Food Animal Education at the UW-SVM

The State of the State

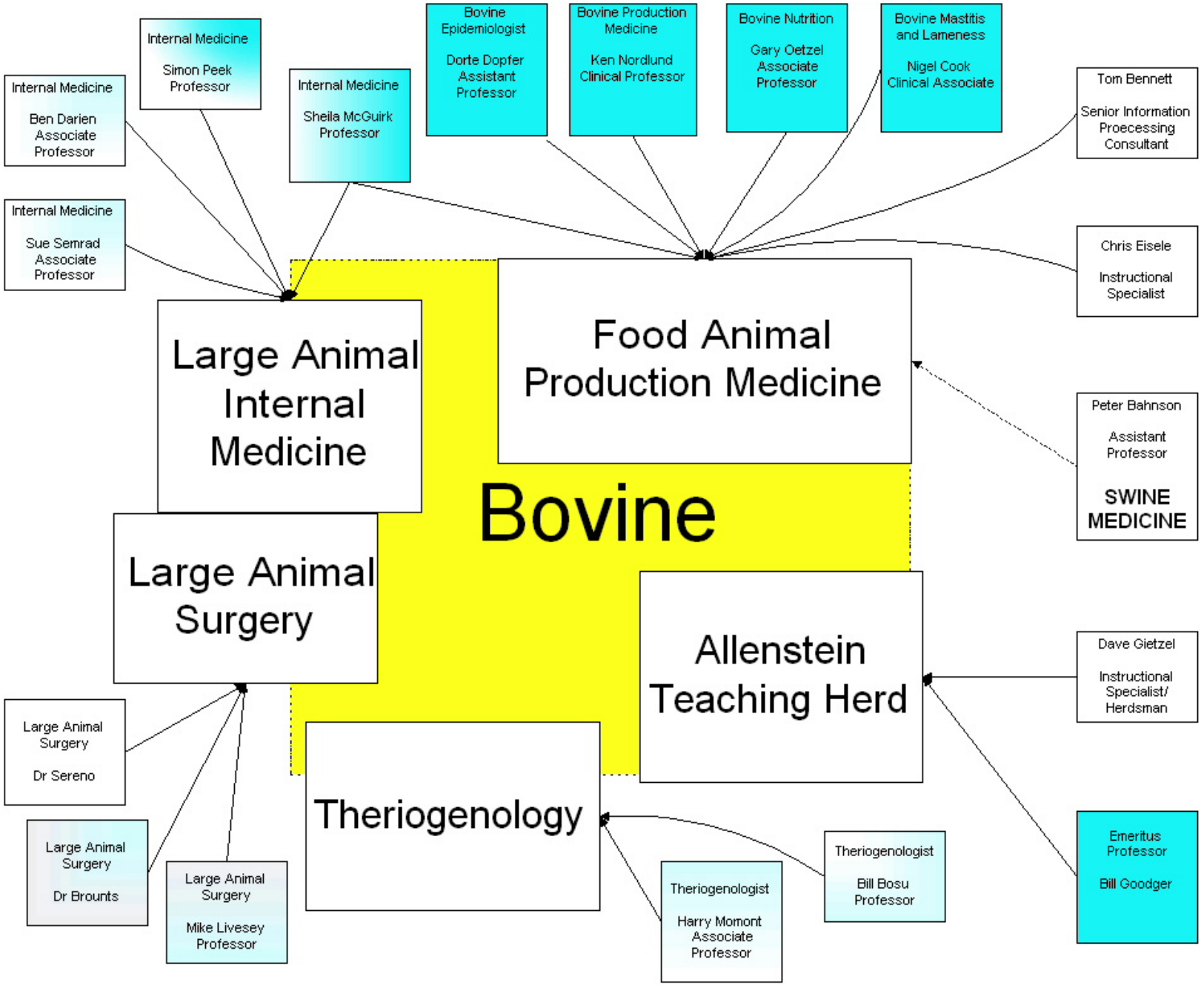
- The State of Wisconsin is home to around 1.24 million dairy cows (14% of the US dairy herd), housed in approximately 14,000 herds, which produce 23,398,000,000 lbs of milk per year (13% of the total milk produced in the US).
- Last year (06), cow numbers increased for the first time in over a decade

