ARM & HAMMER ANIMAL NUTRITION
Fuel up for the win.
OVERVIEW

• The MEGALAC® Advantage
• The Race to Consistency
• Particle Size Matters
• Take the Bypass to Success
• Increased Milk & Efficiency
• Go For a Consistent Win
• Fuel Up: Recommended Feeding Rates
THE MEGALAC ADVANTAGE

• First bypass fat and most efficient energy source on the market†
• Delivers concentrated energy directly to the small intestine for optimal absorption
• The industry standard since 1986

Get Top Grade:

MEGALAC®

Most researched. Efficient bypass fat.

Trusted: Over 54 published studies.

Only bypass fat with USDA-measured NE value. 2.96 Mcal/lb.

Delivers consistent, optimum energy levels.

Jump-starts feed efficiency.

Boosts milk production.

Less shrink. Easier handling.

MEGALAC®
Why cows need supplemental fat.
Supplemental fat supports milk production, helps cows retain body condition and improves reproductive performance. Plus, fats contain 2.25 times more energy than starches and digestible fiber.
CONSISTENTLY BETTER RESULTS

• Meta-analysis† compared supplementing lactating rations with various fat sources compared to feeding no supplemental fat.
• MEGALAC outperformed all others in milk volume, fat yield and feed efficiency

<table>
<thead>
<tr>
<th>Fat Source</th>
<th>DMI (lb./d)</th>
<th>Milk Volume (lb./d)</th>
<th>Fat (%)</th>
<th>Protein (%)</th>
<th>Fat (lb./d)</th>
<th>Protein (lb./d)</th>
<th>Feed Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>-1.93</td>
<td>2.31</td>
<td>-0.04</td>
<td>-0.08</td>
<td>0.06</td>
<td>NSD</td>
<td></td>
</tr>
<tr>
<td>MEGALAC</td>
<td>-1.41</td>
<td>3.41</td>
<td>0.10</td>
<td>-0.05</td>
<td>0.18</td>
<td>NSD</td>
<td></td>
</tr>
<tr>
<td>Tallow</td>
<td>-2.34</td>
<td>NSD</td>
<td>NSD</td>
<td>-0.09</td>
<td>NSD</td>
<td>NSD</td>
<td></td>
</tr>
<tr>
<td>Fatty Acid Prills</td>
<td>NSD</td>
<td>NSD</td>
<td>NSD</td>
<td>NSD</td>
<td>NSD</td>
<td>NSD</td>
<td></td>
</tr>
<tr>
<td>Oilseeds</td>
<td>-1.22</td>
<td>NSD</td>
<td>-0.10</td>
<td>-0.10</td>
<td>0.10</td>
<td>NSD</td>
<td></td>
</tr>
<tr>
<td>Other Ca Salts</td>
<td>-4.64</td>
<td>2.02</td>
<td>-0.47</td>
<td>-0.18</td>
<td>-0.29</td>
<td>NSD</td>
<td></td>
</tr>
</tbody>
</table>

NSD = No Significant Difference.
*Parameters with directional arrows and average response values are significantly different from control treatments of no fat supplementation (P<0.10).

THE RACE TO CONSISTENCY

• MEGALAC supplies the uniform fatty acid content cows need
• Analysis of 150 field samples showed MEGALAC had the high level of total fatty acids with the lowest degree of variation

HISTORICAL AVERAGE FATTY ACID CONTENT (±SD) OF VARIOUS CALCIUM SALTS (N=25 PER PRODUCT) (2007 DATA)

PARTICLE SIZE MATTERS

• Not all commercial Calcium Salts are created equal and particle size is an important reason why
• Larger particles perform better because they don’t break down (biohydrogenate) in the rumen †‡
• MEGALAC delivers consistently larger particle size, which means more of the original unsaturated fatty acids reach the small intestine for use by the cow

† Data on file, 2008.
‡ Block E, Evans E, Sniffen C, Clark N. Effects of Particle Size of Fatty Acids on Biohydrogenation and Disappearance of Essential Fatty Acids In Sacco. Paper presented at: ADSA-ASAS Joint Annual Meeting: July 7-11, 2008; Indianapolis, Indiana.
HISTORICAL PARTICLE SIZE DISTRIBUTION OF CALCIUM SALTS OF FATTY ACIDS BY MANUFACTURER (2008 DATA)†

Product Name of Different Lots of Calcium Salts


† Data on File, 2008.
Effects of Particle Size of Fatty Acids on Biohydrogenation and Disappearance of Essential Fatty Acids In Sacco. Paper presented at: ADSA-ASAS Joint Annual Meeting: July 7-11, 2008; Indianapolis, Indiana.

