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USB Long-Range Strategic Plan

USB Core Value:
The Board, with honesty and integrity, collectively and individually, is committed to working within the letter and spirit of applicable law and regulation to achieve maximum value for each soybean farmer's checkoff dollar.

Purpose:
Invest checkoff funds to benefit U.S. soybean producers.

Mission:
Create opportunities for the U.S. soybean producer to be more competitive while maximizing profits and meeting customers needs.

Strategic Direction:
- Lead the industry for market driven U.S. soy quality.
  - Increase utilization of U.S. soy.
  - Promote the value of the U.S. soybean industry.
- Increase efficiencies of production and marketing systems for U.S. soy.

Utilization Goal:
Increase global utilization of U.S. soy.

Objectives:
2. Develop new applications and uses of U.S. soy.
3. Define and address impediments to market growth or retention.
4. Differentiate the value of the U.S. soybean against competing products.
5. Capitalize on and enhance U.S. soy marketing capabilities and opportunities to aggressively compete for markets and market share.
Supply Goal:
Increase the production of an improved U.S. soybean to meet the needs of the end user.
Objectives:
1. Increase U.S. soybean trend line yields.
2. Improve compositional traits to increase the value of U.S. soybeans.
3. Improve production efficiencies in an environmentally responsible manner.

Coordination Goal:
Work cooperatively within the soybean value chain to focus and leverage resources to achieve the USB mission.
Objectives:
1. Facilitate coordination and communication of technology and research that benefits the U.S. soybean producer.
2. Enhance the soybean value chain’s recognition of the soybean checkoff’s resources and programs.
3. Coordinate checkoff communications to producers, the soybean industry and the public.
4. Facilitate the identification and stabilization of organizational roles within the industry framework.
5. Capture, communicate, promote and protect the value of U.S. soy.
UNITED SOYBEAN BOARD SHORT TERM EMERGING ISSUES

ANIMAL AGRICULTURE
Protect the interests of U.S. soybean producers by supporting the long-term growth of the domestic livestock and aquaculture industry.

RUST
Provide information and coordination regarding the near term threats and impacts of rust on the U.S. soybean crop.

QUALITY
Enhance, promote and measure the quality of U.S. soy in the global marketplace.

INTEGRATION OF U.S. SOY INDUSTRY
Understand the impact of integration within the U.S. soy industry and protect the interests of the U.S. soybean producer.
Target Area: Animal Utilization

Goal
Increase global utilization of U.S. soy.

Strategy: Animal Agriculture Initiative (Animal Agriculture Initiative)
- Tactical Approach: Researching the Value of Animal Agriculture
- Tactical Approach: Building Support for Animal Agriculture
- Tactical Approach: Establish Food/Restaurateur Sector Roundtable on Responsible and Sustainable Food Production in the United States

Strategy: Demand Building (Domestic Marketing; New Uses; International Marketing)
- Tactical Approach: Preserving Domestic SBM Feed Market
- Tactical Approach: Growing Meat Export Opportunities
- Tactical Approach: Expand Targeted Animal Nutrition Markets

Strategy: Customer Preference (International Marketing)
- Tactical Approach: International Animal Uses – Servicing Key Accounts

Market Environment
Increasing domestic utilization of U.S. soy is tied directly to the growth of the U.S. livestock and poultry industries. Poultry, hogs and cattle consume 98% of U.S. soybean meal in the United States because of the protein content and ideal amino acid profile of soybean meal, which U.S. farmers can provide economically and in great quantity. The growth of both the soybean and livestock sectors is dependent on the United States’ ability to expand the U.S. livestock sector through increased domestic meat consumption while increasing exports of animals and meat products.

Building demand for U.S. meat in foreign markets results in increased demand for U.S. soy. Global meat markets shift continually, making USB efforts to assist in meat export marketing programs critical to the success of U.S. soy producers. In 2003, an incident of Bovine Spongiform Encephalopathy (BSE) in the U.S. resulted in detrimental market closures. The beef export market is only recently beginning to recover as markets are slowly re-opened. Poultry exports have felt the effect of reduced customer demand due to fears of Avian Influenza (AI). Pork has been the benefactor of these two incidents with increased exports year after year, as the world population seeks safe protein.

While the U.S. provides one of the safest, most reliable food supplies in the world, meat exports enter foreign countries frozen. Frozen meats face a stigma in many of these countries as sub-par to fresh, locally raised meats. Many foreign markets critically need education on the equality of frozen to fresh products, as well as safe cooking procedures to either prevent or deactivate pathogens in meat preparation.
Exports can be measured in terms of volume or monetary value, but for U.S. soy producers, the volume of meat exported determines its economic benefit, as volume of meat exported relates to volume of soybean meal consumed. U.S. broiler exports to China for 2007 are projected at 50,643 tons, nearly double 2006 exports. Chicken exports to Russia continue to decrease due to negative reaction over leg quarter prices. However, an uptrend is expected in the next few months. Broiler export volume for the month of February was up 8 percent compared to last year, and year to year value is up 14 percent. Turkey exports for January and February were 36,503 tons, which is a 7 percent increase from last year. This tonnage increase also resulted in a 5 percent dollar value increase. Chicken paw exports continue to increase, up 77 percent for January and February alone.

U.S. pork and pork variety meat exports totaled 1.26 million metric tons (MT), a 9 percent increase over the previous year. This is the 15th year of growth in volume of pork exports. Value also increased 9 percent in 2006, reaching more than $2.86 billion. Japan remained the No. 1 market in value for U.S. pork and pork variety meat at $1.04 billion. Value dipped 4 percent from 2005, but Japan remained the only market to exceed $1 billion in U.S. pork sales in 2006. Mexico led all markets in volume of U.S. pork and pork variety meat exports at 356,418 MT, a 7 percent increase over 2005.

Meanwhile, U.S. beef exports also enjoyed a good year as increased trade access led to export growth. U.S. beef and beef variety meat exports increased 39 percent in volume to 655,920 MT and 50 percent in value to $2.04 billion in 2006 compared to 2005. For the third consecutive year, Mexico led all markets in volume and value for U.S. beef and beef variety meats in 2006. Volume increased 32 percent to 371,087 MT and value went up 33 percent to $1.17 billion. Sales to Mexico for the year also topped 2003 by 110 percent in volume and 133 percent in value.

Growth in poultry and red meat exports translates into more soybean meal utilization domestically as feed. Projections from the 2007 USDA meat export baseline project significant soybean meal utilization as meat exports. Exports of chicken meat in 2007 are projected to top 2,449,000 MT, which represents 80,552,637 bushels of soybeans crushed to create the 1,722,000 MT of soybean meal required to feed those birds. Pork exports will account for over 49 million bushels crushed, turkey exports will call for just over 9.9 million bushels of crush, and beef exports will account for 5.5 million bushels of soybeans crushed for soybean meal in their diets. The entire crush totals 144.4 million bushels to produce the soybean meal to feed domestic animals for meat export.

The total numbers of bushels crushed for domestic animal consumption are much higher. In 2006, livestock in the United States consumed over 37 million metric tons of soybean meal, which translates into 1.1 billion calculated bushels of soybeans or 1.7 billion bushels of soybean crush (bushel equivalents).

Soybean meal is the predominant non-animal protein source used in diet formulations for poultry, pork and beef due to its unique protein quality. However, there is competition from substitute ingredients. The increase of ethanol production from dry grind ethanol
plants has increased the tonnage of Distillers Dried Grains with Solubles (DDGS) available worldwide, and has replaced portions of soybean meal (SBM), primarily in ruminant diets such as feedlot steers and dairy cattle. Great effort has been made by the ethanol and corn industries to develop standardized testing procedures to reduce variability in DDGS and conduct research to increase the amount of DDGS that can be used in monogastric diets for hogs and chickens. Much of the research has focused on replacing corn, not SBM, in rations to use the lipid energy present in DDGS to replace the starch from corn. Some SBM is removed in this process; however, DDGS do not have the same nutrient profile as SBM and cannot replace it on a 1:1 basis without amino acid supplementation.

Maintaining soybean meal’s position as the premier protein source in animal feed diets is necessary to the viability of the soybean meal market. In the United States, meal drives the value of soybeans. While soybean oil may be worth twice as much on a per unit basis, the bean provides three times the amount of meal by weight. The sheer volume of meal drives the commodity value for whole soybeans, not just the value of oil. It is also important to remember that oil can be stored for much longer periods of time than meal, due to the differences in shelf life.

The rapidly expanding market for farm-raised fish is providing market opportunities for soybean meal and oil both in the U.S. and overseas. The feed industry has recognized for many years that plant-based aquafeeds is an essential requirement for the future development of aquaculture. SBM and oil can compete with fish meal and fish oil, the standard source of protein and lipids especially for carnivorous species such as salmon and pompano. Skyrocketing fishmeal prices, coupled with environmental concerns over using fish meal, have underscored the need for alternatives. Soy continues to be the preferred alternative because it is readily available, nutritional, economical, renewable and environment friendly.

Growth in aquaculture production is expected to continue at the current growth rate of 9 percent per year. Land-based meat production is currently growing at about 3 percent. Increases in world aquaculture production will be driven by increases in the Chinese production, with South and Southeast Asia, Latin America, the Caribbean and Europe providing smaller increases. Freshwater species and mollusks are expected to dominate aquaculture production in the near future, but demand for high value marine species continues to grow.

Internationally, soybean meal utilization has increased over 61%. Soybean meal trade increased over 71%, and world soybean trade, which is predominantly used for SBM production, increased over 97% the past 10 years. Soybean meal has been the predominant non-animal protein source in livestock and poultry diets for decades in the U.S. Over the past 45 years, it has increasingly become the preferred protein source in international poultry and swine diets. Over the past 12 years, its demand in farmed fish rations has rapidly grown in China with growing developments in India and Southeast Asia, and emerging aquaculture markets in Latin America and South America.
As world soybean production is estimated at 233.49 MMT, the U.S. share of world soybean production remains at 37%. Soybean meal exports continue to rise, as a 34% increase was seen in MY05 and a 5.5% increase was seen in MY06. Mexico remains our largest export market for soybean meal, with Canada at a close second.

In the last three years, there has been an increase in the use of container shipments due to some of the economic opportunities created in the freight markets. With bulk ocean freight rates continuing at high levels and the strength of containerized Asian exports to the U.S., container freight rates from the U.S. to Asia created economic opportunities for containerized shipments of soybean meal and soybeans to Asia. This shipping option has provided opportunities for medium-sized U.S. agribusiness to enter the Asia soy trade. In the past, this trade was restricted to firms with port export terminals. With the rise of container shipping, several new exporters have entered the market.

Acreage will continue to fluctuate as corn and soybeans battle for the production of biofuels. With more U.S. farmers turning to corn as ethanol production is making the crop much more profitable, soybeans will continue to fight for acreage in the coming years. As soybean acres diminish, a decrease in U.S. soybean exports could be seen. As domestic soy biodiesel production has increased within the last several years, a drastic soybean meal increase could provide a potential replacement for U.S. soybean exports. Increased soybean meal means a change in the international marketing perspective where less whole beans and more soybean meal may be available for export.

Predictions indicate that the global broiler trade will increase by 28 percent in the coming decade, reaching 7.6 MMT in 2012. The U.S. exported 6.49 million pounds of broiler production in 2006. The top five broiler meat-producing nations in the world are now the United States, China, Brazil, Mexico and India. China is also the largest producer of eggs in the world, with production of 243 million tons, followed by the U.S., Japan, Russia and Mexico.

**Strategic Approach**
The strategic approach for this target area has three platforms: 1) Animal Agriculture Initiative; 2) Demand Building; and 3) Customer Preference. The focus of this strategic approach is to establish U.S.-sourced soybean meal as the protein supplement of choice in animal rations throughout the world. One of the key components of increasing utilization of soy that encompasses both the domestic and international animal production industries is to establish positive relations within the animal agriculture industries. Within the Animal Utilization strategic approach, it is essential to concentrate on the maintenance and growth of SBM feed markets existing in the United States. These markets are the livestock and poultry feed sectors that supply protein for not only U.S. consumers, but for nations outside the U.S. with growing economies. The economic growth of these nations means that global consumers can afford to purchase the meat that is imported from the U.S.

Russia and China continue to top the list of U.S. chicken meat importers, while new growth opportunities are emerging in Mexico for turkey meat, and in Africa for chicken.
Maintaining Russia’s position as a top importer of U.S. poultry has proven challenging due to the Russian political scene, and the use of U.S. poultry as a maneuvering point in trade debates. China has overtaken Russia as the top importer of U.S. chicken of late, and is poised to continue this trend. New markets are constantly evolving as U.S. chicken becomes more available globally and more countries develop cold storage and transportation options.

The United States continues to compete against in-country production, as well as against Brazilian chicken exports. In developing countries, such as the African nations, a delicate balance of providing an economical protein source while not disturbing local trade with cheap imports is essential. The partnership between the soybean checkoff and the USA Poultry and Egg Export Council focuses on maintaining the existing markets and growing new markets through education and trade servicing.

Poultry and livestock consume 98 percent of domestic soybean meal. The migration of meat production to foreign markets would drastically reduce the demand for U.S.-sourced soybeans. The Animal Agriculture Initiative works directly under the LRSP goal of increasing global utilization of U.S. soy. The premise is the preservation of the U.S. consumption of soy products through U.S. livestock and poultry.