Changing Needs

- In 2006, 34% of the milk produced in the State came from herds above 200 cows.
- Veterinarian’s role is changing in larger herds
- Herd medicine is just as important as individual cow medicine

New Roles

- We remain the advocate for cow health and well-being.
- Our primary roles are as a supervisor of care and use of medicines, as a manager of herd health and reproductive programs, providing the necessary training to accomplish these tasks, and we should be monitoring herd disease patterns, ensuring the well-being of the animals under our care.


Bovine
Large Animal Internal Medicine
Food Animal Production Medicine
Large Animal Surgery
Allenstein Teaching Herd
Theriogenology
Internal Medicine
Ben Darien
Associate Professor
Internal Medicine
Simon Peek
Professor
Internal Medicine
Sheila McGuirk
Professor
Bovine Epidemiologist
Dorte Dopfer
Assistant Professor
Bovine Production Medicine
Ken Nordlund
Clinical Professor
Bovine Nutrition
Gary Oetzel
Associate Professor
Bovine Mastitis and Lameness
Nigel Cook
Clinical Associate
Tom Bennett
Senior Information Proecessing Consultant
Internal Medicine
Sue Semrad
Associate Professor
Chris Eisele
Instructional Specialist
Peter Bahnson
Assistant Professor
SWINE MEDICINE
Large Animal Surgery
Dr Sereno
Large Animal Surgery
Dr Brounts
Large Animal Surgery
Mike Livesey
Professor
Theriogenologist
Harry Momont
Associate Professor
Theriogenologist
Bill Bosu
Professor
Dave Gietzel
Instructional Specialist/ Herdsman
Emeritus Professor
Bill Goodger

FAPM Goals

- To train the next generation of dairy veterinarians for the State
- To provide Continuing Education (CE) to the dairy practitioners working in the State
- To conduct research most relevant to the health and well-being of the dairy cows in the State in order to make dairy farms more profitable
- To provide a clinical troubleshooting service to the dairy industry (paid Extension work).

Our job is to find solutions to the problems facing the dairy industry in the US (especially Wisconsin!) and to support the veterinary profession while teaching the next generation of practitioners


CSI-Madison

Individual Animal Skills
vs
Herd Level Skills

Individual Animal Skills

- Diagnosis and treatment of medical and surgical conditions of the individual cow

- Learned in PE classes, LAIM, Ambulatory Rotation, Herd Health Rotation (y1-3), Therio rotation, LAS, FA Surgery Elective

The Allenstein Teaching Herd

Utilization

- Primarily used to develop individual animal skills
  - Physical examination
  - Advanced individual cow diagnostic tests
  - Injection sites and body fluid sampling – including blood, milk and urine
  - Rectal palpation skills
- Pre-Vet training, PE labs, Basic Skills labs, some FAPM labs

Ambulatory Rotation

- Final year 2 week rotation in a food animal clinic
- Required!

Selected Experiences on Ambulatory Rotation 2000-2007

Cases or calls per student during rotation	2000-2001 n=83	2001-2002 n=74	2002-2003 n=77	2003-2004 n=84	2004-2005 n=74	2005-2006 n=68	2006-2007 n=82	Overall Mean
Number of Bovine Calls	99	85	94	58	94	53	45	**75**
Number of Cows Examined	130	125	112	105	88	74	106	**105**
Medical Cases								
Milk fever	5	4	3	4	3	3	3	**3.6**
Toxic mastitis	1	1	1	1	1	2	1	**1.1**
Lameness	9	8	7	8	6	5	5	**6.9**
Surgical Cases								
Displaced abomasum	8	9	9	9	8	7	7	**8.1**
Caesarian Section	0.2	0.3	0.4	0.3	0.2	0.3	0.3	**0.3**
Dehorning	17	25	16	17	19	13	14	**17.3**
Theriogenology								
Pregnancy palpations	162	174	181	205	183	185	152*	**177**
Post-partum checks	65	53	49	36	26	41	27	**42.4**
Dystocia	2	2	3	2	2	2	2	**2.1**