**Rate of Disappearance of Fatty Acids (Biohydrogenation)**

<table>
<thead>
<tr>
<th>Calcium Salts of Fatty Acids</th>
<th>&gt;2 mm ESSENTIOM*</th>
<th>&lt;2 mm ESSENTIOM*</th>
</tr>
</thead>
<tbody>
<tr>
<td>C18:1</td>
<td>0.52%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.47%&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>C18:2</td>
<td>2.85%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>8.76%&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>C18:3</td>
<td>2.90%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>8.58%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a,b</sup> Indicate significant difference *P*<0.01

* MEGALAC and ESSENTIOM™ contain the same bypass fat properties and particle size composition.

† Block E, Evans E, Sniffen C, Clark N. Effects of Particle Size of Fatty Acids on Biohydrogenation and Disappearance of Essential Fatty Acids In Sacco. Paper presented at: ADSA-ASAS Joint Annual Meeting: July 7-11, 2008; Indianapolis, Indiana.
Size matters: bigger particles, more usable energy.
Smaller Calcium Salt particles dissolve faster and are known to reduce fat-corrected milk production.
MEGALAC is more than 85% digestible in the small intestine when included in the diet at 3% of ration dry matter†

• Published digestibility values are not available for all Calcium Salt products

† Sanchez WK. Energy Barrier Breaker Research Summary. Church & Dwight Co., In., 2001. Page 10, Table 1 and Figure 5.
INCREASED MILK & EFFICIENCY

• A trial† evaluated the performance of cows fed a diet supplemented with MEGALAC or Palmit 80®, a fatty acid prill containing high levels of palmitic acid (C16:0)
• Over the 12-week study, cows fed MEGALAC produced:
  • 10.5 lbs. more fat-corrected milk (FCM)
  • 7.4 lbs. more milk

† Block E, Kung I, Merrill C. Production performance parameters of early lactation diary cows fed a diet supplemented with MEGALAC or a fatty acid prill containing high levels of palmitic acid. J Anim Sci Vol. 91, E-Suppl. 2/ J Dairy Sci Vol. 96, E-Suppl.
12-WEEK TRIAL RESULTS

### INCREASED FCM WITH MEGALAC

- **3.5% FCM (lb/cow/day)**
  - **MEGALAC**
  - **Palmit 80**
  - **Week of Trial**
    - Pretrial
    - 1
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10
    - 11
    - 12

*P<0.05

### INCREASED MILK YIELD WITH MEGALAC

- **Milk Yield (lb./cow/day)**
  - **MEGALAC**
  - **Palmit 80**
  - **Week of Trial**
    - Pretrial
    - 1
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10
    - 11
    - 12

*R²=0.8254

*R²=0.9505

*P<0.05
ROAD TIP

Choose reliable feed suppliers. Considerable impurities can still remain in a product that lower the fatty acid and energy content. Also, rendered or processed fats can be highly variable in quality, so be sure to choose a consistent, reliable, proven fat source like MEGALAC.
GO FOR A CONSISTENT WIN

- MEGALAC is a solid investment that contributes to bottom-line profits by delivering improved margins, regardless of milk price.

Assumptions: Milk price of $15/cwt; ration costs were determined using CNCPS model optimizations and ingredient prices on September 16, 2015; additional daily production costs were input at $7.00, $7.00, $7.25 and $5.50, respectively across production levels.
• Feed MEGALAC at a rate of 1% — 2% ration dry matter to meet the energy requirements of high-producing cows
• Feeding rates will depend on the stage of lactation and production levels
Navigate the life cycle journey with MEGALAC.
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Calf & Heifer Start

Weaning
Growth & Development
Breeding
Far Off
Close Up
Freshening
Peak Milk & Breeding
Confirmed Pregnant & Late Lactation

670 - 730 Days
60 Days
305 Days

More products to help you get the job done.

A-MAX™
Entire life cycle

BG-MAX™
Day 56 to Day 305

BIO-CHLOR™
Day -21 to Day 0

CELMANAX™
Entire life cycle

DCAD +™
Day 0 to Day 305

ESSENTIOM™
Day -21 to +60/+90 Days

FERMENTEN™
Entire life cycle

MEGALAC +™
Day 0 to Day 305

MEGAMINE-L™
Day 0 to Day 305

SODIUM BICARB
Day 0 to Day 305

SQ-810™
Day 0 to Day 305

It's about ANIMALS FIRST. PRODUCTIVITY ALWAYS. See more at AHanimalnutrition.com.
QUESTIONS?

To learn more about MEGALAC, your pit crew is standing by: contact your nutritionist, veterinarian or Arm & Hammer Animal Nutrition representative or fuel up at AHanimalnutrition.com.
THANK YOU!