The Power of Soy: A Healthy, Cost Effective and Functional Protein Source

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A Program of the American Soybean Association
WISHH in REVIEW

• A Program of the American Soybean Association, ASA
• Launched in 2000 by farmer and industry leaders
• HQ in St. Louis, MO USA

Mission: Create commercially sustainable solutions and opportunities for U.S. soy protein by improving the health and nutrition of people in developing countries by addressing protein deficiencies.

• WISHH around the world:
  • Regions: Africa, Central America, Middle East, Asia
  • Sectors: Commercial processing, Institutional feeding, Nutrition education,
  • Africa: Senegal, Burkina Faso, Nigeria, Cameroon, Kenya, Uganda, Rwanda, South Africa
Soybeans are often called ‘super beans’ because there are so many ways to use them.
Soy beans are comprised of 38% protein, 18% fat and 30% carbohydrates.

Soy flour can substitute 15 -25% of the flour in most any recipe, improving the nutritional content; it is often used to fortify other foods.

Textured soy protein is used in soups, stews, chili; most any recipe calling for meat. It can be used as a meat substitute or meat extender.

Soy protein concentrate used as an additive to breads, pastas, nutritional beverages and processed meat products.

Soy protein isolates can be added to meat, seafood and poultry dishes making them juicier and improving the cohesiveness and texture; it is also used in beverages and dairy-type products.

Soybeans are comprised of 38% protein, 18% fat and 30% carbohydrates.
A Healthy Protein Source

- FDA Health Claim: 25 grams of soy protein a day, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease.

- Soy is the only widely available plant source of protein that is considered a “complete” source of protein, comparable in protein quality to meat, milk and eggs.

- Soy protein is a critical ingredient in sports nutrition products because it is a widely available, complete, high-quality protein.

- Soy protein can play a role in weight management by promoting satiety.

- Soy foods can be a major source of protein for children because they contain all essential amino acids and many are fortified with vitamins and minerals.

<table>
<thead>
<tr>
<th>Protein</th>
<th>PDCAAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated soy protein</td>
<td>1.00</td>
</tr>
<tr>
<td>Casein</td>
<td>1.00</td>
</tr>
<tr>
<td>Egg white</td>
<td>1.00</td>
</tr>
<tr>
<td>Beef</td>
<td>0.92</td>
</tr>
<tr>
<td>Kidney beans</td>
<td>0.68</td>
</tr>
<tr>
<td>Peanut Meal</td>
<td>0.52</td>
</tr>
<tr>
<td>Whole wheat</td>
<td>0.40</td>
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</tbody>
</table>

Soy foods are a flexible part of a healthful diet and are included in three of the MyPlate sections: Vegetables, Protein, and Dairy.
Soybeans contain omega-3 fatty acid, a good fat that may help reduce the risk for cancer and heart disease.

Prices from USAID's 2012 Commodity Calculator: (http://transition.usaid.gov/our_work/humanitarian_assistance/ffp/impletool.html), soy concentrate and isolate prices from NSRL staff Karl Weingartner, and other prices estimated from USDA sources. Grams of protein from USDA's nutrient database and ADM's product specifications. Price per pound of protein calculated by first finding the grams of protein per pound and then per metric ton. Then this divided by the overall cost of the product per metric ton.
A Functional Protein Source

General Functional Properties
- **Solubility**: Instantizing (agglomeration) improves wettability, dispersibility, rate of hydration and solubility
- **Emulsification**: Helps to form and stabilize emulsions
- **Gelation**: Positively affects viscosity and texture
- **Water Binding**: Affects viscosity and enhances mouth feel
- **Whipping/Foaming**: Helps to form and stabilize air cells
- **Viscosity**: Causes the fluid to resist flowing
- **Flavor/Aroma**: Appeals to senses

Key Functional Benefits
- Maintains foods’ quality while reducing its cost or improving quality for the same cost
- Ability to increase the stability and shelf life of products
- A versatile ingredient, easily incorporated in a large range of foods without changing taste or texture

Soy foods are high in several vitamins and minerals, particularly B vitamins, calcium and iron
WISHH Along the Value Chain

WISHH does not make or sell any products or ingredients

- **Food Technology**: Evaluating food production systems, product development, cost benefit analysis, consumer acceptance surveys
- **Business Development**: Market research, technical trainings
- **Nutrition Services**: Assessments, planning, design and evaluation of nutrition needs, education, training and research
- **Technical Assistance in Program Development**: Intervention area research, benchmarking, program design, proposal writing

For more than 5,000 years, soy has been a diet staple — the primary source of complete, high quality protein for millions of people worldwide.
South Africa has almost tripled its soybean production in the last ten years, but is still a net importer of soybean protein.
Burkina Faso

- **Food Technology**
  - Wind Konte Bakery chain
  - Marina Market meat processing
- **Business Development**
  - Burkina Faso poultry team to Atlanta Poultry Show

In baking, the addition of soy flour to wheat flour enhances the protein content and the amino acid balance in the food, as well as increasing profitability for the baker. Water absorption by soy flour plus retention of moisture during baking (decreased bake loss) results in a greater yield that translates into increased product sales.
Imperial Foods incorporated DSF into their NourriSnack instant snack noodle, which was launched on the commercial market in 2012 in Cameroon, Gabon and Congo.
The health benefits of soy include cholesterol reduction, reduced risk of prostate cancer, improved bone preservation, reduced blood pressure, improved kidney function and reduced effects of menopause in women.
Kenya

- Food Technology
  - Chemicals & Solvents
  - TSP, ISP, DSF
  - Consumer awareness campaign

Soy protein is nutrition packed and abundant. Adding soy protein to locally available foods is a simple and sustainable way to nourish people throughout the world with protein, calories and more.
Community members enjoying TSP stew at a street festival.

Children at a local school have TSP stew as part of a healthy school meal.

The Sesaco team promoting the TSP in local grocery stores.

Community members enjoying TSP stew at a street festival.

Uganda

• Food Technology and Business Development
  • SESACO
  • Smart Foods
  • Other Food Processors

• Promotion Campaign
  • NSOYNET

Soy protein and calories can help to prevent body wasting often associated with HIV/AIDS.
Soy is an excellent source of protein and can be incorporated in a variety of food systems such as beverages, meats & meat alternatives, blended cereals, baked goods and RUT/SF.

Soy ingredients are be used in the commercial and food aid markets.

WISHH services are available to commercial companies (importers, distributors, food processors, etc.) and institutional feeding programs (PVOs, WFP, Governments, etc.)

Sustainability can be achieved when commercial development activities meet nutritional needs.
Resources

www.soyfoods.org
www.ssa.org.za
www.wishh.org
www.worldsoyfoundation.org
www.nsrl.illinois.edu

WISHH Vision:
The health and well-being of the world population with protein deficiency in developing countries will improve through increased dietary consumption of high quality soy protein as well as through economic opportunities to incorporate U.S. soy protein into food manufacturing, livestock production, and/or aquaculture.

Thank You
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