Herd Level Skills

- Records assessment – basic epidemiology
- Herd level diagnostics – metabolic and infectious disease
- Process assessment and management of people
- Facility assessment – stalls and ventilation
- Construction of protocols for use by farm workers
- Monitoring of disease and well-being
- Food safety

Food Animal Production Medicine Clinical Rotations

2008 - 2009

Academic Year	Course 1	Course 2	Course 3	Course 4	Course 5
1986-1990	Herd Health Management ▼	Quality Milk Production Enhancement ▼	Applied Ruminant Nutrition ▼		
1991-1996	Production Medicine 1- Dairy Herd Problem Identification ▼	Production Medicine 2- Mastitis and Milk Quality ▼	Production Medicine 3- Applied Dairy Nutrition ▼		
1997-2000	Production Medicine 1- Dairy Herd Problem Identification ▼	Production Medicine 2- Mastitis and Milk Quality ▼	Production Medicine 3- Applied Dairy Nutrition ▼	Production Medicine 4- Computerized Dairy Records and Financial Analysis ▼	
2001-2002	Production Medicine 1- Dairy Herd Problem Identification ▼	Production Medicine 2- Mastitis and Milk Quality ▼	Production Medicine 3- Applied Dairy Nutrition ▼	Production Medicine 4- Computerized Dairy Records and Financial Analysis ▼	Production Medicine 5- Infectious Disease Herd Investigations
2003 - 2006	Basic Skills for Production Medicine	Mastitis Problem Investigations	Clinical Investigation of Fresh Cow and Calf Problems	Advanced Techniques in Dairy Records and Nutrition	
2006 - 2007	Basic Skills for Production Medicine	Mastitis Problem Investigations	Clinical Investigation of Fresh Cow and Calf Problems	Advanced Techniques in Dairy Records and Nutrition	Lameness and Fertility Problem Solving

Basic Clinical Skills for Production Medicine
Drs. Nordlund and Cook, Co-Coordinators
MS 623-701

Learn to:

- *Assess production, reproduction, udder health, heifer rearing, and cow comfort for different dairy management systems including grazing, tiestall and freestall herds through herd visits and on-farm exercises*
- *Interpret DHI and DC305 records and use them to identify and monitor herd problems*
- *Critically assess stall design and ventilation systems*
- *Estimate costs of herd problems and develop partial-budgets*

This two-week rotation is a prerequisite to the series of production medicine rotations unless special exemptions are made with instructors. Farm visits will be made to a variety of dairy herds ranging from small stanchion barns to very large free stall confinement dairies. Most of the topics will be taught using information from the farm visits.

- Run three times a year with a maximum of 12 students per rotation
- Prerequisite for other FAPM courses
- Learn how to assess production, reproduction and health data
- Learn how to assess ventilation and housing systems for thermal and physical comfort
- Create a partial budget for a herd of your choice to facilitate change
- 4 herd visits to wide range of different farms

Mastitis Problem Investigations
Drs. Cook and Nordlund, Co-Coordinators
MS 623-703

Learn to:

- *Assess mastitis and milk quality on 2 herd investigations*
- *Identify populations at risk for udder infection and evaluate herd specific risk factors*
- *Utilize DHIA and DC305 records to identify herd patterns of disease using SCC data*
- *Collect milk samples, culture and learn to interpret milk microbiology reports*
- *Analyze milking machine systems using the NMC test protocol and evaluate milking procedures*
- *Develop mastitis treatment protocols*

This program utilizes real herd problem investigations and a combination of wet-labs and class room exercises to teach the necessary skills required for udder health consulting. Teaching will focus on small group discussion as we develop herd specific action plans for each farm problem.

