

# Leslie B. Hansen

## Morse Alumni Distinguished Teaching Professor

**Appointment** 45% Research, 50% Teaching, 5% Service

**Research Area** Dairy Cattle Genetics

**Appointment History**

1994-present	Morse Alumni Distinguished Teaching Professor
1991-1994	Professor
1987-1991	Associate Professor
1981-1987	Assistant Professor

### Graduate Program Affiliations

Animal Sciences – Senior Member

### Professional and Honorary Societies

Member, American Society of Animal Science

Member, American Dairy Science Association

Member, Dairy Shrine Club

Member, Academy of Distinguished Teachers, University of Minnesota

### Five Most Significant Publications

**Hansen, L.B. 2003. Is genetics a cure for reproductive loss? *In Proc. 2nd Bi-Annual W. E. Petersen Symposium, April 8, St. Paul, MN.***

Most people in the dairy industry assume that the dramatic decline in fertility of dairy cows during recent years is almost completely a correlated response (antagonistic) to selection for increased milk production, and perhaps, poorer reproductive management over time by dairy producers. This work documented the substantial joint contributions of genetic selection for sharpness (freedom from body condition) and increased body size on reproductive loss of dairy cows.

**Hansen, L.B. 2003. The Minnesota crossbreeding project: Why we started and where we stand today. *In Proc. National Dairy Genetics Workshop in Honor of B. T. McDaniel, October 20-21, Raleigh, NC, p. 4-13.***

This report is the first of many that will be published in the future reporting the consequences of crossbreeding the predominate North American Holstein with four European dairy cattle populations – Normande and Montebeliarde from France, Norwegian Red, and Swedish Red. The early results are extremely encouraging, especially for survival and reproduction of cows, with little if any loss of milk production. This research has the potential to alter the genetic composition of dairy cattle in North America and internationally. Crossbreeding has been uncommon in dairy cattle in the past, but our results suggest that dairy cattle should be crossed for commercial milk production, similar to the long-term use of crossbreeding for pigs, sheep, and beef cattle.

**Sonnek, E.N., L.B. Hansen, and A.J. Seykora. 2001. Evaluation of corrective mating programs for dairy cattle in the U.S. *J. Dairy Sci.* 84(Suppl. 1):24.**

The mating programs offered by the six major cattle breeding companies in North America were anonymously compared. Major differences in the programs were detected for effectiveness in

avoiding inbreeding in offspring resulting from recommended matings of A.I. sires to cows. Several of the organizations immediately made alterations in the computer programs for mating of cows to provide improved inbreeding protection.

**Hansen, L.B. 2000. Consequences of selection for milk yield from a geneticist's point of view. *J. Dairy Sci.* 83:1145-1150.**

This article succinctly reviewed the consequences of intensive selection of dairy cattle over the past 40 years. It point out that genetic selection has emphasized many traits other than milk yield. Selection for milk yield and the other traits has resulted in cows with more health and reproductive problems than previously.

**Hansen, L.B. 1999. Productive life and reasons for disposal of Holstein cows selected for large versus small body size. *J. Dairy Sci.* 82:795-801.**

Documented advantages of small Holstein cows compared to large Holstein cows for profit. The industry has continuously selected for larger body size. From the results of this study, the national selection index for dairy cattle published quarterly by USDA to genetically improve dairy cattle was altered to place a negative weight on body size of cow. Negative selection emphasis in the selection index was based directly on results from these genetic lines of cattle located at the University of Minnesota's Northwest Research and Outreach Center, Crookston.

### **Refereed Journal Publications and Book Chapters (Last Five Years)**

Authored or co-authored the following 4 papers in peer-reviewed journals.

Baumgard, L.H., W.J. Weber, G.W. Kazmer, S.A. Zinn, **L.B. Hansen**, H. Chester-Jones, and B.A. Crooker. 2002. Effects of selection for milk yield on growth hormone response to growth hormone releasing factor in growing Holstein calves. *J. Dairy Sci.* 85:2529-2540.

Chrystal, M.A., A.J. Seykora, **L.B. Hansen**, A.E. Freeman, D.H. Kelley, and M.H. Healey. 2001. Heritability of teat-end shape and the relationship of teat-end shape with somatic cell score for an experimental herd of cows. *J. Dairy Sci.* 84:2549-2554.

**Hansen, L.B.** 2000. Consequences of selection for milk yield from a geneticist's viewpoint. *J. Dairy Sci.* 83:1145-1150.

Kelm, S.C., A.E. Freeman, A.L. Brundage, R.E. Pearson, T.G. Martin, L.D. McGilliard, **L.B. Hansen**, C.W. Young, H.H. Voelker, G.E. Shook and W.J. Tyler. 2000. Direct and correlated responses to selection for milk yield: Results and conclusions of regional project NC-2, "Improvement of dairy cattle through breeding, with emphasis on selection." *J. Dairy Sci.* 83:2721-2732.