This approach is focused on supporting the #1 customer for U.S. soybean meal – American livestock and poultry producers – and building recognition as to the importance of livestock production among several sectors.

The U.S. animal agriculture strategy has three priorities for the entire soybean industry: 1) business climate; 2) supply chain; and 3) trade negotiation. USB chose to concentrate primarily on the business climate priority within AAI. Its focus is to: 1) foster a favorable business and legal climate in which livestock and poultry farmers can prosper and implement tactics at the national, state and local levels; 2) establish a formal communication system to share insights and identify opportunity areas for collaboration between animal producers and meat and egg processors; and 3) negotiate fair international trade agreements on behalf of U.S. animal farmers.

**Ability to Impact**

USB can impact the animal utilization target area by supporting the global livestock, poultry and aquaculture industries. This includes increasing awareness of the importance of these industries to U.S. soybean farmers and providing solutions to digestion and environmental issues. In addition, USB can continue to build demand and preference for U.S. soybeans and SBM by supporting export strategies and by continuing to research the use of value-added SBM in livestock, poultry and aquaculture. By making compositional improvements to U.S. soybeans that end-users demand, the U.S. soybean industry can build customer preference.

Supporting domestic livestock and poultry production by communicating the importance of livestock to soybean producers helps to ensure long-term domestic soybean meal customers. By encouraging the export of U.S.-produced pork, chicken and beef, more
soybean meal is used domestically, and the domestic livestock industry is supported by increasing the availability of animal protein worldwide.

USB can also facilitate greater demand through development of composition-modified soybeans, such as low-phytate and low-oligosaccharide soybeans that would have greater digestibility by changing the complex fiber fraction to digestible sugars. The improved digestibility would result in less wasted phosphorus and less solid waste pollution from swine and poultry manure.

Research conducted on allergenic responses in swine has the ability to affect the entire pig population. Development of an allergenicity model in swine could create models for other species allergenic responses, including humans.

**Target Area Allocation: $13,577,236**

**Strategy: Animal Agriculture Initiative**
Poultry and livestock consume 98 percent of domestic soybean meal; the migration of meat production to foreign markets would drastically reduce the demand for U.S.-sourced soybeans. The Initiative works directly under the LRSP goal of increasing domestic utilization and exports of U.S. soy. The premise is the preservation of the U.S. consumption of soy products through U.S. livestock and poultry.

This approach is focused on supporting the #1 customer for U.S. soybean meal – American livestock and poultry producers – and building recognition as to the importance of livestock production among several sectors.

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**Opportunity #1 – Document Animal Ag Value**
Document the value and sustainability of livestock production in the United States through economic, environmental, land value, and health effects research.

**Tactical Approach: Researching the Value of Animal Agriculture**
2. Update the Environmental Regulatory Audit to include all 50 states and specifically include new regulations that farmers need to be aware of in their local area.
3. Collaborate with partner livestock organization to conduct an epidemiological study review on health effects of Concentrated Animal Feeding Operations on neighbors, workers, and general public with unbiased medical community input and review.

**Performance Measures:**
- Delivery of a written report and executive summary of the economic analysis for all 50 states, including PowerPoint presentations, including all support data, that can be delivered by farmers or staff.
- Creation of a full literature review of health effects with interpretation of study findings and presentation for delivery to a rural audience.
- Two face-to-face presentations of all researched materials by researchers: 1) Full presentation to the AAI Leadership Team; and 2) Summer States Coalition Meeting.

**Opportunity #2 – Educate Soybean Farmers**
Increase awareness and understanding among U.S. soybean producers of the direct link between the domestic animal agriculture industry and the domestic market for U.S. soybeans.

**Constraint #1 – Support the Livestock Industry**
Sixteen percent of soybean producers are opposed to livestock expansion in their area and a certain percentage may be unmoving in their opposition.

**Tactical Approach: Building Support for Animal Agriculture**
1. Educate soybean farmers on the value of supporting animal agriculture production in the United States to maintain soybean value due to proportion of meal consumed.
2. Communicate the results of studies conducted by the Animal Agriculture Initiative, i.e.: Economic Analysis, Environmental Regulatory Audit, Value of Ag Property, etc. as completed to soybean producers including news releases and informational presentations.
3. Develop a transition strategy on Animal Ag communications to the Animal Ag coalition for implementation with all coalition partners through the coalition structure.
4. Implement the partnership incentive program with Qualified State Soybean Boards (QSSBs) maintaining all reporting structure and communicating pertinent results.
5. Update the Web site and toolkit by utilizing the results of Animal Ag research regarding livestock production on an annual basis.
6. Distribute all tools to QSSBs in digital format and toolbox as requested to partner organizations.
7. Develop a resource guide on all of the available information with executive summaries of all pertinent information and distribute to soybean farmers, ag media, animal nutrition and health industries, and decision makers.
Performance Measures:
- More than 50% of soybean producers understand value of soybean meal to their farms as measured by Producer Attitude Survey.
- Invigorate 5 additional QSSB leaders to actively engage with livestock groups in their state and local area.
- Implement the partnership program with a minimum of six partner states.
- Update Web site information quarterly with new materials and changing any out of date information.

Opportunity #3 – Business Climate Support
Create an environment that is conducive to a globally competitive U.S. animal agriculture industry.

Tactical Approach: Building Support for Animal Agriculture
1. Serve as the catalyst at the national level to build a coalition among livestock and agriculture organizations that is nationally organized but supports activities at the local level.
2. Provide information and strategic planning to state soybean organizations to support animal agriculture within their state.
3. Invite state leaders and animal agriculture supporters to the Summer States Coalition Meeting and to participate in the coalition.
4. Create the necessary structure for the national coalition and investigate necessary legal ramifications of structure.
5. Transition through year to achieve objectives with partners.
6. Directors and staff speak at industry meetings informing the animal agriculture industry of USB support.
7. Solidify partnerships with fellow national animal agriculture organizations within the coalition structure.

Performance Measures:
- Program established to support animal agriculture regarding local issues such as siting, expansion, environment and business climate.
- Coalition established to align crop and animal agriculture in support of U.S. animal agriculture.

Opportunity #4 – Supply Chain Support
Establish a formal relationship with animal production and processing players to share insights, requirements and opportunity areas.

Tactical Approach: Building Support for Animal Agriculture
1. Continued implementation of the Animal Nutrition Working Group plan that will stimulate information sharing to QUALISOY within the next three years focused specifically on meal enhancement for animal utilization.
2. Coordinate with QUALISOY to include U.S. soy farmers, crushers, feeders and processors in the Animal Nutrition Working Group.

**Performance Measures:**
- Provide two strategic value enhancements for SBM through the AAI Animal Nutrition Working Group to QUALISOY, DMC, and other program committees.
- Support for QUALISOY from 10 members of the animal nutrition and feed industry identified.
- Firm commitments for ANWG participation through FY09 by at least 90% of attendees.
- At least 90% of attendees agree to actively assist USB on issues facing SBM utilization.
- Three potential candidates for the open QUALISOY Board position have been identified for consideration.
- All attendees comprehend USB’s focus and progress relative to meal improvement efforts over the past 10 years.
- The top five issues facing meal utilization in production non-ruminant diets have been identified.
- Confirm that changes in soybean composition, affecting SBM, are necessary to maintaining a competitive market position for meal globally.
- USB’s meal composition targets have been considered and critiqued.
- Practical barriers to the most efficient utilization of soybean meal’s nutrient potential have been identified.
- Initial performance thresholds for industry adaptation of value-adding opportunities have been established.
- Through the critical examination of past USB meal activities and discussions during the meeting, a path forward is framed.

**Opportunity #5 – Food Safety Leadership**
Establish leadership role for researching sustainability and security of a U.S.-sourced food supply and educational materials regarding that effect.

**Tactical Approach: Establish the Food/Restaurateur Sector Roundtable on Responsible and Sustainable Food Production in the United States**
1. Create a Roundtable of Food/Restaurateur executives and staff to establish goals for communicating safe and sustainable U.S. food production.
2. Conduct an annual meeting with USDA representatives and Food/Restaurateur sector to address the issues and leverage communication potential.
Performance Measures:
- Successful implementation of one CEO Roundtable of the Food/Restaurateur sector with clear direction to move forward.
- Representation from the top three from both Food and Restaurant sectors on the roundtable.
- Establishment of clear goals and objectives for the Animal Ag Coalition from this sector.
- Support from the Food/Restaurateur sector for the Animal Ag Coalition through memberships and funding.

Ability to Impact
USB can impact the animal utilization target area by supporting the livestock and poultry industries. This includes increasing awareness of the importance of these industries to U.S. soybean farmers and providing documentation on the value of livestock. Supporting domestic livestock and poultry production by communicating the importance of livestock to soybean producers helps to ensure long-term domestic soybean meal customers. By encouraging the export of U.S.-produced pork, chicken and beef, more soybean meal is used domestically, and the domestic livestock industry is supported by increasing the availability of animal protein worldwide.

Strategy/Tactical Approach Allocation: $1,966,331

Strategy: Demand Building (Domestic Marketing)
The current approach to demand building is focused on increasing animal utilization of U.S.-sourced soybeans and SBM by supporting current customers in the domestic livestock and poultry sectors. This strategy is one of maintenance and growth, as it focuses on retaining our primary customer, U.S. poultry and livestock producers, while also focusing on new markets for meat export.

USB created a two-pronged strategy for support of the domestic livestock and poultry industries: 1) expand U.S. meat and poultry exports by addressing public health and safety issues; and 2) enhance the perception of U.S. meat and poultry products as high quality among trade organizations and consumers. These partnership programs with the U.S. Meat Export Federation (USMEF) and USA Poultry and Egg Export Council (USAPEEC) focus on building exports of U.S.-sourced meat and egg products, which increases the demand for SBM to feed those animals domestically.

Another aspect of building domestic demand for soy is collaborating with the animal agriculture supply chain by supporting QUALISOY efforts on those traits that specifically affect livestock production. Educating animal nutritionists of new information on SBM in diets is key to growing SBM inclusion in diets. Distributing that information to the feed and livestock industry is the purpose of the Soybean Meal Information Center. The final focus is on increasing the competitive value of SBM as a key feed ingredient for U.S. animal agriculture.
Opportunity #1 – Preserving Domestic SBM Feed Market
Create an environment that is conducive to a globally competitive U.S. animal agriculture industry.

Tactical Approach: Preserving Domestic SBM Feed Market – AAI Coordination
1. Collaborate with the Animal Agriculture Initiative to support the domestic animal agriculture industry and to gain support for QUALISOY from the animal feed industry.
2. Create framework for AAI graduation to Domestic Marketing Committee.
3. Conduct animal trials on trait improved soybean meal to demonstrate market value in conjunction with QUALISOY.

Performance Measures:
• Animal feed industry support is AAI/QUALISOY through incorporation of the Animal Nutrition Working Group suggestions to Domestic Marketing Committee projects.
• Plan developed for AAI strategies/tactics to be absorbed by USB’s Domestic Marketing Committee
• Research results on improved traits and animal performance delivered

Opportunity #2 – Soybean Meal Info Source
Increase the competitive value of SBM as a key feed ingredient for U.S. animal agriculture.

Tactical Approach: Preserving Domestic SBM Feed Market
1. Review up-to-date soybean and SBM research in feed rations and educate feed industry with relevant information.
2. Determine livestock industry customer needs through interaction at trade shows, scientific societies, technical gatherings and working groups.
3. Encourage the feed and livestock industries to support new SBM research.
4. Develop and identify customer needs for soybean meal.

Performance Measures:
• At least five feed and livestock companies or organizations engaged in supporting new SBM research and development through funding and work-in-kind.
• Two key customer needs pertaining to SBM are identified.
Opportunity #3 – U.S. Meat and Poultry Exports
Address public health and safety issues and enhance the perception of U.S. meat and poultry products as high quality among trade organizations and, ultimately, consumers.

Opportunity #4 – U.S. Meat and Poultry Exports
Turkey exports and their consumption of SBM are currently greater than the meal consumed by beef exports. This area offers an opportunity for significant increase in SBM usage.

Opportunity #5 – U.S. Meat and Poultry Exports
Support the long-term growth of worldwide protein consumption through increased consumption of U.S.-grown meat, dairy and egg products.

Constraint #1 – U.S. Meat and Poultry Exports
Animal disease and the resulting trade restrictions have significantly affected U.S. meat exports since 2003, and are the most likely constraint/opportunity for U.S. meat exports.

Tactical Approach: Growing Meat Export Opportunities
1. Promote U.S. poultry exports and provide technical support in maintenance, growth and emerging markets through the USA Poultry and Egg Export Council (USAPEEC).
2. Promote U.S. beef and pork exports and provide technical support in maintenance, growth and emerging markets through the U.S. Meat Export Federation (USMEF).
3. Re-establish identity of U.S. poultry and red meat as safe in markets that have banned U.S. product from trade.
4. Grow global pork consumption 29% by 2015 and 57% by 2030.
5. Focus on building market opportunities and improving consumer acceptance to U.S. poultry in maintenance, growth and new markets.