- Run twice a year with a maximum of 8 students per rotation
- Learn all aspects of milk quality control
  - Milking machine testing
  - Treatment protocols
  - Routine analysis
  - Bacteriology
  - SCC analysis
- One full real herd investigation, one milking routine assessment, one machine test herd, select virtual herds for discussion

Final: August 11-22, 2008

Schedule for Mastitis Problem Investigation Rotation

Date	AM	PM	
M 08/11	8 - 9 Introduction - *Cook* 9 – 11 Recording milk quality data – *Cook* 11 – 12 Mastitis data analysis – *Cook* **Rm 2305 (Unless indicated)**	Lunch	1 – 2.00 The Ideal Milking Routine – *Eisele* 2.00 – 3.00 Class assignments Dips, Treatment Protocols, virtual herds, machine test - *Cook* 3.30 – 5.00 Timing, Dip coverage, CMT, teat end evaluation, milk sample collection – *Cook* **UW Dairy Barn**
T 08/12	8.30 – 10.00 Pulsation & Reserves - *Cook* 10:30 – 12.30 Milking systems lab – *Cook* **UW Dairy Barn**	Lunch	1.30 – 3.00 UHM Summary and Wisgraph Analysis – *Nordlund* 3.00 – 5.30 NMC videos
W 08/13	8.30 – 10.00 Introduction to mastitis pathogens – Cook 10.00 – 11.00 – Comparing DHIA and DC305 data session I – *Bennett*		1.00 - 5.00 Milking Routine Assessment and Dynamic Test Herd A **Chuck Wagner**
R 08/14	7.00 – Leave for Herd B Investigation **Furseth Bros**	Cook Gomez	*1) Evaluate Milking Routine & Sample cows* *2) Evaluate facilities* *3) Evaluate milking machine* Return to School approx 5PM
F 08/15	8.30-10.00 Treatment Regimes and residue tests – *Cook and McGuirk* 10.00-12.00 DairyComp305 session II – *Cook & Bennett*	Lunch	1.00 - 5.00 Herd A and B analysis

M 08/18	8.30 – 11.00 Machine Test Example Herds - *Cook* 11.00 -12.00 Plate out bulk milk samples herd A – *Sharp* **MD 2 Lab**	Lunch	1 – 4.00 Plate out individual cow samples – *Sharp* **MD 2 Lab**
T 08/19	8:30 – 10.30 Dip Discussion – *Cook* 11.00 -12.00 Antibiotic residue tests – *Cook*	Lunch	1 – 4.00 Read plates – *Sharp* **MD 2 Lab**
W 08/20	8.30 – 10.00 Analyze data from Herd A and B 10.30 – 12.00 Mycoplasma – *Chet Thomas*	Lunch	1 – 5.00 Work on virtual herd discussion and Herd B report
R 08/21	8:30 – 12.00 Machine Test Herd C **Kyle Kurt**	Cook Gomez	1.00 – 5.00 Present virtual herd assessments - *Cook*
F 08/22	8.30 – 11.00 Present analysis of Herd B - *Cook* 11.00 - 12.00 Selling your services and miscellaneous - *Cook*		12.00 Course Evaluation - *Eisele*

Clinical Investigations of Fresh Cow and Calf Problems

Drs. Oetzel and McGuirk, Co-Coordinators

MS 623-705

Learn to:

- *Investigate herd problems related to the health of the peri-parturient cow and calf morbidity on 2 herd visits*
- *Visit and evaluate fresh cow screening programs on large freestall herds*
- *Collect samples and interpret herd-based diagnostic tests for infectious and metabolic diseases*
- *Assess environmental risk factors for metabolic and infectious disease including hygiene, housing, and feeding practices*
- *Develop treatment and vaccination protocols*

Problem herds referred to the School of Veterinary Medicine will be investigated. Many herd problems are presented as fresh cow problems that could be either metabolic, infectious, or both. Calf herd problems are usually the result of a combination of infectious agents and environmental stresses. This program teaches herd level approaches to disease management.

