

Prologue to the Cattle Grain Processing Symposium:

The Organizing Committee:

Chris Richards, Fred Owens, Clint Krehbiel, Gerald Horn, and Dave Lalman; Department of Animal Science.

The concept of this symposium as originally proposed by Fred Owens was to host a 30 year follow-up to the High Moisture Grain Symposium hosted in July 1976 by Oklahoma State University in Stillwater, OK. As the committee developed the program, the focus became broadened to encompass a wider range of grain processing to appeal to a larger audience.

Timeliness of the conference became evident as the industry was facing increased fuel cost affecting processing methods. As we reach publication of the proceedings, the industry is faced with historically unprecedented high grain and fuel prices due to competitive use of grains for bio-fuel, industrial and export needs. This is following several years of record production, but a wet spring over much of the Corn Belt threatening the current year's crop. This is pushing the need to optimize use of grains and to evaluate the effective use of byproducts from the bio-fuels industry for finished beef production. Additionally, demand for middle choice quality grade or higher beef remains strong while the industry is recording several years of decline in production of beef for that market.

Papers in this symposium represent the expertise of speakers selected and invited from the US and Canada by the organizing committee. Each proceeding paper represents research and opinions as represented by the speaker. It is not the intent of this proceeding to provide an extensive review of all grain processing, but rather create a platform for free and open discussion on related topics currently of interest to the industry.

John Matsushima and Jim Sprague agreed to provide historical perspectives, while Ken Eng and Mike Galyean provided summary highlight comments. Fred Owens graciously served as the primary reviewer for the proceedings and

provided an additional paper reviewing dry matter determination methodology.

A large thank you goes out to the sponsors listed below and on the back of the proceedings. The conference was held November 15th to 17th, 2006 at the Marriott Southern Hills in Tulsa, OK. About 181 people attended the conference including scientist and industry personnel from the US, Canada, Mexico, and Australia. These written papers were gradually prepared and collected after the fact from all speakers, edited, questions and answers transcribed and this proceeding published through Oklahoma State University. The organizing committee is indebted to the speakers who made time in their schedules and participated with very minimal compensation to present and write their findings and ideas for this symposium.

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Wednesday November 15

6:30 p.m. Welcome.....Chris Richards

Processing Background

6:40 p.m. Processing history.....John Matsushima

6:55 p.m. Processing application.....Jim Sprague

Grain Composition Basics

7:10 p.m. Nutrient composition of grains & processed grains.....Larry Berger

7:25 p.m. Starch type, structure & effect on digestion.....Tim McAllister

7:55 p.m. **Speaker panel/discussion**

8:10 p.m. **Reception**

Thursday November 16.....Moderator: David Lalman

Grain Processing Basics & Quality Control

8:00 a.m. Moisture addition & particle size reduction.....Leland McKinney

8:25 a.m. Steam flaking: consultant perspective.....Steve Armbruster

8:50 a.m. High moisture quality control & fecal starch.....Bob Lake/
John Thornton/Britt Hicks

9:20 a.m. Processing focused hybrids.....Steve Soderlund

Processing Comparisons

9:45 a.m. Advantages of feeding whole shelled corn.....Steve Loerch

10:10 a.m. **Break**

10:25 a.m. Flaked grain variables.....Chris Reinhardt/Jim Drouillard

10:50 a.m. High moisture grain: harvest & processing.....Terry Mader/Steve Rust

11:15 a.m. Reconstitution.....Mike Brown/Paul Defoor

11:35 a.m. **Speaker panel/discussion**

12:00 p.m. **Lunch**

Fermentation and Analysis..... Moderator: Gerald Horn

1:00 p.m. Fermentation aids.....Bill Rutherford

1:25 p.m. Protein, starch, soluble sugar, fiber and ethanol fractions, pH, acids.....
Dave Taysom

1:50 p.m. Processing adj. factors & dairy intake discounts.....Noah Litherland

2:10 p.m. Ruminal & postruminal starch.....Fred Owens

2:40 p.m. Absorption, energetics, utilization.....Kyle McLeod

3:05 p.m. **Break**

Processing Effects on Management

3:20 p.m. Processing costs/returns.....Tom Peters

3:45 p.m. Type & amount of protein supplementation.....Mike Brown

4:10 p.m. Type, form and level of forage.....Robbi Pritchard

4:35 p.m. Adaptation diets.....Clint Krehbiel

5:00 p.m. **Speaker panel/discussion**

Friday, November 17.....Moderator: Clint Krehbiel

Associative Effects and Management

8:00 a.m. Combinations of processed grains.....Rick Stock

8:25 a.m. Inclusion of co-products: university research.....Galen Erickson

8:50 a.m. Inclusion of co-products: industry prospective.....Rob Cooper

9:15 a.m. Inclusion of co-products: why the interaction?Andy Cole

9:40 a.m. Formulation of ruminant byproduct diets for fermentable NDF and non structural carbohydrates.....Mike Thoney

10:05 a.m. **Break**

Intake and Performance Limitations

10:20 a.m. Factors limiting feed/energy intake.....Jock Buchanan-Smith

10:45 a.m. Digestive disturbances: acidosis, laminitis, bloat.....Karen Beauchemin

11:10 a.m. **Speaker panel/discussion**

Conference Summary

11:30 a.m. Practical considerations.....Ken Eng

11:45 a.m. Research needs.....Mike Galyean

12:00 p.m. **Conclusion**