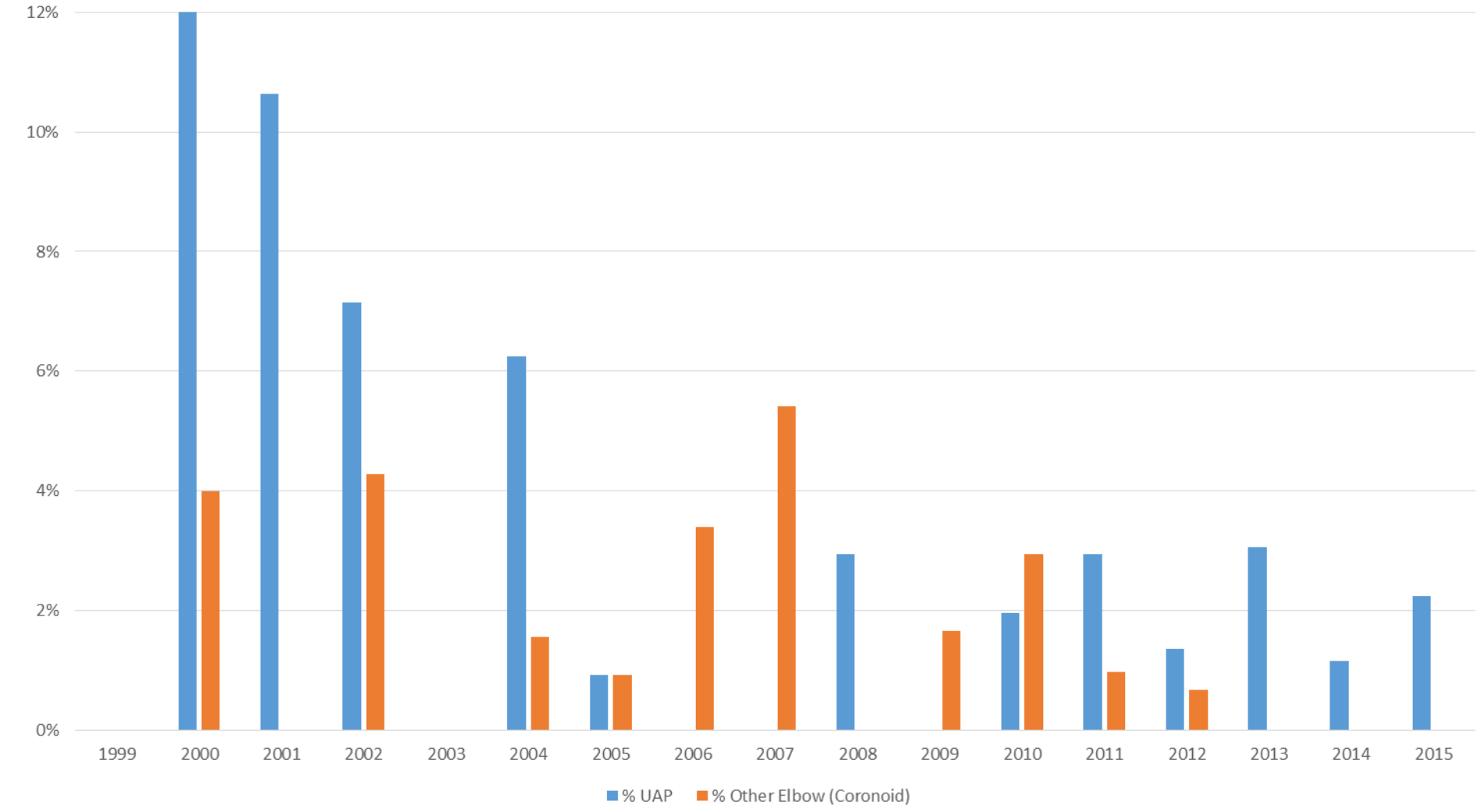
VD Hip X-rays ``Good``



Penn Hip Values 2009-2016



Elbow Dysplasia
UAP-----Coronoid---Grades I,II,III,IV
2007-Changed



Summary

- CONCEPTION—timing—progesterones
- RESORPTIONS--???
- NEONATAL Deaths---environment
- STILLBORN—whelping—nutrition??
- C-SECTIONS---size of litter—whelping
- Hip Dysplasia---PennHip
- Elbows