Performance Measures:
• At least one new growth market for U.S. meat and poultry exports identified and due diligence on the value of that market as compared to maintenance and growth markets completed.
• Consumer perception of U.S.-produced poultry and meat as safe and wholesome improved.

Strategy: Demand Building (New Uses)
The focus of this strategy is to establish U.S.-sourced SBM as the protein supplement of choice in aquafeed rations throughout the world. The strategic approach includes targeted research based on USB-supported planning to determine factors that limit the replacement of fish meal with soybean meal and SPC. Federal government intramural and competitive programs will be aligned with the findings of the research needed to increase the use of soy in aquaculture diets. Based on research results, the benefits of soy-based diets will be promoted globally through USSEC/IM communications and feeding demonstrations. Efforts will continue through the USB-Aquaculture Industry Coalition to
build interest in and promote the demand for SBM as a primary source of protein in commercial fish rations.

**Opportunity #1 – Building Demand for U.S. Soy in Aquaculture Markets**
Opportunities exist for further research and marketing efforts to increase use of soy products in aquafeeds.

**Tactical Approach: Expand Targeted Animal Nutrition Markets**
1. Utilize the services of U.S. universities to improve understanding of the factors that limit the replacement of standard fish-meal based diets with soy-based diets, including research on nutritional requirements in selected fish and crustacean species that use or have the potential to use large volumes of soy feeds.
2. Develop technical bulletins to communicate research results to aquaculture nutritionists and the feed industry.
3. Create a coalition with the aquaculture industry to enhance research and support for soy-based rations.
4. Develop a database that characterizes the ingredients in soybean meal for use by researchers.
5. Align federal programs with the recommendations of the Plant Products in Aquafeed Working Group, and, to the extent possible, develop new sources of funding for researchers.

**Performance Measures:**
- Technical bulletins published and distributed on salmonids research.
- Soybean meal and atypical nutrient levels determined for marine shrimp.
- One member of industry funds or shares research on soybean meal.
- Nutrition requirements identified and feed formulations determined for pompano.
- Quantifiable progress toward the development of new Federal projects or realignment of existing projects to the strategies or goals identified by the USB Animal Utilization Action Plan in general and the Plant Products in Aquafeed Strategic Plan specifically will be demonstrated.
- Web-based coordination of research on soy-based diets and communication of research results will be in place.

**Strategy: Demand Building (International Marketing)**

**Opportunity #1 – Building Demand for U.S. Soy in Growth Markets**
Rapidly growing, large volume international markets that are expanding their crushing and feed industries provide a dynamic opportunity for development of new markets for U.S. soybeans and increased inclusion rates of soybean meal in animal feed rations. Growth markets exist in China, Southeast Asia, Middle East/Eurasia, and Latin America.
1. Assist in development of value-based feed formulations creating higher inclusion rates of soy and increased ability to perform analysis of the results.
2. Provide management and production training to increase consumption of soy-based feed products by aquaculture, poultry, swine, and dairy cattle producers focusing on least cost formulation and quality control.
3. Demonstrate the IM production methodologies and feeding practices for aquaculture industries that currently have minimal use, or no use, of soybean meal in fish diets.
4. Provide training to feed manufacturers on the advantages of dehulled soybean meal and use and production of full-fat soybean meal in animal feed.
5. Support local soy crushing companies to expand their markets through the upgrading of their production processes to manufacture a high quality dehulled soybean meal product, using U.S. soybeans to compete with competitive imported soybean meals.
6. Collaborate with universities and government entities to promote the use of soy-based feeds for use in aquaculture, poultry, swine and dairy cattle diets.

Performance Measures:
• In China, 78 key feed mill groups, soy processors and second tier feed millers will become aware of the higher value of soy in feed ingredients.
• In Latin America, 50 poultry, swine, livestock and aquaculture companies will become aware of soybean meal as the preferred protein source.
• In Middle East Asia, 235 dairy producers will inquire about bypass proteins.
• In Southeast Asia, 30 preferred customers will become knowledgeable of the advantages of U.S. soybean meal.

Opportunity #2 – Building Demand for U.S. Soy in Mature Markets
Large international mature markets with sophisticated crushing and feeding industries require ongoing attention to maintain and increase when possible already large volumes of U.S. exports. Opportunities do exist in these markets to create demand for higher value niche feed products, but more emphasis is placed on building customer preference for U.S. soy in Europe, Japan, Taiwan, and Korea.

1. Collaborate with feed formulators, raw material buyers and research and development managers in innovative companies to identify and develop specialty markets for soybean products for use in young livestock animals and fish.
2. Provide technical information to livestock and poultry producers on how to lower production costs and improve the quality of animal feed products through increased soybean meal inclusion rates.
Performance Measures:
- In Europe, 6 feed companies will change to U.S. soybean meal.
- In Japan, feed companies will retain a U.S. market share of 32% in imported soybean meal.
- In Korea, 20,000 MT of soybean meal will be used in aquaculture.
- In Taiwan, 56 producers will use dehulled meal in their feeds.

Opportunity #3 – Building Demand for U.S. Soy in Emerging Markets
Emerging growth markets provide excellent opportunities to increase usage and inclusion rates of U.S. soybeans and soybean meal in the animal feed industries during their development. Opportunities exist in India, the Caribbean, Russia, Pakistan, Bangladesh, Sri Lanka and the North African countries of Algeria, Tunisia, and Morocco. Also included are worldwide opportunities to create innovative use of soy in the industries of freshwater and marine aquaculture. These underdeveloped markets have potential to create demand that does not currently exist and enables the U.S. soybean industry to develop lasting relationships in promising markets.

1. Improve managerial, profitability and inclusion rates of soybean meal and full-fat soybean meal by resolving production obstacles within the aquaculture, swine, poultry and ruminant industries.
2. Provide up-to-date technical knowledge that addresses nutrition, operations management, animal stress and disease management to aquaculture, swine, poultry, dairy cattle producers and feed manufacturers.
3. Increase product knowledge by demonstrating advantages of soy over other sources of protein through use of feeding demonstrations and computerized feed formulations.
4. Perform on-site visits to assist in development of value-based feed formulations creating higher inclusion rates of soy in fish, swine, poultry and dairy cattle feed rations.
5. Provide soybean crushing plants technical assistance and advice on all aspects of the production chain through site visits, seminars and short courses.

Performance Measures:
- In the Caribbean, 29 major poultry, swine, livestock and aquaculture operations, integrators and feed manufacturers will be convinced of the research potential.
- In the Caribbean, 43 major poultry, swine, livestock and aquaculture operations, integrators and feed manufacturers will incorporate IM’s recommendations into their practices.
- In the CIS, 9 major poultry producers or integrators will seek to collectively import.
- In the Maghreb, 9 leading feed and livestock companies will begin using U.S. soybean meal.
• In India, 120 feed operations will be convinced to use soybeans in their feeds.
• In Pakistan and Bangladesh, 9 feed manufacturers will begin using U.S. soybeans.

Opportunity #4 – Building Demand for U.S. Soy in Aquaculture Markets

Opportunities exist for further research and marketing efforts to increase use of soy products in aquafeeds. New Uses carries out research activities and International Marketing carries out marketing activities.

1. Verify soy-based diets for selected fish and crustacean species through commercial farm trials.
2. Communicate the nutritional profile of soybean meal to aquaculture nutritionists and the feed industry.
3. Evaluate opportunities for partnering with European salmon producers and researchers to develop soy-based commercial feeds.
4. Conduct feeding demonstrations with key fish species in the four targeted countries of India, Indonesia, Vietnam, and the Philippines through the Managed Aquaculture Program to demonstrate the value of and increase the demand for soy-based aquafeeds.
5. Present seminars to communicate the information on USB/IM production technologies and soy-based aquafeeds.
6. Work with feed mills producing aquafeeds to provide technical assistance and nutritional formulations featuring high soy inclusion aquafeeds.
7. Collaborate with universities, producers, and feed mills in other large aquaculture-producing regions in China, Latin America, Europe, the Middle East, and the Caribbean to promote the use of soy-based aquafeeds.
9. Demonstrate the ability to culture marine fish in the ocean with soy-based aquafeeds through the Ocean Cage Aquaculture Technology project.

Performance Measures:
• Three hundred aquaculture producers, feed millers and extension sites will become aware of IM technologies.
• Twenty of the aquaculture production units will adopt the technologies.
• Fifteen of those aquaculture production units will switch to soy-based diets.
• Five aquafeed mills will produce soy product-based diets.
• At least 80 large fish farmers will begin using soy-based extruded fish feeds.
Ability to Impact
USB can build domestic SBM demand through support of U.S. meat and poultry exports. It can build international SBM demand, which is the fastest and largest growth market, by promoting its use with the livestock and aquaculture industries. Domestic SBM consumption for animal feed has increased 1.2%, which represents over 344,730 metric tons of growth in soybean meal demand and converts to 12.7 million bushels of soybeans. International SBM consumption increased 8.9%, which represents over 11,400,000 metric tons of growth in soybean meal demand and converts to 530 million bushels of soybeans. Currently, 30 million metric tons of SBM is consumed domestically and 110 million metric tons internationally, of which 27.5 million metric tons is of U.S. origin. Domestic consumption is projected to reach 32.6 million metric tons for livestock, poultry and aquaculture production by 2008, and international consumption is projected to reach 130 million metric tons by 2008 – an 18% growth rate. This growth is attributed to increased poultry and pork production and international consumption of meat and fish products.

USB can build demand in the global aquaculture for soy-based diets. This includes supporting research to optimize the use of soybean meal and SPC in feed rations for selected species. It is projected that soybean meal inclusion rates in global aquafeeds overall will increase to 17-25% based on SBM quality and economics of fish production. Global SBM demand for the aquaculture industry is expected to exceed 10 million metric tons within the next decade, with more than 90% of that growth in overseas markets. Both the inclusion rate and total demand numbers for soybean meal are conservative. The global aquaculture industry is the fastest growing sector of animal production. Global demand for cultured aquatic products, given the limitation of zero growth in wild catch, is expected to grow from its 2000 level of approximately 32 million metric tons to more than 53 million metric tons in 2020.

Strategy/Tactical Approach Allocation: $7,545,843

Domestic Marketing: $2,137,115
International Marketing – Expand Targeted Animal Nutrition Markets: $4,775,952

Strategy: Customer Preference (International Marketing)
The approach to customer preference is primarily focused in international markets and relates to securing international buyers and creating benefits that cause them to prefer U.S.-originated soy. This will be accomplished through the following customer preference strategies: stressing the inherent value of purchasing U.S.-originated soy; stressing the safety, reliability and service available in purchasing U.S. soy; and working together with the U.S. soybean industry to achieve buy-in to move from a short-term trading mentality to a longer-term grower/exporter/purchaser partnership mindset. The U.S. currently enjoys a strong and reliable infrastructure to move soybean products efficiently to our international customers, which is a formidable advantage over South American producers.
To achieve these strategies, buyers of U.S. soybeans and soy products will be informed of the quality, value, and distribution system of the U.S. that will differentiate U.S. products from other origins. Understanding the added value buyers can capture by purchasing U.S. soy will encourage them to obtain a product with the specifications they require to fulfill their needs and their customers’ needs. Building upon relationships with multi-national grain trading companies to convince them of the advantages of differentiating U.S.-sourced products from other suppliers will benefit them as well as the U.S. soybean producer.

**Opportunity #1 – Build Customer Preference for U.S. Soy in Growth Markets**
Build relationships with, and provide service to, buyers and end users in high growth international markets where the U.S. has significant market share and International Marketing programs can influence preference for U.S. soy. China, Southeast Asia, Middle East/Eurasia, and Latin America provide the opportunity to work with expanding crushing and feed industries that account for much of the world’s growth in consumption.

**Tactical Approach: International Animal Uses - Servicing Key Accounts**
2. Enhance strategic partnerships with crushing companies by providing relevant information on the quality, value, and distribution system of the U.S. to differentiate U.S. soy products from other origins.
3. Support crushers through promotion of the U.S. soy products they produce, such as dehulled soybean meal, and provide technical assistance to their key customers.
4. Work with importers of U.S. soybean meal to promote the value of U.S. products and provide training in feed formulation practices to enable the importer to capture the added value of U.S. soybean meal.
5. Provide training in risk management techniques to maximize opportunities for buying soybeans and soybean meal from the U.S.
6. Differentiate the quality and value of U.S. soybean meal compared with competing origins targeting integrated animal production units and large feed mills.
7. Maintain meaningful presence in the local markets and serve as information resource and liaison to sustain customer loyalty.

**Performance Measures:**
- In China, 54 key customers will prefer U.S. beans with 52 key customers importing U.S. soybeans.
- In Latin America, 185 poultry, swine, livestock and aquaculture operations, integrators and manufacturers will implement practices of purchasing protein on the basis of digestible amino acids.
- In Middle East Asia, 135 major feed mills and poultry producers will use U.S. soybean meal or soybean meal from U.S.-origin beans in their feed formulations.
- In Southeast Asia, 19 preferred customers will develop a preference for U.S. soybean meal.
Opportunity #2 – Build Customer Preference for U.S. Soy in Mature Markets
Foster relationships with, and provide service to, buyers and end users in large international markets where the U.S. has been the dominant supplier but growth is limited. Opportunities exist in Japan, Korea, Taiwan, and Europe to develop markets for higher value niche feed products. Activities in these markets are focused more on building customer preference and adding value, rather than building demand.

