Feed & Bunk Management KPI’s

Robb Bender, PhD
Master Feeder Certification

- Level 1 – 2016
- Level 2 – 2017
- Master Feeder – 2018

“The goal of the Master Feeder Certification program is to elevate the feeder position in the industry to better align with the fiscal impact the feeding management has on any dairy.”

— Jim Barmore, GPS
Key Learnings from MFC: Top 10 (+1) Feed & Bunk Management KPI’s
Ingredients never run out – regular communication between the feeder, consultant, and suppliers
#2 – Feed Quality

Zero tolerance for moldy/warm feed going into rations by all feeders/all rations
#2 – Feed Quality

- Dairy cows require a zero mold fed policy
- Most molds come from air exposure or some foreign material contamination
- Molds/mycotoxins can
  - Upset the gut
  - Lower feed intake
  - Lower milk production
  - Hurt reproduction
  - Wasted feed is expensive
#3 – Silage Transitions

Silage transitions among bunkers/bags takes at least 10 days; at least 2 feed tests required before feeding 100% new forage
#4 – Face Management

All forage piles/bunkers are faced or raked daily with forages comingled prior to feeding

Silage Temperature 6 hours after Facing (4:00 PM)

Venne and Martel, 2008
#4 – Face Management
Crude Protein levels from face:

- Width of pile at base = 135’
- 10 Samples taken from face
- Values, % of Dry Matter

Courtesy of Dr. Tom Oelberg – Diamond V
#4 – Face Management

Crude Protein levels after facing:

- 23.0
- 22.4
- 21.4
- 18.9
- 19.3
- 18.3
- 18.4
- 20.1
- 23.1
- 21.1

- 10 equally spaced samples taken from windrow starting
- 10 feet from the edges of the pile
- Windrow was 135’ long
- Fresh haylage was avoided in sampling
- Values, % of Dry Matter

Courtesy of Dr. Tom Oelberg – Diamond V
#4 – Face Management

Crude Protein levels in comingled pile:

- Samples 4, 5 and 6 taken 3’ under surface
- All other samples taken at surface
- Values, % of dry matter

Courtesy of Dr. Tom Oelberg – Diamond V
#5 – Moistures/Dry Matters

Checked and adjusted at least 1-2x/week on all forages; estimated when snowing/raining during loading

Weiss, 2012
#5 – Moistures/Dry Matters

- **Corn Silage**: DRY MATTER (40%) - WATER (60%)
- **Wet Distillers Grain**: DRY MATTER (40%) - WATER (60%)
- **Alfalfa Silage**: DRY MATTER (40%) - WATER (60%)
- **HM Corn**: DRY MATTER (60%) - WATER (40%)
- **Alfalfa Hay**: DRY MATTER (80%) - WATER (20%)
- **Corn Grain**: DRY MATTER (80%) - WATER (20%)
#5 – Moistures/Dry Matters

GPS Recommendations

• Use a digital kitchen scale and not a spring tension scale
• Measure at least weekly
  – Twice weekly when starting a new pile
• Measure whenever difference is suspected
  – Bunks are long/short
  – Bucket volume weighs different
• The Farm needs a protocol for rain events
  – Reduce DM 2 units for corn silage
  – Reduce DM 3 units for alfalfa silage
#6 – Ingredient Deviations

Acceptable ingredient deviations: <30 lbs DM forages; <15 lbs DM protein/grain mixes; <25 lbs DM commodities; overall loads <2% of total

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<th>Total # Acts</th>
<th>LdingDev AF(ttl #)</th>
<th>LdingDev AF(avg#/actn)</th>
<th>LdingDev DM(ttl#)</th>
<th>LdingDev DM(avg#/actn)</th>
<th>LdingDev DDM(ttl #)</th>
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Note: LdingDev = Loading Deviation, AF = Actorton Feed, DDM = Daily Dairy Milk, TTL $ = Total Dollar Value.
Feed drops are scheduled for each pen; acceptable variation is +/- 20 minutes of scheduled times.

Daily time budget for lactating dairy cow:
- Eating 3 to 5 h (9 to 14 meals/d)
- Lying/resting 12 to 14 h
- Social interactions 2 to 3 h
- Ruminating 7 to 10 h
  - 60% while lying/resting
  - 40% while standing
- Drinking 30 min
- Outside pen (milking, travel time) 2.5 to 3.5 h

Hours to satisfy the basic behavioral needs = 20 to 21 h/day

Grant, 2007
#8 – Bunk Management

Continuously provide a fresh, high quality, well-mixed, and non-sorted ration in an ideal environment
#8 – Bunk Management

**GPS Feedbunk Management Evaluation**

1. Some feed is in broken, rough pieces or individually separated clumps. This can cause inefficiency and waste.

2. Visible “carnage” at the front and the back of the bunk. Ensure the feed is uniformly distributed.

3. Feed available but not evenly distributed along the bunk. Feed must be available along the entire length of the bunk to ensure efficient consumption.