### **Awards**

Morse Alumni Distinguishing Teaching Professor

### **Invited Lectures (14) (Last Five Years)**

"Comparison of Normande-Holstein crossbreds with pure Holsteins and Normande-Jersey crossbreds with pure Jerseys during first lactation," International Normande Conference. February 25, 2003, Paris, France

"Is genetics a cure for reproductive loss?" 2nd Bi-Annual W. E. Petersen Symposium. April 8, 2003, St. Paul, MN

"The Minnesota crossbreeding project: Why we started and where we stand today." National Dairy Genetics Workshop in Honor of B. T. McDaniel October 20-21, 2003, Raleigh, NC

"Which traits and which breeds for dairy cattle in the future" Invited Seminar Speaker. Swedish Agricultural University. May 19, 2003, Uppsala, Sweden; Danish Agricultural Research Center. May 29, 2003, Foulum, Denmark

- “Optimum selection goals for dairy cattle internationally” Invited Speaker, Board of Directors. Svensk Avel A.I. Organization. May 22, 2003, Skara, Sweden
- “Crossbreeding in dairy cattle – a fad or a trend?” Invited Speaker and Discussant for Global Strategy Session. ABS Global, Inc. Sept 30, 2003, DeForest, WI
- “The role of genetics in cow longevity.” Midwest Dairy Herd Health Conference, Madison, WI, 2002. (November 13).
- “Crossbreeding in dairy cattle – What can be expected?” Educational seminar. Minnesota Grazing Conference, Mankato, MN, 2002. (January 24).
- “Reduced lifetimes of American dairy cows and practices to lengthen productive lifetime.” German Invitational Dairy Conference, Brandenburg, Germany, 2002. (July 4).
- “Are crossbreds useful to produce milk?” MercoLactea International Exposition on Milk Production. San Francisco, Argentina (May 10, 2001).
- “Are crossbreds useful to produce milk?” (Repeated presentation from MercoLactea). (National Association of Animal Breeders educational program. Tandil, Argentina (May 14), Goiania, Brazil (May 17 and 18), Cascavel, Brazil (May 21, 2001).
- “Longevity of Holstein cows selected for large versus small body size.” CIGAL Conference (The major dairy production conference in Mexico). Guadalajara, Mexico, July 12, 2001.
- “Genetic technology – What’s in it for producers?” Educational seminar. World Dairy Expo, Madison, WI (October 4, 2001).
- “Genetic diversity of food producing animals: Where has it gone? How much is left? A global perspective.” Symposium title: Connections animal agriculture disciplines. Joint meeting ADSA/ASAS/AMSA, PSA, Indianapolis, IN (July 24, 2001)

### Funding (Last Five Years) – \$14,800

<b>American Jersey Cattle</b>	Gift	2001-04	\$13,800
<b>ABS Global</b>	Gift	2000	\$ 1,000
<b>Cooper Montbeliarde</b>	In-kind	2002-03	\$10,000
<b>Jura Betai Montbeliard</b>	In-kind	2003-04	\$ 6,000

### Dissertations and Theses (Last Five Years)

Mathew Crystal (co-advised) Ph.D. Animal Science

### Graduate Student and Post-doctoral Supervision - Current Advisees

Bradley J. Heins (co-advise)	M.S.	Animal Sciences
Jonathan M. Levendoski (co-advise)	M.S.	Animal Sciences

### Courses Taught (Last Five Years)

Designator	Name	Cr	% Effort	Term	Years
AnSc 2011	Dairy Cattle Judging	2	100%	Fall	1999-2003
AnSc 2211	Biometrics for Livestock	3	100%	Spring	2000-2004
AnSc 3141	Advanced Dairy Judging	1	100%	Spring	2000-2004
AnSc 4011	Dairy Cattle Breeding	3	100%	Spring	2000-2004
AnSc 8121	Linear Model Methods	3	100%	Fall	2000

### **Teaching Activities**

Advisor, Gopher Dairy Club, Largest student organization on Twin Cities Campus

Coach, Intercollegiate Dairy Cattle Judging Team

-National Contest Results: 4<sup>th</sup> overall – 2003; 4<sup>th</sup> overall – 2002; 3<sup>rd</sup> overall – 2001

Academic advisor of 44 undergraduate students in 2003-04

### **Service**

Chair, Dairy Cattle Comm., National Animal Germplasm Preservation Prog (ARS-USDA)

ADSA Foundation Board of Directors

Candidate, ADSA Board of Directors

Associate Editor, Centennial Celebration Publication of Scientific Advances

Ad hoc committee member, Proceedings of Conference Publication Committee

Reviewer: *Journal of Dairy Science*

### **Service to National and Regional Research Committees**

Regional research project S-1008; Genetic selection and crossbreeding to enhance reproduction and survival of dairy cattle.