- Run three times a year with a maximum of 8 students per rotation
- Investigate herd problems related to poor fresh cow health and calf health
- Two visits to large dairies to observe fresh cow screening programs
- Two full real herd investigations – one fresh cow, one calf problem
    - Evaluate treatment and vaccination protocols
    - Learn how to screen fresh cows and groups of calves for disease
    - Learn how to use biological tests at the herd level

Advanced Techniques in
Dairy Records and Nutrition
Drs. Oetzel and Cook, Co-Coordinators
MS 623-707

Learn to:

- *Set up a dairy herd health recording system using DairyComp305*
- *Evaluate how different practitioners and herds use herd records*
- *Evaluate herd production, culling, SCC, reproduction and health data*
- *Perform an advanced nutrition troubleshooting herd investigation*
- *interpret feedstuff analysis reports*
- *analyze diets using different nutritional software packages and reformulate dairy diets*

This advanced level course is taught in a series of labs at the SVM, at 2-3 private clinics, where students learn how individual veterinarians utilize herd records, and on a farm investigation with a nutrition/feeding problem. The program is focused on providing students with the skills they need for entry into dairy practice.

- Run once a year with a maximum of 8 students
- Learn how to set up, enter and analyze data in DairyComp 305
- Visit with Dr. Rhoda and Dr. Johnson and observe how they use the program
- Visit one herd with a nutritional problem
- Learn how to enter and analyze ration data
- Feed analysis and identification

Advanced Bovine Lameness and Fertility

Drs. Cook and Momont, Co-Coordinators

MS 623-675

Learn to:

- *Investigate risk factors for lameness and poor reproductive performance on a problem herd*
- *Assess herd reproductive performance using DC305 files*
- *Understand how to set up, monitor and troubleshoot estrus synchronization programs*
- *Practice advanced level individual cow palpation skills, including ultrasound*
- *Hoof-trim cows using the Dutch trimming technique and perform foot surgery*

This program is operated with the help of Milo Wiltbank, Paul Fricke, and Karl Burgi, and focuses on advanced level skills required for troubleshooting herd reproductive and lameness problems.

- Run once a year with a maximum of 8 students
- Visit one herd with a fertility problem
- Learn how to analyze herd level risk factors for poor repro performance
- Advanced ultrasound training with Dr. Milo Wiltbank and Dr. Paul Fricke
- Hoof-trimming labs with on-farm trimming with Karl Burgi
- Foot surgery lab
- Herd level lameness analysis

Schedule for Reproduction and Lameness

April 16 – 27, 2007

Date	AM	PM	
M 04/16	8.00-9.00 Intro and review basics of bovine reproductive cycle – *Momont* **Rm 2305 SVM (unless otherwise stated)** 9.00-12.00 Introduction to US for breeding management – Wilbank/Momont **Dairy Cattle Center (DCC)**	Lunch	1.00–3.00 Review of monitors of herd reproductive performance and DC305 work assignments – *Cook* 3.00-4.00 Introduce First Step – *Cook and Bennett*
T 04/17	7.00 – 9.00 Principles of synchronization programs / Synch assignments – *Milo Wiltbank* ***ANSCI Computer LAB*** 9.00-12.00 Reproductive ultrasound – Wiltbank/*Momont* **DCC**	Lunch	1.00-2.00 Principles of heat detection and pregnancy diagnosis - *Momont* 2.00-3.00 Investigating infectious causes of infertility in cattle – *Momont* 3.00-5.00 Charmany cow assignments – *Momont* **Charmany**
W 04/18	7.30-9:00 Triggers factors for lameness – *Cook* 9.00-12.00 Reproductive ultrasound class – *Wiltbank/Momont* **DCC**	Lunch	1.00 – 2.30 Work with First Step – *Cook* 3.00 – 4.00 Prepare for Herd A visit
R 04/19	7.30 – Leave for Herd A Investigation **Repro/Lameness Problem Visit** **CamCalCar Dairy** **Browntown, WI**	Cook Eisele Momont Burgi	*1) Evaluate synch programs* *2) Evaluate environment* *3) Evaluate semen handling* *4)Evaluate infectious disease risk* *5)Evaluate lameness* Return to School approx 6PM
F 04/20	8.00-9.00 Analyze data for herd A 9:00-12.00 Reproductive ultrasound class – Wiltbank/*Momont* **DCC**		1.00-5.00 Treating difficult lesions and cadaver foot surgery lab – *Burgi and Cook* **Charmany**