4. Feed available and distributed along the entire length of the bunk. Staging area should be regular and consistent.

**Español**

**GPS Gestión de la Alimentación**

1. Algunos granos se encuentran separados o en pedazos. Esto puede causar ineficiencia y desperdicio.

2. “Carnage” visible en el frente y el final de la balsa. Asegúrate de que la comida esté uniformemente distribuida.

3. Alimentos disponibles pero no distribuidos de manera uniforme a lo largo del consumidor. La comida debe estar disponible a lo largo de toda la longitud del consumidor.

4. Alimentos disponibles y distribuidos uniformemente a lo largo del consumidor. La comida debe estar disponible a lo largo de toda la longitud del consumidor.
Feed available and distributed full length of the bunk

Continuously provide a fresh, high quality, balanced and non-sorted ration without cow competition. Improves:

✓ dry matter intake & feed efficiency
✓ rumen health
✓ lying time
✓ milk production and milk components
Feed available but not evenly distributed along the bunk

Feed must be available the full length of the pen, with 2x the amount of TMR delivered near the waterers and cross-overs both on the ends of the pen and where the waterers are located. Push-up feed in two directions alternating to keep feed available at both bunk ends, or use a skid-steer bucket to move feed from one end to the other end.
Visible “cement” in spots and a ridge of TMR in front of the reaching cows along the majority of the bunk

Frequent and scheduled push-ups to ensure that all cows have feed within their reach at all times is essential. Feed push-ups multiple times in the morning from 5 am to 10 am is a very important time when cows naturally are wanting to eat, and should be done even with fresh TMR being dropped.
Visible “cement” and an unreachable ridge of TMR in front of the cows along the full length of the bunk

The bunk should be constantly covered with fresh TMR. Because cows tend to push and toss feed forward, and then reach for feed as they eat, it is essential to push-up feed multiple times during the day. The recommended number and timing of feed push-ups is related to many factors, with higher stocking density being a key factor requiring additional push-ups.
Some feed but this bunk should be considered EMPTY or zero

The goal is to have less than 5% “zero event” bunks in a given week or month, which is defined as a bunk with less than 100-150 lbs as-fed TMR remaining in the bunk at the next day’s first scheduled feeding time. Never deliver fresh TMR over the top of day-old feed that should be removed and recorded as weighback.
#8 – Bunk Management

Continuously provide a fresh, high quality, well-mixed, and non-sorted ration in an ideal environment.
#9 – Weighbacks

Weighbacks look similar to fresh TMR and are accurately recorded by pen; weighback goals established for the dairy

• Recommended goals: milking <2.5%, fresh 5-7%, close-up 5-7%, dry <2%, heifers <2%

• Zero weighback events limited to <5% of all milk cow pens (example – 10 pens x 30 days/month x 5% = <15 events per month with no weighback).
#9 – Weighbacks
#9 – Weighbacks

What contributes to sorting?

- Dry matter content
- Particle size of forage
- Variation in density of feed ingredients
- Large pieces of cobs and husks in the corn silage
- Amount and quality of hay
- Improper sequencing of ingredients into the mixer
- Frequency of feeding and push-ups
- Availability of bunk space
- Bunk access time

Shaver, 2002
#10 – Intakes

Day to day intake variation is no more than 5% within a pen

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<th>Pen Name</th>
<th>Report Date</th>
<th>Avg Pen Count</th>
<th>Avg/Dropped</th>
<th>Tot. Dropped</th>
<th>Avg/HD Dropped</th>
<th>Tot. Weighbacks</th>
<th>Avg/HD Weighbacks</th>
<th>% Weighbacks</th>
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Pen 5 Totals: 191.1 468,770 -101.22 -20,600 5.68 4.39% 448,170 -44.67

Ex: If intake averages 45 lbs DM, 45 lbs x 5% = 2.25 lbs DM total.

Maximum allowable variation is 43.9 to 46.1 lbs DM
#11 – Safety

Set high safety standards on your dairy and review on an annual basis; hold everyone (even the owner!) accountable.