<table>
<thead>
<tr>
<th><strong>Liquid Supplements . . .</strong></th>
<th><strong>Flexible and Convenient</strong></th>
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</thead>
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**Dairy TMR-NPN**
- NPN Protein for rumen bugs
- Sugars for fiber digestion and microbial protein production
- Ration conditioning/reduced sorting
- High concentrated source of supplemental sugar

**Dairy TMR**
- Sugars for fiber digestion and microbial protein production
- Fat provides energy
- Ration conditioning/reduced sorting

**Dairy SUGR**
- Sugars for fiber digestion and microbial protein production
- Ration conditioning/reduced sorting
- High concentrated source of supplemental sugar

**Lactation and Dry Cow Optimizer**
- High concentrated source of supplemental sugar
- NPN Protein for rumen bugs
- Sugars for fiber digestion and microbial protein production
- Ration conditioning/reduced sorting
- Provides all supplemental VTM
- Reduce ration separation

<table>
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<tr>
<th><strong>Consistent Consumption of All Particle Sizes:</strong></th>
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<tr>
<td>✓ Provides needed nutrients to the rumen bacteria</td>
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<tr>
<td>✓ Maintains healthy rumen fermentation</td>
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<tr>
<td>✓ Enhances ration digestion</td>
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<tr>
<td>✓ Reduces TMR waste</td>
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</tbody>
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**Quality Liquid Feeds, Inc.**

P.O. Box 240  
Dodgeville, WI 53533  
800-236-2345  
www.qlf.com
Reduce Ration Sorting . . .
Improve herd performance

Dairy cattle have strong smell and taste senses, and often sort for the best-tasting particles in the TMR, leaving less-palatable particles in the bunk (long forages).

- Sorting behavior alters the nutrient concentration of the diet consumed and increases TMR waste.
- Sorting behavior may be quantified by comparing the particle distribution at put-down and refusals.
- Research has shown that sorting for short particles significantly reduces rumen pH.

Research - May 2012 Journal of Dairy Science

Research Details
- Lactating Holstein cows (74 DIM) received a 1) Control TMR or 2) Control TMR with 5.8 lb/day molasses-based liquid feed.
- Cows were fed TMR once daily.

Sorting Results
- Liquid feed supplementation markedly reduced sorting against long particles ($P<0.02$) compared to control cows.
- Liquid feed adheres small ration particles to larger ones, reducing sortability of the small particles.

Economic Benefit
- Cows receiving liquid feed had higher DMI, and produced 0.28 lb more milk fat and 0.2 lb more milk protein/day.
- Net returns: $+0.71/$hd/day

Economic Benefit:
Using 3 lb/day QLF and reducing ration sorting increased milk fat 0.07 lb/d and milk protein 0.05 lb/day. Component income increased $0.29/$hd/d.