Tactical Approach: International Animal Uses - Servicing Key Accounts
1. Partner with U.S. exporters to increase the longer-term grower-exporter-purchaser partnership mindset through personalized contact.
2. Host seminars, conferences, roundtables and trade shows to promote the utilization of U.S. origin soybean meal.
3. Provide training on disease management and modern production techniques to maintain or increase the competitiveness of local livestock producers.
4. Interface with U.S. suppliers of IP soybeans and soybean meal to help them identify and build relationships with prospective overseas buyers.
5. Organize and support buyer teams of key livestock and feed producers to observe U.S. production and infrastructure, attend training and trade shows, develop personal relationships and generate loyalty to U.S. products.
6. Identify targeted feed manufacturers and distributors who would be open to utilizing high value and specialty feed ingredients and provide technical assistance to enable them to produce and promote these products to their customers.
7. Maintain meaningful presence in the local markets and serve as information resource and liaison to sustain customer loyalty.
8. Educate animal producers on the importance of including digestible amino acids as purchasing criteria for soybean meal.

Performance Measures:
- In Europe, 25 technically advanced and innovative feed companies will become aware of U.S. soybean meal as the preferred protein source through livestock feeding trial demonstrations.
- In Japan, feed companies will use a 14.1 percent soybean meal inclusion rate in their feed formulations.
- In Korea, 27 feed mills producing swine and poultry feeds and 8 integrated livestock producers will develop a preference for dehulled U.S. soybean meal.
- In Taiwan, 22 feed millers will use dehulled meal in their feeds.

Opportunity #3 – Build Customer Preference for U.S. Soy in Emerging Markets
Build relationships and provide service to buyers and end users in smaller markets or markets with more moderate but steady growth potential during their infancy and development. Opportunities exist in India, the Caribbean, Russia, Pakistan, Bangladesh, Sri Lanka and the North African countries of Algeria, Tunisia, and Morocco.
Tactical Approach: International Animal Uses - Servicing Key Accounts
1. Partner with U.S. exporters to increase the longer-term grower-exporter-purchaser partnership mindset to develop preference for U.S. soy.
2. Maintain meaningful presence in the local markets and serve as information resource and liaison to sustain customer loyalty.
3. Organize and support international teams of key livestock and feed producers to observe U.S. production and infrastructure and attend training and trade shows to develop personal relationships and generate loyalty to U.S. products.
4. Communicate technical information and focused technical training to existing and planned soybean crushing installations in Morocco, Tunisia, and Algeria.
5. Provide technical assistance through on-site visits, workshops, publications and short courses to poultry, swine, and dairy cattle producers and feed mills to improve animal production, animal health, and nutritional aspects of feed rations.
6. Identify and demonstrate to new and existing buyers’ ways to differentiate the nutritional and economic values of U.S. soybeans and soybean meal to increase their profitability.

Performance Measures:
• In the Caribbean, 59 major poultry, swine, livestock and aquaculture operations, integrators and feed manufacturers will be convinced of the potential of soybean meal.
• In the CIS, 16 major poultry producers or integrators will adopt the promoted feed formulations.
• In the Maghreb, 20 formulators will become aware of the differences between U.S. and competitor soybean meals.
• In Pakistan and Bangladesh, 20 feed manufacturers will become aware of the potential for soybeans in products.

Ability to Impact
U.S. soybean producers, through checkoff- and FAS-funded programs, have the ability to develop strong relationships with key decision makers in the global animal production industry, which positively impact the demand for and export of U.S. soy products. Continuing to build on this strength, USB-supported staff works closely with technical and management staff of soybean crushers and processors as well as poultry and livestock producers to increase the inclusion rates of U.S. soy in their feed rations. They also provide information to potential buyers to help them make informed purchasing decisions. One measure of the impact of the customer preference program is reflected in the premiums customers are willing to pay for U.S. soybeans and SBM. Differentiating products from competitive sources resulted in preferred customers paying from $5 to $19 premiums in order to obtain U.S.-sourced products.

Strategy/Tactical Approach Allocation: $4,065,062
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Target Area: Industrial Utilization

Goal
Increase global utilization of U.S. soy.

Strategy: Biodiesel
- Tactical Approach: Biodiesel Availability and Utilization (Domestic Marketing, International Marketing, Communications)

Strategy: New Uses – Research and Commercialization
- Tactical Approach: Developing Industrial Products for Petrochemical Market (New Uses, International Marketing)
- Tactical Approach: Soy-based Product Outreach (New Uses, Domestic Marketing, Communications)

Market Environment
The market environment for industrial utilization of soybean derivatives reflects several factors:
- Rising costs for petrochemical raw materials (crude oil and natural gas), along with changing environmental regulations and industry standards, are creating significant opportunities in the marketplace for soy-based industrial products not only in the United States but in some of our international markets as well. Emerging soy industrial products include: soy methyl esters or modified soy oil for road paving, bioremediation, mosquito control and industrial solvents; polyurethane and polyester plastics for foams, composites and elastomeric coatings such as bedliners and carpet backing; industrial paints and coatings; printing inks and lubricants.
- At the same time, labeling requirements for trans fatty acids and general concerns for fats in the diet have initially reduced consumption and are slowing the growth of consumption of edible soybean oil.
- Rising industrial demand for soybean oil is projected to cause increased U.S. crush leading to additional supplies of soy meal and stable meal prices, offering opportunities for soy meal and protein derivative use in such areas as adhesives and thermoplastics. Global increases in meat and poultry production will help to steady meal prices.

Industrial uses such as plastics are growing due to their higher value and are not dependent on direct subsidies to sustain market growth. Improved technology is needed in the areas of product performance and production cost optimization as well as support to stimulate market trial and penetration.

Federal and state incentives for biodiesel production and use have become the biggest factor impacting the market demand for soy biodiesel in the near future. The federal tax credit of one penny per percent of soy biodiesel in a fuel blend equates to a $1/gallon
incentive, and additional incentives of $0.10/gallon at the federal level and varying incentives at the state level are generating significant interest and increased production capacity for biodiesel. Demand for soybeans in 2006 led to higher prices. Demand and prices are expected to continue on that path in 2007 and into 2008 due to an estimated 11 percent decrease in planted soybean acres in 2007. The 2006 U.S. soybean crush combined with some reduction in food demand created large carryover stocks of soybean oil. Increased biodiesel demand helped to prevent significant price erosion for oil holding at an average of 27.5 to 29.5 cents per pound in 2006 and early 2007. Rising crude petroleum and petrodiesel prices have kept biodiesel prices competitive and demand is growing. Long-term, the federal biodiesel incentives are set to expire in December 2008. Their extension will be dependent on market factors and political policy at that time.

Biodiesel remains an important factor in communicating to the soybean farmer audience. Although the National Biodiesel Board (NBB) does provide communications materials to the industry and government sectors, USB Producer Attitude Surveys indicate how important farmers view the continued checkoff effort to increase availability and use of soy biodiesel. In fact, the surveys indicate users of biodiesel support the soybean checkoff at a higher rate than non-users. Additionally, the surveys show that nearly half of soybean farmers have seen, read or heard something in the past year about problems using biodiesel. More importantly, the producer audience is evenly split when determining whether those problems have been resolved. It will become increasingly important for the soybean checkoff to provide information about the quality and diesel engine performance benefits of soy biodiesel to these key audiences.

A new FY06 survey of Federal Employees’ “perception of use or purchase” of biobased products within the federal government shows that over the past five years 51 percent of federal employees surveyed perceived an increase. When it comes to purchasing biobased products, nearly 80 percent of agency employees surveyed believe the Federal Mandate/Executive Orders are the top factor used in government purchasing decisions about biobased products. In addition, over the past year 36 percent of biobased vendors surveyed indicated their sales to federal agencies increased, and about 42 percent of vendors indicated sales to federal agencies increased by more than 50 percent over the last three years.

**Strategic Approach**

The Industrial Utilization Target Area has two strategies: 1) biodiesel; and 2) new uses research and commercialization. The strategic approach for biodiesel includes the continued support of the national Biodiesel Board’s efforts in the areas of Industry Communications and Coordination, Technical and Operations Support, BQ 9000 Quality Assurance, providing biodiesel communications support to Qualified State Soybean Boards and direct funding for state-based soy biodiesel and soy biobased products communications activities. Four additional strategies for FY 2008 and beyond are Original Equipment Manufacturer (OEM) engine testing, oxidative stability testing follow-up and development and resolution for precipitates above the cloud point with B100.
The soy-based products outreach approach focuses on increasing acceptance and usage of biobased products within the public and federal markets. The federal market is large and can be a market leader for other levels of government and the private sector. The strategic focus for biobased products is on leveraging USB’s efforts with manufacturers and federal agencies, and promoting the various incentives and drivers in place within the federal government to move biobased products into the market.

The strategy for new uses research and commercialization involves supporting research of new product applications for plastics, coatings (i.e., paints), inks, adhesives, lubricants, solvents and emerging industrial opportunities while working to increase awareness, interest, trial and adoption of soy-based products within industry and the federal government.

Strategies for New Uses Research and Commercialization involve a multi-faceted approach.

Diversifying – This strategy focuses on multiple areas with significant potential for soy use to reduce the risks associated with dependence on a few large markets such as food and biodiesel and demonstrate successful results across a balanced portfolio for emerging markets. Four industrial markets have been analyzed and selected – plastics, lubricants, coatings/inks/adhesives, and emerging industrial opportunities.

While the primary focus has been on modification and industrial use of soy oil, additional research on industrial uses for soybean meal will be explored in FY 2008 to balance the expanded oil demand. Examples include thermoplastic products from soy protein for films, molded products and rubber and adhesive products from modified soy flour for replacement of formaldehyde in engineered wood such as oriented strand board, particle board and plywood.

USB New Uses will continue to expand research to utilize glycerin from the production of soy biodiesel.

Defending current markets – This involves research to increase soy oil reactivity to provide base technologies to defend current markets in inks and coatings, the largest current markets for industrial uses of soybean oil at an estimated quarter billion pounds annually. Greater reactivity would provide for increased soy content and expanded applications in plastics, coatings and adhesives.

Leveraging current trends – The leveraging strategy involves developing new products based on emerging mid-oleic oil from QUALISOY varieties. The greater oxidative stability of this oil is highly desired for food uses and also preferable for some industrial applications such as crankcase oil and hydraulic fluid formulations in lubricants.

Reducing production costs – This effort’s focus is on developing improved processes to produce soy methyl esters for biodiesel, soy protein concentrates and other uses. New
enzymatic catalysts show promise to reduce energy costs associated with production of soy derivatives such as polyols and polyester resins in plastics.

Expanding use of existing soy technologies – Expanding the use of existing soy technologies includes developing new product applications such as automotive uses for soy polyols with Ford. A pull-through strategy has been effective in reaching end-users which, in turn, require soy use by their suppliers.

Leveraging resources – To effectively leverage USB resources, this approach will seek matching funds from federal programs and/or commercial partner contributions. A majority of projects have commercial partners identified prior to funding with USB industrial partner spending exceeding USB contributions by as much as 10:1 in some cases.

Expanding awareness to stimulate trial and adoption – This is a three-pronged approach: transfer new technology and develop partnerships with corporate parties; provide technical and marketing support for commercial start-ups; and monitor regulatory changes and their impact. This also involves communicating the output of soy industrial research and development activities to QSSBs and USB’s International Marketing, Domestic Marketing, and Production programs.

The Soy-based Products Outreach tactical approach focuses on increasing acceptance and usage of biobased products within the public and federal markets. The federal market is large and can be a market leader for other levels of government and the private sector. The strategic focus for biobased products is on leveraging USB’s efforts with manufacturers and federal agencies, and promoting the various incentives and drivers in place within the federal government to move biobased products into the market. The opportunity for soy industrial product development has also been expanding internationally in FY 2008 it is expected that technology transfer and international research into soy-based industrial products and applications will be accelerated.

USB will continue to promote the use of biobased products through the federal procurement system by continuing trial and adoption programs with identified federal agencies. These efforts are even more important now since the U.S. Department of Agriculture (USDA) published final guidelines that establish provisions for the Federal Biobased Products Preferred Procurement Program, which requires all federal agencies to preferentially purchase biobased products designated by USDA as eligible under this program. The new guidelines establish the process by which USDA will designate items for preferred procurement by federal agencies. Federal agencies must assure within one year after the publication of this final rule that their procurement practices require the preference of biobased products consistent with this rule. So far, six items (categories of products such as penetrating lubricants, roof coatings, hydraulic fluids, etc.) have been designated by USDA and additional items will be designated in the coming year.
Ability to Impact
USB can impact the Industrial Utilization Target Area by supporting development of new technologies and through research and technology transfer to partners for awareness, interest, trial and adoption. USB-sponsored Technical Advisory Panels (TAPs) and participation at selected trade/tech shows have been particularly successful in fostering the advancement of soy-based industrial products and applications. The recent surge in petroleum and natural gas prices has put soy-based industrial products in a very favorable economic position and has swung the emphasis to proving out performance and assuring availability and quality of soy-derived industrial materials to the marketplace.

