**DAIRY FACTS & STATS PROTEIN**

**Dairy proteins shine**

Whey and milk proteins score high in quality, sensory appeal.

**As ingredients, whey and milk proteins “address formulator needs for sustainably produced, nutritious, functional, tasteful, versatile, consumer-appealing, securely sourced ingredients for use in food and beverage products,” according to “A New Era for Protein: Why U.S. Dairy Delivers in the Crowded Protein Marketplace,” a 2018 report from the Arlington, Va.-based U.S. Dairy Export Council (USDEC). In contrast, most plant proteins are lower in quality and fall short in essential amino acids.**

We share some findings from that report here.

**Dairy protein is high in quality**

**PDCAAS* of common protein foods**

<table>
<thead>
<tr>
<th>Protein source</th>
<th>PDCAAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td>1.00</td>
</tr>
<tr>
<td>Whey</td>
<td>1.00</td>
</tr>
<tr>
<td>Egg</td>
<td>1.00</td>
</tr>
<tr>
<td>Soy Protein isolate</td>
<td>1.00</td>
</tr>
<tr>
<td>Casein</td>
<td>1.00</td>
</tr>
<tr>
<td>Beef</td>
<td>0.92</td>
</tr>
<tr>
<td>Soy</td>
<td>0.91</td>
</tr>
<tr>
<td>Pea</td>
<td>0.67</td>
</tr>
<tr>
<td>Oat</td>
<td>0.57</td>
</tr>
<tr>
<td>Whole wheat</td>
<td>0.45</td>
</tr>
</tbody>
</table>

*The current measure of protein quality in the United States is the Protein Digestibility Corrected Amino Acid Score, or PDCAAS, according to the USDEC report. Source: USDEC report, citing data from the Journal of Nutrition (https://tinyurl.com/y9salwsb).

**What 25 grams of protein looks like, by protein source**

- **Whey protein**
  - 1 scoop
  - 120 calories
  - 2.9g leucine
  - 12.5g EAAs

- **Chicken breast**
  - 113 grams
  - 140 calories
  - 2.1 grams leucine
  - 11.0 grams EAAs

- **Skim milk**
  - 3 cups
  - 250 calories
  - 2.3 grams leucine
  - 11.5 grams EAAs

- **Eggs**
  - 4 large
  - 290 calories
  - 2.2 grams leucine
  - 10.2 grams EAAs

- **Black beans**
  - 1-3/4 cups
  - 380 calories
  - 2.2 grams leucine
  - 7.2 grams EAAs

- **Peanut butter**
  - 7 tablespoons
  - 660 calories
  - 2.0 grams leucine
  - 9.9 grams EAAs

- **Oatmeal**
  - 4 cups
  - 670 calories
  - 2.0 grams leucine
  - 9.9 grams EAAs

Essential amino acids (EAAs) are critical to the support of muscle protein synthesis (essential to building, growing and repairing body tissues). But the branched-chain amino acid leucine has been shown to be the key amino acid stimulating the initiation of muscle protein synthesis. Animal proteins, including dairy proteins, tend to have a higher content of leucine (and EAAs, in general) than plant-based proteins do.

Source: USDEC report, citing data from the Whey Protein Isolate Nutrition Panel.

In a sensory evaluation of nutritional bars made with different dairy and plant-based protein sources, dairy proteins exhibited sweet aromatic and cooked/milky attributes, while plant sources exhibited beany, earthy, sulfurous and sour notes.