M 04/23	7.00 – 9.00 ARTs for Cattle *Momont/Wiltbank* 9:00-11:00 Early pregnancy diagnosis, pregnancy loss and resynchronization programs – *Fricke* **ANSCI Computer LAB** 11.00 – 12.00 Analyze data herd A **2305**	Lunch	1.00 – 3.00 Analysis of data Herd A **2305** 3.00 – 5.00 Semen handling and AI wet-lab: trouble shooting AI problems on the farm – *Momont* **Charmany**
T 04/24	8.00 – 12.00 Practical US – Diagnosis of postpartum, pregnancy and cyclic status - *Momont* **Charmany**	Lunch	1.00-5.00 Practical ultrasonography Repeat – *Momont* **Arlington Dairy Facility**
W 04/25	7.00-12.00 Trimming workshop - *Cook and Burgi* **Herd B**	Lunch	1.00 – 3.00 Trimming Workshop - *Cook and Burgi* **Herd B/C**
R 04/26	8.00-11.00 Trouble shooting natural service herd problems and bull BSE - *Momont* **2305 and VMTH** 11.00-12.00 Twinning in cattle - *Fricke* **2305**	Lunch	1.00-3.00 ET Demonstration – *Momont* **CIF or DCC** 3.00-5.00 Analyze data herd A and catch up time
F 04/27	8.30-12.00 Finish wrap up for herd A – *Cook, Momont, Wiltbank, Fricke, Burgi* **2305**	Lunch	12.00 Course Evaluation and BOTT or BATOF

Clinical Swine Medicine
Dr. Bahnson – Coordinator
MS 623-676

Learn to:

- *Analyze pork production systems*
- *Identify health and production problems*
- *Provide clinical examination of swine herds*
- *Develop clinical reasoning*
- *Practice common clinical techniques*
- *Describe the economic consequences of recommendations*

Students will gain an understanding of the veterinarians' role in herd health and swine production. Students are encouraged to develop clinical skills through swine farm visits, laboratories, and lecture/discussions with faculty, swine veterinarians, and swine producers. Students will integrate concepts of swine production and swine medicine.

- Run once a year with a maximum of 8 students
- Involvement of local swine practitioners
- Herd level troubleshooting

Choices, Choices, Choices…

- What shall I do?