Target Area Allocation: $7,702,814

Strategy: New Uses Research and Commercialization (New Uses)

Opportunity #1 – Develop Soy-based Plastics for Petrochemical Market
Improve soy polyol and soy polyester resin reactivity, which will increase soy content in formulations, expand applications and enhance manufacturing processes and quality control.

Tactical Approach: Developing Industrial Products for Petrochemical Market - Plastics
1. Fund, monitor and advise industry on research that addresses improved performance of soy polyols for polyurethanes and polyester resins.
2. Provide independent technical information to basic suppliers, formulators, molders and fabricators on performance of soy polyols and soy polyester resins and the corresponding processes/product research.
3. Monitor and advise academic and industrial partners on the development of polyols with low odor and improved performance properties.

Performance Measures:
• At least three new soy-based polyester resin composites or soy polyol containing polyurethane formulations in tests with parts manufacturers and primary product suppliers.
• An increased range of soy polyols with improved reactivity, high molecular weight and good processing viscosity developed for polyurethanes.
• Product specification established for at least two modified soy oil polyols.
• Odor and color level of soy polyols found acceptable to the polyurethane low density flexible foam and adhesive markets.

Opportunity #2 – Develop Soy-based Plastics for Petrochemical Market
Industry and government recognition of economic, functional and marketing benefits of soy polyester resins and polyurethanes containing soy polyols.
Tactical Approach: Developing Industrial Products for Petrochemical Market - Plastics

1. Provide technical information and conduct on-site visits with active researchers at companies comprising manufacturers, formulators and the rest of the supply chain in key plastic markets.
2. Provide technical information about soy thermoset plastics to military and government suppliers for their evaluation and use in procurement decisions.
3. Conduct life cycle studies for flexible and rigid polyurethane foam applications.
4. Pursue non-automotive thermoset soy polyester composite applications utilizing simple and complex molding processes.
5. Complete evaluation of thermal insulation value of soy-based polyurethane foams versus other insulating materials.
6. Accelerate interaction with the resin producers and transportation industry (automotive, marine, and rail) to achieve evaluation of soy-based thermoset products.
7. Develop information on market opportunities for soy meal-based thermoplastics.

Performance Measures:
- Market introduction of two new soy-based polyurethane applications.
- Introduction of at least one new soy-based polyester resin application.
- One additional automotive company and their tier suppliers evaluating soy thermoset plastic applications.
- One additional life cycle study completed, published and distributed.
- Market opportunity analysis for thermoplastics completed and published.

Opportunity #3 – Develop Soy-based Plastics for Petrochemical Market
Discovery, research and development of new soy industrial opportunities for plastics.

Tactical Approach: Developing Industrial Products for Petrochemical Market - Plastics

1. Fund research and development of soy oil as a monomer platform leading to multiple new products and applications in plastics and other target markets.
2. Identify opportunities for new novel technologies from targeted companies involved in developing soy-based plastics resins and modified rubber.
4. Monitor and evaluate enzymatic approaches to production of soy polyols.
5. Explore the opportunity for glycerin/acetal use as an intermediate building block to make a water-soluble polymer.
6. Explore outside partnerships and solicit funding support for leveraging USB efforts.
7. Encourage researchers to pursue novel chemistries working with the triglycerides (metathesis and conjugation) and soy protein.
8. Transfer information to DOE and USDA via the Technical Advisory Committee on Biomass Research and Development regarding use of proteins as a base chemistry for plastic production.
9. Explore the opportunity for dioctyl-phthalate replacement with modified soy polyol.
10. Investigate the use of soy carbohydrates extracted from soybean meal as potential reactive materials (sugar polyols) for use in thermoplastics and/or thermoset plastics.

**Performance Measures:**
- At least two new candidate products/formulations and/or processes eligible for further development.
- At least one plastics manufacturer identified and committed to jointly pursue with USB the use of soy protein in targeted applications for thermoplastics or modified rubber.
- One defined project addressing industrial use of soy carbohydrates.

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**Opportunity #4 – Develop Soy-based Lubricants for Petrochemical Market**
Maximize market penetration by improving both high and low temperature performance of a soybean lubricant base stock in a high quality blended engine oil formulation.

**Tactical Approach: Developing Industrial Products for Petrochemical Market - Lubricants**
1. Evaluate, as base stocks for engine oil and other lubricant applications, higher oleic soy oils being developed through QUALISOY and other breeding activities.
2. Monitor and advise industry partners on results of the testing program.
3. Evaluate, as base stocks for engine oil and other lubricant applications, oils with improved high temperature oxidation stability produced from soybean oil using chemical modification (hydrogenation, catalysis, reformulations, etc.).
4. Monitor and advise industry partners on appropriate additive formulations to improve high temperature stability and assure low temperature flow.

**Performance Measures:**
- Research quantities of chemically improved oils developed for evaluation by formulator partners.
- A candidate engine oil formulation with an elevated oleic acid content soybean oil base stock, with an appropriate additive package, meets low temperature flow requirements and key industry engine stand testing standards.
- A candidate food grade and/or soy-based hydraulic fluid passing standard bench tests and undergoing high performance pump stand testing.

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**Opportunity #5 – Develop Soy-based Lubricants for Petrochemical Market**
Supply of an adequate and timely elevated oleic acid content soybean oil lubricant base stock to meet research needs.

**Tactical Approach: Developing Industrial Products for Petrochemical Market - Lubricants**
1. Ensure adequate quantities of an elevated oleic acid content soybean oil is produced to supply soybean lubricant base stock for testing needs.
2. Participate with other high-oleic soy and vegetable oil organizations, as appropriate, in achieving a consistent and readily available product for the engine oil and hydraulic industries.
3. Work to assure quality and consistency of oil from new varieties.

**Performance Measures:**
- Sufficient quantities of mid-oleic oil available for testing and evaluation in non-engine oil applications.
- Sufficient quantities of high-oleic soybean oil are available for engine oil testing and evaluation.
- Plans being implemented for production of sufficient commercial quantities of improved soybean oil to meet the volume needs of potential users.

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**Opportunity #6 – Develop Soy-based Lubricants for Petrochemical Market**
Acceptance by formulators, original equipment manufacturers and other industry partners of soy blends for high volume lubricants.

**Tactical Approach: Developing Industrial Products for Petrochemical Market - Lubricants**
1. Work with lubricant manufacturers on the selection of suitable high-oleic candidate or other improved soy basestocks for engine oils, hydraulic fluids and other applications.
2. Seek outside funding to offset formulator cost of engine stand testing.
3. Monitor and advise formulation development and perform certification testing of qualified products (engine and pump stand tests) in partnership with knowledgeable formulators.
4. Quantify impact of qualified soy-based lubricants on energy efficiency, emissions and equipment life.
5. Investigate current waste oil recovery and disposal options to determine special needs, if any, for soy lubricants.
6. Conduct detailed life cycle analysis based upon data collected from FY07 and FY08.
7. Provide technical information to targeted companies/individuals in key markets.
8. Support technology transfer of soy-based transformer fluids and advise on development activities to improve low temperature properties.

**Performance Measures:**
- Involvement of a third significant formulator of finished products.
- Increased interest documented by a major OEM.
- Additional industry partners conducting soy-based product trials for hydraulic fluids and other lubricant applications.
- Oxidatively-stable candidate undergoing qualification via specified engine stand tests.
• Recycling and/or recovery approach for suitable disposal of soy-based lubricants resolved.
• Volume of soy oil use in transformer fluids shows significant growth.

Opportunity #7 – Develop Soy-based Lubricants for Petrochemical Market
Discovery, research and development of new opportunities and additional applications for soybean lubricant base stock.

Tactical Approach: Developing Industrial Products for Petrochemical Market - Lubricants
1. Provide technical and financial support for new selected R&D opportunities.
2. Define potential for chemical modification approaches to control high temperature oxidation without loss of low temperature properties.
3. Continue and increase sampling of candidate mid-oleic soy oils for non-engine lubricant applications including transmission fluids and other applications.
4. Explore outside partnerships and solicit funding support for leveraging USB efforts.
5. Transfer conventional soybean oil formulation technology to existing lubricant formulators and encourage partnerships with soybean oil suppliers to expand the range of lubricant products.

Performance Measures:
• At least one additional metal working fluid introduced.
• Food grade/soy-based hydraulic fluid undergoing pump testing.
• Mid-oleic soybean oil being tested as a replacement for petroleum basestocks in at least three applications.
• At least two products introduced into the existing lubricant market.

Opportunity #8 – Develop Soy-based Coatings/Inks/Adhesives for Petrochemical Market
Reduce costs, improve stability and cure rates to increase soy utilization.

Tactical Approach: Developing Industrial Products for Petrochemical Market - Coatings, Printing Inks & Adhesives
1. Transfer industry partnership technology from oil-based alkyls to waterborne systems, and work to expand soy concentration beyond current 10% levels.
2. Transfer technology obtained on UV and EB ink formulas and soy-based coating intermediates and resins to industry.
3. Evaluate soy adhesive technology for use of modified soy meal (flour – about 48% protein) in oriented strand board (OSB) to replace formaldehyde and phenol.
4. Work with a major resin company in the development of candidate products from soy oil and soy protein that can economically compete with urea and/or phenol formaldehyde in interior/exterior OSB, particleboard, medium-density fiberboard and plywood production.
5. Identify if the variability of soy flour affects performance in wood composite adhesives and determine how to accommodate the natural range of variation through formulation and process adjustment.

**Performance Measures:**
- New soy resin-based coatings developed for at least one commercial application.
- New soy-based resins in waterborne coatings undergoing market trials.
- Cure rate technology in market development for use by coating and printing ink companies.
- A major resin company introduces a candidate adhesive product to the marketplace in 2008.

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**Opportunity #9 – Develop Soy-based Coatings/Inks/Adhesives for Petrochemical Market**
Industry recognition of economic, functional and marketing benefits of soy-based coatings, printing ink and adhesive technologies.

**Tactical Approach: Developing Industrial Products for Petrochemical Market - Coatings, Printing Inks & Adhesives**
1. Provide technical information to target companies/individuals in key markets.
2. Gain industry approval for soy-based products through recognized ASTM standards.
3. Conduct life cycle studies for soy adhesive and coating systems compared to petrochemical-based systems and communicate information to users and government agencies.
4. Communicate technical needs along with performance, environmental and economic benefits to downstream users, thereby creating market pull for company adoption.
5. Develop information on market opportunities for soy meal/protein-based adhesives.

**Performance Measures:**
- At least one additional coating additive product introduced.
- A major resin company assumes a marketing role for soy-based adhesives.
- One retail paint company producing a new soy-based waterborne resin for use in low VOC, environmentally sensitive coatings marketplace.
- Additional companies utilizing the soy-based formaldehyde-free glue system in particle board or oriented strand board production.
- Market opportunity analysis for soy-based adhesives completed and published.

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**Opportunity #10 – Develop Soy-based Coatings/Inks/Adhesives for Petrochemical Market**
Discovery, research, and development of new soy industrial opportunities for coatings, printing inks and adhesives.

**Tactical Approach: Developing Industrial Products for Petrochemical Market – Coatings, Printing Inks & Adhesives**
1. Determine a candidate soy-containing powder coating resin for market trials.
2. Investigate the potential of soy oil polyol urethane formulations for coatings, adhesives and sealants.
3. Explore outside partnerships and solicit funding support for leveraging USB efforts.
4. Determine the technical feasibility of using soy polyols in industrial coatings.
5. Determine the technical feasibility of using soy-based resins in paint emulsions (soy oil and water mixture).
6. Explore other technologies for formaldehyde-free adhesives in wood composites.
7. Explore soy-based latex adhesives.
8. Determine the technical feasibility of soy-based labeling glues.

**Performance Measures:**
- A new soy-containing powder coating resin licensed to a global resin supplier for market trials.
- Additional wood composite adhesive product in market development trials.
- Technical feasibility established for at least one soy polyol or soy-based resin for coating applications.
- One new technology to develop formaldehyde-free wood glue technology identified.

**Opportunity #11 – Develop Emerging Soy-based Technologies for Petrochemical Market**

Discovery, research and development of new soy oil and meal technologies.

**Tactical Approach: Developing Industrial Products for Petrochemical Market – Emerging Industrial Opportunities**
1. Conduct field trials with moldicide, bioremediation, paving materials and mosquito larvicide products.
2. Work with industry to prove emulsified soybean oil effectiveness in bioremediation.
3. Evaluate commercial potential of emerging soy asphalt replacement and preservative materials.
4. Work with industry to develop, prove and commercialize alternative soy-based solvent chemistries.
5. Explore the potential for soybean oil/glycerin powered biofuel cells for battery replacement.
6. Explore outside partnerships with regional farm groups, cooperatives and bioprocessing companies.
7. Solicit funding support for leveraging USB efforts.
8. Monitor and support co-product glycerin research for multiple uses.
9. Monitor and explore fermentation and other process work on soy protein that could enhance the opportunity for soy protein industrial uses.
10. Explore processes that could add industrial use value to lower value soy components such as sugars, cellulose/hemicellulose and lignins.

**Performance Measures:**
• At least three new products/applications identified for commercialization pursuit.
• Two new partners identified for cooperative projects.
• Field trials conducted with moldicide, bioremediation, paving materials and mosquito larvicide products.

Opportunity #12 – Develop Emerging Soy-based Technologies for Petrochemical Market
Process improvement for cost and performance benefits.

