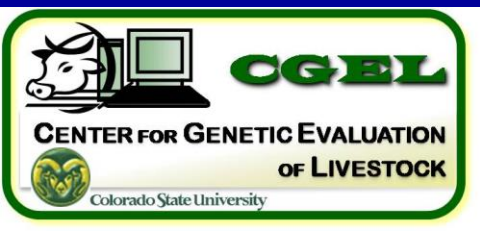




BIF Feed Intake Guidelines Revision

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BIF Guidelines for Feed Intake measurement and recording available in 9th Edition (2010)

- ◆ **Since that time, considerable growth in individual feed intake data collected**
 - **Knowledge base has expanded**
- ◆ **A request was made to the BIF Board of Directors that the guidelines be reviewed**

Background and Challenges

◆ Increasing number of facilities for measuring feed intake.

- Multiple approaches with different challenges
 - On-farm tests
 - Centralized tests
 - Pre-test management of cattle and influence on test data
- Different measurement systems
 - GrowSafe Systems Ltd
 - Calan Gates
 - Insentech B.V. Systems

◆ Increasingly, the data is being accumulated and/or used for genetic evaluation

- Maximize use of available data, given the diversity of measurement systems and expense associated with data collection



Feed Intake Guidelines Committee

- ◆ **Larry Kuehn, USDA-MARC**
- ◆ **Steve Munger, Eagle Pass Ranch**
- ◆ **Kraig Peel, Colorado State University**
- ◆ **Wade Shafer, American Simmental Association**
- ◆ **Dan Shike, University of Illinois**
- ◆ **Matt Spangler, University of Nebraska**
- ◆ **Bob Weaber, Kansas State University**
- ◆ **Robert Williams, Cain Cattle Company (AICA)**
- ◆ **R. Mark Enns, Colorado State University**

Revision Status

◆ Solicited input from

- Alison Sunstrum, GrowSafe Ltd.
- Dr. Gordon Carstens, TAMU
- Dr. Mike MacNeil, Delta Genetics
- Dr. John Basarab, University of Alberta
- Dr. Lisa Kriese-Anderson, Auburn University

Current Recommendations

- ◆ **Birth and weaning dates/weights recorded**
- ◆ **Age at start of FI test should not be less than 240 d**
- ◆ **Age range of tested animals < 60 d**
- ◆ **21 d “warmup” period to acclimate to test facility and diet**
 - **Animals should have transitioned to final diet before starting test**
- ◆ **Diets—commercial lab testing of diet samples for complete chemical analysis is recommended**
 - **Want sufficient energy/protein to allow expression of difference in growth and feed intake**
 - **Bulls ≥ 2.4 Mcal ME/(kg DM)**
 - **Steers ≥ 2.9 Mcal ME/(kg DM)**

Current Recommendations

cont.

◆ **Weight recording**

- 2 weights on test and 2 weights off test (minimum)
- Preferable that weights are collected during test. E.g. every week/2 weeks
 - **Feed intake data for that weigh date is not used for analysis.**
- Note in Guidelines: More frequent weights may allow reduced period for measuring rate of gain

◆ **Feed must be provided *ad libitum***

- If not available *ad libitum* then feed intake for that day should not be included in intake calculations. E.g. weigh days, treatment days, etc)

◆ **Data auditing—feed consumption**

- Feed delivered to animals and that recorded by the system as consumed should not differ by more than 5%

◆ **Note:**

- Ration composition/particle size should not allow “sorting” of diet.

Areas under review

- ◆ **Length of warm-up period**
- ◆ **Length of test for accurate measurement of**
 - **Feed intake**
 - **Body weight gain**
- ◆ **Contemporary group definition**
- ◆ **Use of embryo transfer data**

- ◆ **Guidelines revision is for young, growing cattle housed in groups**
 - **No data from animals housed individually**

Where are we with revisions?

◆ Previous recommendations are

- 21-day warmup period
- 70-day test to get accurate measurement of body weight gain
- 45-day test for feed intake
- Because gain and feed intake were coupled in those recommendations the overall recommendation was for 70 day test.

Where are we with revisions?

- ◆ **Appears there may be opportunity to shorten recommended test length if we de-couple feed intake measurement from weight gain.**
 - **Our approach is to de-couple gain from feed intake measurement**