Food Animal Emphasis

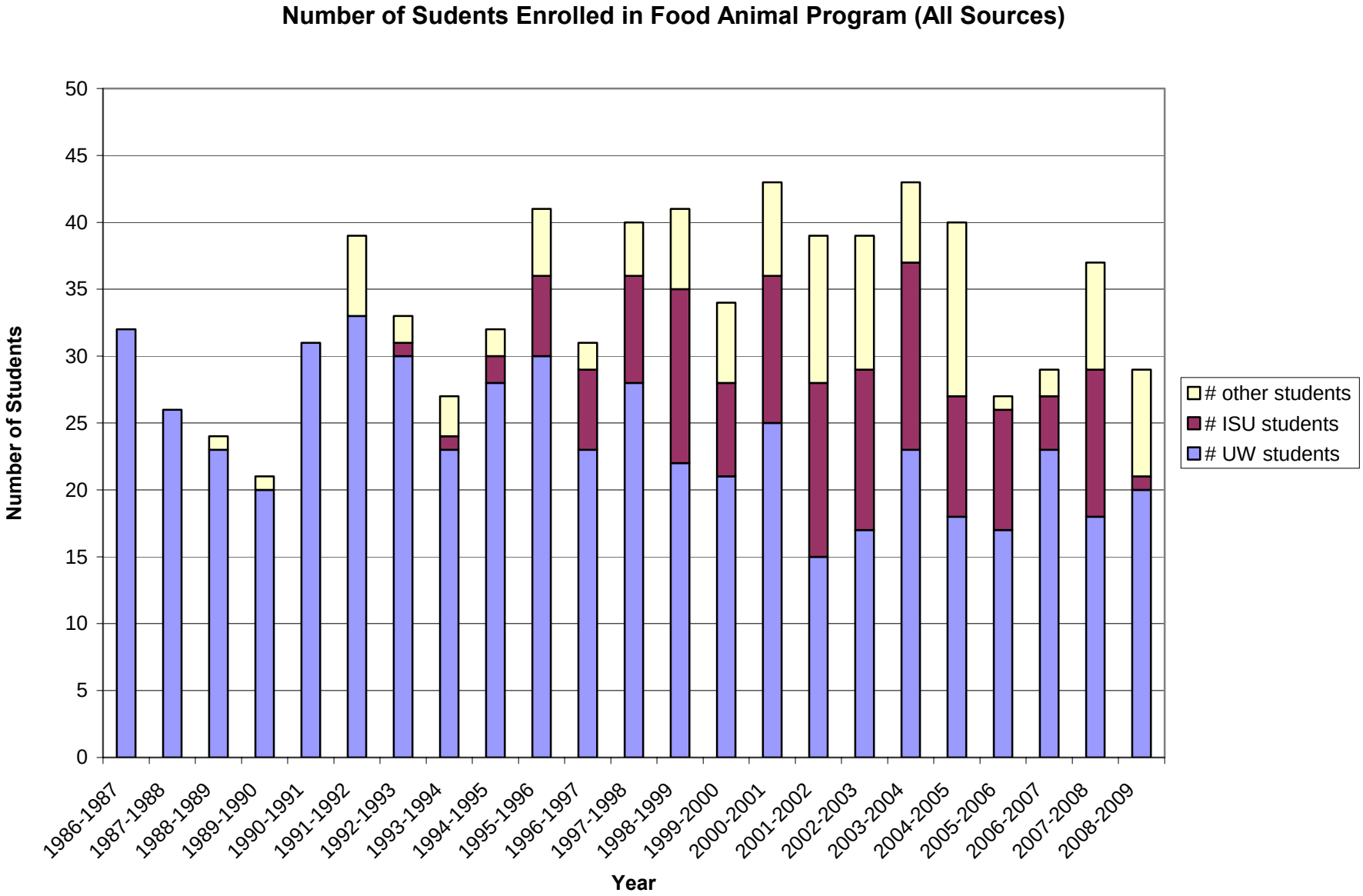
- 29 weeks required rotations
- Includes 2 weeks of Basic Skills and FA Surgery
- Includes 4 weeks on LAIM and LAS (8 weeks total)
- Aim of going into 80%+ Dairy practice:
  - Do all; Mastitis, Fresh Cow, Advanced, Lame/Fert = 29 + 8 = 37 weeks
  - 15 weeks of elective time
- Other Food Animal Options
  - Take Swine rotation instead of Mastitis or Advanced
  - Add beef rotation from ISU or KSU

Large Animal Emphasis

- 31 required weeks of rotation,
- Does not include Basic Skills or FA Surgery
- Includes 2 more weeks on LAIM and LAS (6 weeks each)
- Aim of doing some (50%) dairy practice:
  - Take Basic, Mastitis, Fresh Cow
  - 31+ 6 weeks = 37 weeks
  - 15 weeks of elective time
- Other interests:
  - FA Surgery, Lame/Fert, Swine, Beef, Equine…..

Mixed Animal Emphasis

- 33 weeks of required rotations,
- Does not include Basic Skills or FA Surgery +
- Includes 4 weeks LAIM and LAS
- Aim of doing some (30%) dairy practice:
  - Take Basic, Fresh Cow
  - 33 + 4 weeks = 37 weeks
  - 15 weeks of elective time
- Other interests:
  - Probably small animal electives


Number of Sudents Enrolled in Food Animal Program (All Sources)
Number of Students
50
45
40
35
30
25
20
15
10
5
0
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2005-2006
2006-2007
2007-2008
2008-2009
Year
other students
ISU students
UW students

If you don’t take our courses someone else will!

- We have students from over a dozen North American Schools, Canada, UK
- We have veterinarians and other consultants pay to attend our rotations

- Good news is – you all get first option!

Questions?