Tactical Approach: Developing Industrial Products for Petrochemical Market – Emerging Industrial Opportunities
1. Monitor research and development progress with USB partners.
2. Investigate new value-added uses for co-product glycerin uses to offset soy methyl ester (i.e., biodiesel) production costs coordinating activities with plastics and coatings research.
3. Investigate emerging bioprocessing alternatives for oil, protein, and value-added products from carbohydrates to reduce total processing costs for soy-based end products.
4. Monitor prices of soy-based products versus petroleum and natural gas-derived products to ascertain economic competitiveness opportunities.

Performance Measures:
• Commercialization potential of two novel soy and soy byproduct manufacturing processes determined.
• Pricing trend analysis updated and republished.

Opportunity #13 – Develop Emerging Soy-based Technologies for Petrochemical Market
Industry awareness, trial and adoption of emerging industrial soy-based opportunities.

Tactical Approach: Developing Industrial Products for Petrochemical Market – Emerging Industrial Opportunities
1. Transfer soy methyl ester product property and performance data along with starter formulations to formulators and end-users.
2. Provide technical information on emerging technologies to targeted companies/individuals in key markets.
3. Conduct life cycle studies of soy-based products versus petrochemical products to determine total system economic and environmental benefits.
4. Continue support for development and introduction of organic co-solvent blends with products like d’Limonene to enhance methyl soyate properties.
5. Provide information to formulators, distributors, equipment manufacturers, government and end-users on soy solvent properties that enhance performance in market applications.
6. Develop information on market opportunities for soy-based solvents.
Performance Measures:
- At least two new companies introducing soy-based products.
- At least three new soy-based products in development.
- Life cycle study on an additional soy-based specialty product application conducted.
- Updated market opportunity analysis for soy-based solvents completed and published.

Strategy: New Uses Research and Commercialization (International Marketing)

Opportunity #1 – Develop Coatings/Inks/Adhesives for Petrochemical Market

Tactical Approach: Developing Industrial Products for Petrochemical Market – Coatings, Printing Inks and Adhesives
1. Provide technical assistance and additional information to encourage further development of soy ink in Japan.
2. Through information transfer and participation in conferences and trade shows, promote the benefits of soy ink, biodiesel and soy-based industrial products to the printing industry in Taiwan.

Performance Measures:
- In Japan, at least two chemical and/or solvent manufacturers will start research on the benefits of producing and marketing soy-based industrial products.
- In Taiwan, workshops in conjunction with the local universities, research institute and industry organization will produce at least 40% of the participants showing their interest in producing and using soy ink, biodiesel and soy-based industrial products.

Strategy: New Uses Research and Commercialization (New Uses)

Opportunity #1 – Build Awareness and Demand for Soy Products
Provide coordinated communications messages and materials to help industry awareness of technology and products.

Tactical Approach: Soy-Based Product Outreach
1. Update and create new collateral materials.
2. Provide information on soy technology and products and/or manufacturer contact information per industry request or as new technology/products are made available.
3. Update, print and distribute soy products catalog to industry leaders.
4. Maintain bi-monthly distribution of New Uses industrial e-newsletter, highlighting new technologies, products and end markets in which they can be used.
5. Utilize New Uses Web site as a key source for updated information on technology and producers and/or manufacturer contacts.
6. Maintain and increase one-on-one relationships with media representatives to increase their awareness of soy technologies and products.
7. Develop and distribute media articles, press releases and advisories to targeted industry media.
8. Create media database that will serve as a resource to help facilitate contact with key media outlets.
9. Supply meeting support and collateral materials for trade shows and industry meetings.

**Performance Measures:**
- Awareness of products and technologies increased by 5 percent.
- Readership approval of Biobased Solutions maintained at 85 percent or higher.
- Web traffic to New Uses Web site increased by 10 percent.
- Checkoff-funded technologies and/or products featured in 10 or more trade publications.

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**Strategy: New Uses Research and Commercialization (Domestic Marketing)**

**Opportunity #1 – Build Awareness and Demand for Soy Products**
Reduce obstacles and leverage incentives to increase federal purchasing of soy-based products.

**Tactical Approach: Soy-Based Product Outreach**
1. Identify and communicate information as well as respond to questions concerning performance and content standards, environmental information and product certification methods to reduce uncertainty of quality and consistency among customers.
2. Track and review technical implementation issues related to the preferred purchasing program for biobased products (BioPreferred), which was authorized by the 2002 Farm Bill.
3. Track government purchasing activities that provide opportunities to expand the use of soy-based products.
4. Participate in government and industry meetings related to the procurement of biobased products.
5. Identify and initiate demonstration projects or educational outreach activities with agencies that want to increase the use of biobased products.
6. Work with agencies to identify “best management” practices that are effective in expanding the use of biobased products.
7. Work with agencies to provide information on soy-based products that can be incorporated into their affirmative purchasing programs for USDA-designated biobased items.
8. Identify pending contracting and subcontracting opportunities with Federal agencies and share info with product manufacturers.
9. Assist product manufacturers getting products listed with GSA, DOD E-Mall, JWOD and USDA.
10. Survey and/or otherwise gain information from product manufacturers and/or federal agency personnel about the level of biobased product purchasing within the federal government.

**Performance Measures:**
- Demonstration projects or educational outreach efforts initiated with three or more agencies that are implementing biobased purchasing programs.
- Successful “best management” practices and/or affirmative purchasing programs for biobased products being used by one or more federal agencies and information about these activities shared with other federal agencies.
- Five or more products listed on the USDA List of Designated Items, GSA Multiple Awards Schedule, DoD E-Mall and/or JWOD.
- One or more federal agencies and/or product manufacturers reporting an increase of 10% or more in the purchasing of biobased products.

**Opportunity #2 – Build Awareness and Demand for Soy Products**
Increase awareness and knowledge within private, federal and public sectors regarding biobased product performance and benefits to stimulate growth of biobased products.

**Tactical Approach: Soy-Based Product Outreach**
1. Support soy-based product manufacturers in their efforts to increase awareness and adoption of their products.
2. Update USB information kits with relevant manufacturer information.
3. Maintain and update the USB [www.soybiobased.org](http://www.soybiobased.org) resource center of user testimonials and other information for federal procurement of biobased products.
4. Monitor government and environmental awards programs, such as the White House Closing the Circle Award, for successes in soy-biobased products that can be shared throughout the government and with biobased manufacturers.
5. Use the Grassroots Enterprise electronic system to evaluate readership and interest of the Biobased Solutions for Government newsletter and other materials that are distributed electronically, as well as support research survey work.
6. Survey and/or otherwise gain information from the federal government audience about the level and awareness and knowledge of biobased products.
7. Continue to provide "early adopter" kit information on products and other relevant information to specific individuals in the buying chain as well as to individuals who can affect purchasing decisions. Update the contents of the early adopter kits as needed.
9. Respond to questions about performance, content, certification and testing issues raised by federal agencies interested in using biobased products.
10. Attend and participate in conferences and meetings that provide opportunities to share information about the availability and benefits of products to the government purchasing community.
11. Work with, and leverage the efforts of, officials at USDA, DOE, Office of the Federal Environmental Executive, OMB, EPA, Department of Interior and others who are working to increase the use of biobased products in the federal government.
12. Identify informational resources on biobased products and purchasing that will be useful to the government purchasing community and that can be posted on the USB-approved electronic resource center/Web site.
13. Provide information for state-based bioproduct promotion activities that will increase availability and use of bioproducts within a state.

**Performance Measures:**
- Determine awareness and knowledge of biobased products among the federal government audience measured through one or more of the following techniques: general survey of agency personnel, newsletter readership survey, www.soybiobased.org user survey, Best Practices Guide feedback questionnaire, and/or feedback from conferences and meetings where USB materials are distributed.
- Distribution list for the newsletter increased by 300 people who are involved in government procurement.
- Four new informational materials added to the electronic resource center/Web site www.soybiobased.org.
- Testimonials of six “Biobased Champions” in the federal government documented and distributed.
- Specific information about the availability and benefits of industrial products provided to at least 200 individuals who are: (1) in the federal procurement system; (2) federal environmental staff; and/or (3) state, local, and private sector representatives.
- Information provided to one or more QSSBs participating in a state-based product promotion program.

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**Ability to Impact**

Soybean oil can be an effective competitor to petrochemical products both functionally and economically. In the past decade, scores of new soy industrial products have been launched as a result of checkoff funding, including plastics, lubricants, coatings, inks, adhesives and solvents.

Checkoff funding has been effective in the development of new technologies through research and in transferring technologies to partners to gain trial and adoption. The latest dramatic impact of petroleum and natural gas price increases over the last year has opened unique opportunities for soy-based industrial products to compete. The checkoff can support research to reduce processing costs for soy products to further improve competitiveness. The checkoff cannot influence regulatory issues, but has responded to regulations that favor soy product use by developing products that have economic advantages in meeting regulations and assists in the development of procurement standards and guidelines that encourage active adoption.
USB will continue to promote the use of biobased products through the federal procurement system by continuing trial and adoption programs with identified federal agencies. These efforts are even more important now since the U.S. Department of Agriculture (USDA) has both published the final guidelines for implementing the Federal Biobased Products Preferred Procurement (“BioPreferred”) Program, which was created under the 2002 Farm Bill, and issued multiple rules that include hundreds of biobased products that government agencies are expected to purchase under the program. The guidelines establish the process by which USDA will designate items for preferred procurement by federal agencies and the other rules designate those items. Federal biobased procurement was also aided in December 2006 when the Federal government proposed adding biobased product purchasing to its Federal Acquisition Regulation that contains the uniform policies and procedures for acquisition of government agencies.

The Federal biobased program has also triggered states to approve legislation that is modeled after the Federal biobased procurement programs. Arkansas and Indiana legislatures have passed laws that will have their state government agencies buy biobased products that are designated under the Federal program.

**Strategy/Tactical Approach Allocation: $5,081,004**

**Domestic Marketing:** $448,860  
**New Uses:** $4,626,642  
**International Marketing:** $5,502

**Strategy: Biodiesel (Domestic Marketing)**

**Opportunity #1 – Build Biodiesel Support and Use**
Coordinate, communicate and educate key decision makers and stakeholders of both the societal and operational benefits of biodiesel blends and the issues impacting the growth of biodiesel fuel consumption, such as fuel quality, to gain support and increase the availability and use of such fuels.

**Tactical Approach: Biodiesel Availability and Utilization**
1. Target soy biodiesel messages and coordinate to key audiences through trade organizations, associations, publications and general media through a comprehensive communications and coordination effort.
2. Promote and advertise fuel quality by educating users, marketers and suppliers about the ASTM specification and BQ-9000 quality assurance program.
3. Encourage sales of biodiesel blends and build industry credibility.
4. Promote the use of biodiesel in the home heating oil market Bioheat®.
5. Document the economic and societal benefits of increased biodiesel production and use.
6. Provide technical, economic and information support to agencies, ASA, state soybean associations, and other stakeholders in the areas of fuel management, operations and maintenance, and on national biodiesel incentives.
7. Support QSSBs and other industry stakeholders in their biodiesel programs and activities.
8. Coordinate and prioritize biodiesel industry needs.
9. Provide support to state biodiesel coalitions.
10. Provide timely updates to Alliance and Backer members to assist them in staying current on the biodiesel industry.

**Performance Measures:**
- Media coverage increased by 10% including 15 of the top 20 national market hits.
- Increase of 15% in BQ-9000 Accredited Producers/Certified Marketers.
- Increase the number of home heating oil marketers who are providing Bioheat® by 15%.
- Conduct 6 Quality Assurance Training Sessions through web casts and on-site meetings.
- Increase promotion and advertisement by 20% showing the importance of quality assurance and BQ-9000 with all stakeholders through different media types and articles or news releases.
- Growth of the Biodiesel Alliance and Backers membership by 15%.
- Conduct one survey of Alliance and Backers members regarding increased support for biodiesel, including relevant information for Original Equipment Manufacturers.
- Increase public awareness of biodiesel.

**Opportunity #2 – Build Biodiesel Availability and Use**
Educate potential users and key decision makers within the diesel market, with significant emphasis on the trucking market and home heating oil market, to gain support and increase the acceptance and use of biodiesel blends.

**Tactical Approach: Biodiesel Support and Use**
1. Promote the use of biodiesel/low blend biodiesel to key organizations and influencers in the trucking industry and home heating oil market.
2. Create targeted biodiesel messages through collateral materials, special events and tours for dissemination to key audiences.
3. Provide information and technical support in the areas of fuel management, operations and maintenance.
4. Support QSSBs in their truck industry outreach activities.
5. Educate dealers on benefits of Bioheat®.
6. Continue the strategic marketing and operational partnership with the leadership of National Oilheat Research Alliance (NORA).

**Performance Measures:**
- Increase awareness among truck fleet managers of the benefits of biodiesel and the issues facing the trucking industry by 30%.
- Increase number of dealers using B5 Bioheat® by 15%.
• Increase biodiesel use within the trucking industry by truck accessible pumps through an increase of 15%.
• Increase awareness and usage within the trucking industry of biodiesel’s potential as a lubricity additive by 20%.
• Increase number of fuel distributors and/or petroleum marketers selling low blends of biodiesel and achieving greater farmer use of low blends by 20%.