Retrospective study design

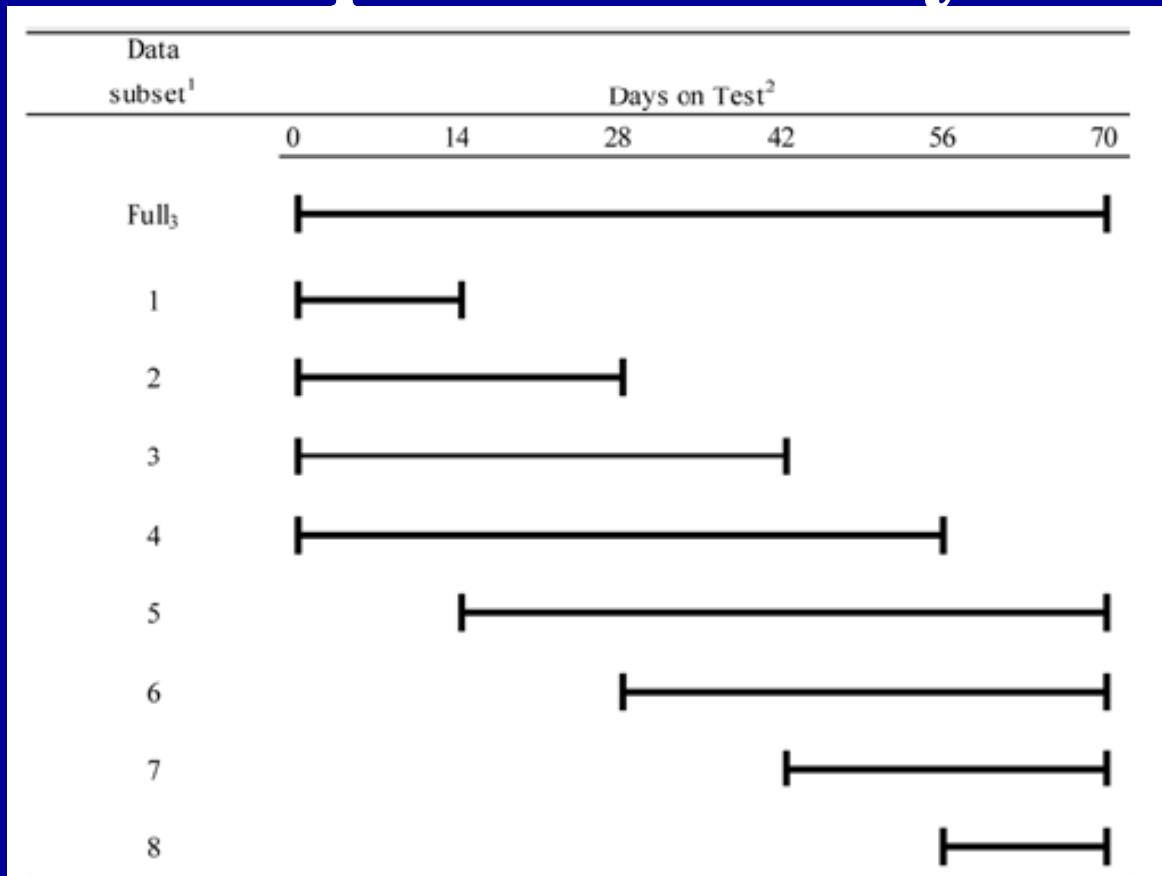


Figure 1. Illustration of data subsets representing shortened test periods within 70-d performance tests.

University of Georgia

Beef Cattle Evaluation
Consortium

Culbertson, et al. 2015

Correlations to the current recommendations

Subset	Test Length	Feed Intake	Weight Gain
0 to 14	14	.89	.54
0 to 28	28	.94	.79
0 to 42	42	.97	.88
0 to 56	56	.99	.94
14 to 70	56	.99	.96
28 to 70	42	.97	.93
42 to 70	28	.94	.88
56 to 70	14	.85	.78

Culbertson, et al. 2015

Conclusion—Feed intake

- ◆ **Likely an opportunity for shortening recommended test length depending upon trait focus.**
 - Archer et al., 1997 and Wang et al., 2006.
- ◆ **Recommendation will be for length of test to accommodate 35 days of “good” feed intake measures for a contemporary group.**
 - Remember will need a longer test because weigh days, etc data not used.
 - All else equal this could result in the testing of additional animals
 - 40% to 60% increase

Measuring gain

- ◆ **Still determining any opportunity to reduce test length given current published research**
 - Will likely remain at 70 days.
- ◆ **In the future, potential for reducing this time period given ongoing advances in remote sensing technologies.**

Other Recommendations

◆ Data on embryo transfer

- Lack of research on maternal effects impact on feed intake measures
- Will recommend that current association policy for use of ET data be used for FI data until more research becomes available.
 - Working on access to data appropriate for estimating these effects

◆ Contemporary group recommendations (new addition to guidelines):

- Historically, contemporary groups are subdivided over time
 - Birth, weaning, yearling are combined for analysis of yearling observations.
- Recommend use of weaning contemporary group
 - (assuming FI testing between weaning and yearling weight recording)
- Fit pen independently from weaning contemporary group
 - (i.e. do not split contemporary groups further)
 - For commingled cattle—allows all data from a pen to be used to estimate pen effects.

Remaining piece: Warm-Up period

◆ Challenge:

- Central test stations
- On-farm test stations

◆ Will likely remain at 21 days

- Adequate time for cattle naïve to bunk feeding to adapt
- Adequate period for compensatory effects to dissipate
- Adaptation/transition to the test diet

- Will not require animals be in the test facility, but must allow for sufficient “system learning”.

- Cattle from diverse sources that are to be tested in the same pen should be commingled during this period

Revision status

- ◆ **Committee has met numerous times via conference calls**
- ◆ **Divided up writing of new guidelines for**
 - **Contemporary group definitions and use in genetic evaluation**
 - **Warm-up period length suggestions**
 - **Test Length recommendation**
 - **Feed intake**
 - **Gain**

Process

- ◆ **Revisions will be submitted to the BIF Board of Directors for review**
 - **Vote**
 - **Expectation is that document submitted to BOD for approval at the annual meeting**