Opportunity #3 – Build Biodiesel Support and Use
Continue to gain support from OEMs, including strong warranty statements and the use of biodiesel as a part of the OEM's brand identity.

Tactical Approach: Biodiesel Availability and Utilization
1. Respond to field-related technical inquiries posed by the various OEM manufacturers.
2. Collaborate with OEMs to facilitate and respond to specific inquiries from fleets.
3. Quantify the effects of various ULSD blends on new and existing engines in the field through existing programs with OEMs.
4. Evaluate and review fleet results with OEMs. If necessary, conduct additional testing.
5. Provide resources for educating diesel mechanics and diesel shop supervisors on biodiesel and biodiesel blends.
6. Conduct collaborative tests at OEM or outside test facilities as required.
7. Provide Industry wide fuel quality information by analyzing samples of B2-5, B11, B20 and B100 for quality.
8. Provide resources for completing the effort to address the issue of precipitates above cloud point to finalize a product specification B6-B20.

Performance Measures:
• Publicize the report of results/findings for ULSD blends.
• Twenty-five samples of B20 and 25 samples of B100 analyzed for quality, with results included in an annual report.
• Conduct 10 training programs on-site or CD-Rom/DVD for diesel mechanics and diesel shop supervisors.
• Increase the use of the Biodiesel Hotline by 20%.
• Find a resolution to the precipitates above cloud point and report the findings.
• Positive B20 warranty statements issued by 3 OEMs that have not previously announced B20 support.

Opportunity #4 – Build Biodiesel Support and Use
Respond to industry technical needs to help ensure continued growth. Technical needs could include: 1) confirmation of existing databases with ULSD, as the petroleum industry has indicated that ULSD will be different in 2008 than 2007; 2) materials compatibility testing with blends greater than B20; 3) development of alternative methods for biodiesel analysis; and 4) quantification of biodiesel on water separators.

Tactical Approach: Biodiesel Availability and Utilization
1. Provide a comprehensive database of the impacts of various types of biodiesel meeting D 6751 in B2, B5, B11, B20, B25, B50 blends with five different S15 petrodiesel fuels representing the range of commercial ULSDs available in the fall/winter of 2008.

2. Determine the impact of various biodiesel blends on water separator performance.

3. Boost consumer confidence and fuel quality by decreasing testing costs and improving system reliability.

4. Encourage the development of quicker, less expensive analytical methods for biodiesel.

5. Work with component suppliers of elastomeric materials (rubbers, seal and hose material, etc.) through the SAE J30 working group to complete a literature search of known information on these materials with high levels of biodiesel and to encourage these companies to conduct such research where it is not available.

**Performance Measures:**
- Ensure that curves will be developed for the various fuels for each parameter with each fuels blend. These findings will be reported.
- A database will be developed and reported.
- This tactical approach will identify potential fixes or changes to the specification that may be needed for any impacts caused by the addition of biodiesel to ULSD that will be reported.
- A technical report will be presented and placed for general public use on the NBB Web site and NBB will track and monitor commercial materials compatibility developments as they occur.

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**Opportunity #5 – Build Biodiesel Support and Use**

Modify diesel engines to meet Environmental Protection Agency (EPA) requirement to produce 90 percent less particulate matter and NOx, based on mandated diesel fuel sulfur reduction in 2006 (on-road) and 2010 (off-road).

**Tactical Approach: Biodiesel Availability and Utilization**

1. Provide funds for incorporation of soy biodiesel in U.S. Department of Energy (DOE) and Original Equipment Manufacturer (OEM) new diesel engine and after-treatment device (catalyst and muffler technology) testing and design.

2. Coordinate and create unified messages and materials that demonstrate soy biodiesel’s benefit as a diesel fuel additive to increase lubricity.

**Performance Measures:**
- Soy biodiesel included in DOE and OEM diesel engine and after-treatment testing.
- The biodiesel industry will invest in DOE and OEM engine and after-treatment testing.
- A new diesel engine and after-treatment testing protocol will be designed and tests performed that demonstrate soy biodiesel’s role in achieving EPA 2007 guidelines that will be reported.
Strategy: Biodiesel (Communications)

Opportunity #1 – Build Biodiesel Availability and Use
Effectively and efficiently communicate the biodiesel and bioproducts message to soybean farmers and other major diesel users such as truckers.

Tactical Approach: Biodiesel Availability and Utilization
1. Coordinate with other USB program areas and the biodiesel industry to effectively indentify key message points to communicate the quality, reliability and benefits of soy biodiesel.
2. Utilize a paid media campaign to address soy biodiesel quality and identify the soybean checkoff’s role in ensuring soy biodiesel quality.
3. Utilize an earned media campaign to provide testimonial-type information about high-quality biodiesel.
4. Provide partnership opportunities with QSSBs to extend the reach of paid and earned campaigns that highlight soy biodiesel quality into local venues.
5. Develop communications materials that highlight the quality and diesel engine performance benefits of soy biodiesel to be used at outreach events at either the national or state level.

Performance Measures:
- Establish partnerships or partnership opportunities with 15 QSSBs.
- Increase the number of farmer using soy biodiesel on their farms from 50 to 53 percent.

Ability to Impact
USB can continue to support the use of biodiesel fuel to farmers, truckers and the general public and work to increase awareness and usage of soy-based products within the federal government. The continued high prices of petroleum and natural gas have put soy-based industrial products in a favorable economic position.

The OEM engine testing program continues to assess the effects of biodiesel blends (B20) on the performance of modern diesel engine and emissions control systems meeting emissions standards that will go into effect between now and 2010 for on-road engines, and in the post-2010 timeframe, for non-road engines. This work will include research to understand the impact of B20 on the operation and durability of particle filters and NOx control devices, to optimize engine and emission control systems for operation on B20, and to understand how B20 affects engine component durability. The studies will utilize biodiesel and petroleum diesel that are representative of commercial fuels.

It is well known that changes occur with biodiesel over time that can cause serious problems with engine and fuel systems. This phenomenon has largely been described as “fuel stability”. Fuel stability is the leading barrier to securing a B5 and B20 American Society of Testing Materials (ASTM) specification, and must be added to the B100
specification. If the changes that occur over time with some biodiesel can be disproved, or can be prevented with additives, then this would significantly increase the confidence of the OEM community in biodiesel. It may also eliminate this concern in applications of interest to biodiesel and where the fuel could be stored for long periods of time, such as in back-up diesel generators, home heating oil, and tactical military operations.

Promising bench test methods have been developed that indicate the storage life of biodiesel or blends, as well as determine the impact of stability-enhancing additives. These additives, largely anti-oxidants, are known to significantly improve the storage life of biodiesel, perhaps to several years. This work will compare the most promising stability bench tests that can be used in the field with fleet operations and general use, as well as in back-up generators, home heating oil, and tactical military vehicles, in order to develop data needed for inclusion in the B5, B20 and B100 ASTM specifications.

Supplying a quality biodiesel product to consumers is a top priority. In order to help ensure biodiesel quality, the BQ 9000 Accreditation Program was developed and is being promoted to producers, marketers and consumers. It is a cooperative and voluntary program for the accreditation of producers and marketers of biodiesel. The program is a unique combination of the ASTM standard for biodiesel, ASTM D 6751, and a quality systems program that includes storage, sampling, testing, blending, shipping, distribution, and fuel management practices.

In FY08, farmers, fuel suppliers and the trucking industry will continue to receive information about soy biodiesel and quality standards adopted by the industry. Audiences will also receive a call to action with each message – that they ask for and use soy biodiesel from BQ 9000 distributors in their daily lives. Communications will again use a tiered approach, with paid, earned and grassroots efforts utilized to increase message retention. Additionally, QSSBs will be encouraged to participate in a USB Reimbursement Program to further facilitate biodiesel messaging at the state level. Not only will this help extend the national biodiesel message, but it will continue to maintain and build positive relationships between USB and QSSBs.

**Strategy/Tactical Approach Allocation:** $2,621,810

**Domestic Marketing:** $1,938,898  
**Communications:** $682,912

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Target Area: Market Access

Goal
Address issues limiting the access and competitiveness of U.S. soy in the global market.

Strategy: Competitiveness (Competitiveness Committee)
• Tactical Approach: Global Market Protection

Strategy: Global Access (International Marketing Committee)
• Tactical Approach - Address Unfair Trade Restrictions

Market Environment
The market is seeing various impediments in the global marketplace that once provided the U.S. a competitive advantage and is now being challenged. These advantages included a superior infrastructure system, a vibrant livestock industry, preferential access to technology, and a sustainable quality product (consistent protein/oil levels and foreign matter) in our soy products. The U.S. soybean producers’ competitors are also capitalizing on U.S. marketing innovations, and production and transportation technologies, which are resulting in the rapid development of their soybean industry and a much more customer-oriented marketing approach. Contributing to the challenge of U.S. competitiveness is the lack of a level playing field in areas of enforcing intellectual property rights (IPR) protection and technology transfer protection. Competing nations don’t enforce international agreements on IPR and aren’t held accountable for agricultural production distorting practices.

Along with the international competitive pressure, the U.S. soybean industry is being pressured domestically by products such as distillers dried grains (DDGs), by enforced traceback systems that will add costs to animal production and by public concerns of agriculture’s impact on the environment. There is also an increasing skepticism of soybean farmers support programs, as an increasing national debt is pressuring budget cutbacks and international pressure is forcing the U.S. to relook at its domestic support programs. These numerous type of issues by themselves threaten the competitive advantages of the U.S. soybean industry, but the aggregate influence creates pressure on the existence of the U.S. soybean production system.

Foreign countries are implementing a multitude of trade barriers for their domestic industry protection, economic and agricultural security, as well as for geopolitical reasons. These same countries are incorporating U.S. agricultural technology, production and agronomic practices that are challenging the competitive and comparative advantages of the U.S. soybean producer. United States soybean product exports are plagued by these market access, trade policy, and competitive disadvantages. Global and country specific trade policy barriers to biotechnology are surfacing, not only for scientific
reasons, but for several of the reasons previously stated. High tariffs still exist in some very populated markets and phytosanitary and non-technical barriers to trade have become the foreign markets tool of choice to limit U.S. soy market access. Discriminatory trade agreements and global trading rules that can distort domestic and export support programs are continually being debated in global trade policy setting organizations, such as the World Trade Organization. The continued expansion of South American soybean production and global palm oil production must be factored into the competitive positioning of U.S. soy.

**Strategic Approach**

The primary approach is to define and address impediments to market growth, retention and competitiveness. In maintaining a position in the global oilseed marketplace, understanding that market is critical. What trade policies and technologies will be implemented? What market development strategies will be initiated? What types of trading agreements will be negotiated? These are a few of the issues that will be collaboratively addressed by USB and the U.S. agriculture industries. Additionally, understanding the trends of our own U.S. soybean producing, processing and consuming industries are key to addressing any pitfalls or roadblocks that may be fast approaching. Understanding the global strategic view of the oilseed market, whether its market access barriers, trade policy trends, or competitor threats will contribute to the U.S. soybean industry developing efforts to aggressively compete.

Global access and competitiveness issues require the collaboration of all industries affected. Research and analysis on any strategic and tactical issue is needed by the oilseed industry before any industry statements or positions can be made. In addition the development of industry task forces or industry initiatives is needed to rally sufficient support to make a change. Every commodity or trade organization represents a distinct constituency and having all key industries develop one focused stance will ensure a higher probability of success. This means that the National Oilseed Processors Association (NOPA), the North American Export Grain Association (NAEGA), the American Oilseeds Council (AOC), the US Grains Council (USGC) and any one of hundreds of domestic and foreign industry organizations will be utilized to deter harmful global access issues, develop trade negotiating positions, and capitalize on strengths and opportunities that make the U.S. soy product more competitive. Additionally, continual monitoring of the market is necessary in order to preempt any harmful trade practices and to better understand the competitive environment. Lastly, the International Marketing and Competitiveness programs will continue to work in conjunction with the USDA Foreign Agricultural Service (FAS) to address concerns on a government-to-government basis.

**Competitiveness**

Knowing the global competitive position of the U.S. soybean industry and knowing the market factors and economic forces that effect that position will assist USB in keeping the U.S. soybean producer as one of the most productive and competitive soybean producers in the world. This information will provide an early warning to the U.S. soybean producing industry of impending competitive challenges and threats that USB
and the U.S. soybean industry can respond to. Trade negotiations with its complexities and long term impacts on soybean product exports and subsequent U.S. soybean producers profitability creates the need for an understanding by USB of those negotiation strategies and tactics. Developing the analysis on current and projected trade policy and domestic support positions will assist in identifying negotiating opportunities that will keep U.S. soybean producers competitive globally. Additionally, tariff and non-tariff barriers remain the tools of choice for countries wanting to influence or control the commodities trade in their countries or push other economic or political agendas. To maintain U.S. soybean product exports, the U.S. soybean industry needs to support and defend those trade avenues as industry and governments look to the U.S soybean production industry for strategic and tactical direction. Strategies for 2008:

- Provide an early warning to the U.S. soybean producing industry of impending competitive challenges such as the decline in the use of the U.S. railway for domestic distribution of soybeans and soybean meal, the international and economic pressure to reduce U.S. agriculture producers domestic support payments, the economic pressure to establish corporate farms, or the introduction of unfair trading practices either in free trade agreements or in multilateral trade agreements such as the World Trade Organization.

- Monitor and address global economic, industrial, and technological developments, as well as country policies and programs that can facilitate the development, protection, and decline of the U.S. agriculture industry.

- Provide the U.S. soybean industry with intelligence on the strengths, weaknesses, opportunities and threats of soybean producing and importing countries, which will allow USB and the U.S. soybean industry to sustain a competitive advantage.

- Work in coalitions with U.S. agricultural industry to develop industry wide consensus on trade negotiating issues and specific strategies that would support, defend and advantage the U.S. oilseed and agriculture industry.

- Work with the global oilseed industry to address international trade policy constraints, trade barriers and competitiveness issues.

**Global Access**

Domestic and international trade policy issues are important to maintaining or increasing market access. Trade liberalization is vital in creating greater global economic growth and thus greater demand for pork, poultry, fish and soy products. Establishment of trade barriers by international governments that limit soy imports or inflate their prices often adversely affect the soy crushing, poultry and livestock, and food processing industries. International Marketing (IM) will work closely with these industries to bring their concerns to the host nation in efforts to remove or decrease trade barriers. Specifically International Marketing (IM) will:
• Identify global access issues and bring them to the attention of competent authority to be addressed

• Monitor adherence to existing trade/market access rules

• Suggest areas where market access for U.S. product could be improved

• Develop and implement approved strategies to address market barriers

• Define and address impediments to market growth or retention

Rapidly growing, large volume international markets provide fast changing environments for development of market access issues that can limit U.S. exports. These markets are especially important as the U.S. has significant market share in China, Southeast Asia, Middle East/Eurasia, and Latin America. These markets provide the opportunity to work with expanding crushing and feed industries in promoting the interests of open access to imports of U.S. soy products without excessive duties, phytosanitary concerns, and restrictive trade policies. The crushing and feed industry are often very supportive of IM initiatives in market access as it allows them the opportunity for easier and often less expensive import of soy products.

Large international mature markets may create protectionist trade policies that can cause constraints on the import of U.S. soy products. In addition mature markets often have very sophisticated feed and food industries that react rapidly to consumer concerns on issues such as biotechnology. Markets such as Europe, Japan, Taiwan, and Korea historically import vast quantities of U.S. soy products and maintaining open access to these markets is extremely important.

Emerging growth markets provide opportunities to address market access on a wide variety of topics. Just as emerging markets have developing economies, they also have a developing regulatory system. The regulatory system is often plagued by lack of scientific information, lack of appropriate authorities to develop regulations (such as no FDA type authority), and adoption of protectionist regulations. Opportunities include the emerging markets of India, the Caribbean, Russia, Pakistan and Bangladesh; and the North Africa countries of Algeria, Tunisia, and Morocco.

**Ability to Impact**

Checkoff global access and competitiveness strategic approaches are coordinated with organizations such as NOPA, NAEGA, USGC, AFBF, ASA, USW, NCC, USTR and other organizations. Each of these organizations’ contribution to the aggregate effort is critical to the ability to impact these strategic approaches due to their global scope and scale. The ability to impact these approaches is doubled due to the financial and personnel resources provided by the USDA Foreign Agriculture Services, which is afforded only to the International Marketing and Competitiveness programs.
**Competitiveness**

USB resources have an ability to impact this strategy. Intelligence led to the development of global soybean alliances to counter disruptive trade practices by China and to reduce the negative impact of new global regulations restricting the trade of biotechnology derived soybeans and other biotech commodities. Research has assisted the industry in highlighting the inequity of pirated technology by our export competition, which has resulted in the technology companies aggressively pursuing financial instruments to have the violators pay their share of the technology fee. This will ensure that the Brazilian, Argentinean, and Paraguay producers are facing the same or similar production cost challenges.

By identifying the trade trend ramifications through research and analysis of several proposed free trade agreements, preferential market access may be granted to major soybean markets such as Australia, Central America, and the Andean nations (Colombia, Ecuador, Peru) that imported 112 million soybean equivalent bushels valued at $640 million. In addition, USB’s analysis on special and differential treatment, export subsidies, domestic support programs, and export credit programs was and is being used by industry and trade negotiators in the agricultural discussions in the WTO negotiations.

Developing a market and industry monitoring program has led to cooperation with other associations, such as those previously identified, to sustain the U.S. soybean production industry. Working with these other organizations has ensured the enforcement of trade policies that will allow the U.S. to compete with South American producers. USB, through collaboration with the AOC and other commodity organizations, has leveraged checkoff resources to provide information and technical support, monitor regulations and develop a level playing field for the U.S. soybean industry. Continued competitiveness programs will aid in the development of such collaborative industry initiatives and targeted collection efforts will ensure that USB directors have the information on competitive trends that they can use to lead the U.S. soybean industry.

**Global Access**

Checkoff and FAS funded global access activities are coordinated with the previously identified organizations to magnify the impact of USB provided resources. Examples of the impact include: 1) keeping open access for genetically modified soy in the EU and China; 2) access for genetically modified soy protein in Russia; 3) reduction in the number of pathogens in India’s phytosanitary barriers from 14 to 4; and, 4) assistance in assuring that soy varieties developed from biotechnology were not commercialized domestically until import approvals were gained in major export markets.

**Target Area Allocation:** $1,787,460
Strategy: Competitiveness (Competitiveness)

Opportunity #1 – Competitive & Market Assessments
Global knowledge of the current and projected soybean and soybean markets can provide leverage to those who can influence an industry’s strategic direction, but also implement tactical approaches to achieve that direction.

Tactical Approach: Global Market Protection
1. Explore issues such as economic indicators, trade/industry practices and trade trends to ensure that the U.S. soybean industry will maintain its competitiveness in the global soybean/oilseed industry.
2. Analyze intellectual property rights cases and liability risks of U.S. soybean farmers in the international commodity trade environment.
3. Monitor economic, agricultural, and technology developments in competing oilseed production nations.
4. Analyze and monitor global agricultural programs that will assist or hinder the competitiveness of the U.S. soybean industry.
5. Proactively address and build coalitions to address key U.S. soybean marketing, agricultural, distribution, and infrastructure/transportation issues.
6. Direct agricultural analysis on behalf of USB and take oversight responsibility for sensitive analysis required by the Board.
7. Through the international business development program build and capitalize on business opportunities to create and increase the U.S. soybean product utilization.

Performance Measures:
• USB Directors and USB Committees use the information in determining the best direction of their marketing/research needs and priorities.
• Monitoring and analysis work was used to build domestic and international industry relationships and collect support for special USB initiatives.
• Research identified new threats and opportunities that USB capitalized on.
• As a result of analysis and research conducted by USB, U.S. soybeans were exported on an equal playing field and competed fairly against competitor soybean products.

Opportunity #2 – Trade Barriers
Support and defend the established and developing trade avenues as industry and governments look to the U.S soybean production industry for strategic and tactical direction.

Tactical Approach: Global Market Protection
1. Work in conjunction with other agricultural interest groups in monitoring and attempting to rectify trade-disrupting actions of offending foreign entities and multilateral organizations.
2. Monitor developments around the world and provide factual information to decision makers and affected industries to attempt to impact the outcome of trade and market
rules that would affect the acceptability of biotech products in the food and feed industries.
3. Investigate and address actions by individual countries that could constrain access for U.S. soybeans either as a result of technical or non-tariff barriers to trade.
4. Research and monitor market access constraints relative to imposition of barriers to trade.
5. Provide and develop information regarding effects of existing or proposed impediments to trade and utilization to the U.S. government, when requested, during dispute resolution or discussions relating to trade barriers.

**Performance Measures:**

- USB provided analysis/input, requested by any government entity or oilseed alliance industry, will be accepted into their responses to trade barriers.
- Intelligence collected and analysis completed on current and projected trade barriers will result in resolutions that include the major thrusts of the U.S. soy industry.
- All soybean trade related barriers will be challenged, when it is determined to be of benefit to the U.S. soybean producer.
- As a result of analysis and research conducted by USB and utilized by others, trade barriers will be limited in scope and effectiveness against U.S. soybean product exports.

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**Opportunity #3 – Trade Negotiations**
Develop analysis on current and projected trade policy and domestic support positions that will assist in defending and identifying negotiating opportunities that will keep U.S. soybean producers competitive globally.

**Tactical Approach: Global Market Protection**

1. Work with oilseed and other alliance industries in researching and monitoring the WTO negotiations modalities formulation and the development of other multi-lateral and bi-lateral discussions.
2. Research bilateral agreements and competitor domestic support programs among other countries to lessen the disadvantages that might accrue to U.S. soybean producers.
3. Monitor, investigate, and analyze trading agreements and negotiations to determine their impact on the U.S. soybean trade and our competitive position.
4. Provide information from the farmers’ perspective to the U.S. soybean industry if a WTO challenge on soybean subsidies in domestic farm legislation is mounted.
5. Provide technical assistance to the U.S. Government, when requested, during negotiations or discussions relating to trade policy.

**Performance Measures:**

- USB provided analysis/input, requested by any government entity or oilseed alliance industry, will be accepted into their responses to challenges of domestic
government support programs or other programs affecting the profitability of U.S. soybean farmers.

- Intelligence collected and analysis completed on current and projected trade agreements and negotiations will result in trade negotiation modalities that include the major thrusts of the U.S. soy industry.
- As a result of analysis and research conducted by USB and utilized by others, current overseas markets for U.S. soybean products will remain open and additional overseas market opportunities will be made available.

**Strategy/Tactical Approach Allocation:**  $1,699,424

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**Strategy: Global Access (International Marketing) **

**Opportunity #1**

Educate and garner support from country specific trade, scientific and regulatory officials on the harmful effects of trade and market access barriers that are implemented by growing, mature and emerging markets around the world that impose barriers in response to any economic, social, political, consumer or industrial reasons/pressure.

**Tactical Approach: Address Unfair Trade Restrictions**

1. Provide factual scientific information on the safety of biotech products and U.S. soybean products to manufacturers and processors of soy for use in food, feed, oil.
2. Collaborate with industry contacts to show the value and safety of biotech products to governmental agencies developing biotech legislation.
3. Provide assistance in the use of export credit programs.
4. Support the use of monetization programs such as PL 480.
5. Address harmful import duties and phytosanitary constraints.
6. Provide opportunities for U.S. producers to discuss the benefits of biotech products and significance of U.S. soybean products to international industry and regulatory contacts.
7. Address concerns on implementation of U.S. programs that will facilitate and increase the export of U.S. soybean but may be perceived by a foreign country as causing harm to their domestic agricultural production.
8. Provide scientific data on U.S. pesticide, fungicide, herbicide use to address establishment of pesticide residue limits.

**Performance Measures:**

- In Europe, key public policy-making officials will be informed and educated on the U.S. soybean industry’s position on relevant issues covering biotechnology and biofuels.
- Through outside consulting, IM Europe will continue to be informed of developments related to the implementation of the EU’s biotech regulations especially any issues covering the authorization of new biotech events given the
upcoming arrival of Roundup Ready 2 Yield soybean and the political issues surrounding biotech approvals.

- Identify number of companies using export financing programs and PL 480 programs and quantify the volume of U.S. soy products exported under those programs.
- Determine the number of instances where U.S. soybean production industry intervention has resulted in positive trade flows.

**Strategy/Tactical Approach Allocation:** $88,036

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Target Area: Human Utilization – Protein/Oil

Goal
Increase global utilization of U.S. soy.

Strategy: Customer Preference (Domestic Marketing, International Marketing)
- Tactical Approach – Domestic Approach – Protecting the Oil Market

Strategy: Demand Building (Domestic Marketing, International Marketing)
- Tactical Approach – Domestic Approach – Nutrition Research and Protein and Oil Market Growth

Market Environment:
Based on calculated bushels (soy oil and meal), nearly 22% of soy utilization is consumed by humans.

Soy Oil
Ninety-three percent of all U.S. soy oil is utilized as human food in salad oil, cooking oils, commercial frying oils, baking, margarine and other uses. More than 17 billion pounds of soy oil is consumed annually. Export sales of soybean oil for MY06/07 are expected to be an estimated 1.85 million pounds.

However, in January 2006, the Food and Drug Administration’s new trans fat labeling regulations went into effect. Food manufacturers and food service operators began reformulation of their products or processes in order to eliminate trans fats. Some major U.S. municipalities (New York City and others) banned trans fats at restaurants. Current estimates indicate that soy oil market share has dropped by 6% over the past two years. Competitive oils, particularly canola and palm, have experienced increased usage.

To provide a soy solution to this trans fat issue, low-linolenic soybean varieties were introduced in 2004. Farmers planted nearly 2 million acres of low-linolenic soybeans in 2007, and are expected to plant between 3 and 3.5 million acres this spring. However, demand will continue to outstrip supply, as 4-5 million acres are needed.

Low-linolenic soy oil, which can be used in light commercial frying, is one part of the solution to the trans fats issue. The baking industry needs a more stable oil and USB, working with QUALISOY, will help introduce increased oleic oils in 2009. Farmers will be asked to grow these new soybean varieties to ramp up the increased oleic oil supply to meet the end user’s needs. Also in 2009, a low-saturate soybean variety is likely to be introduced. This will be followed by the introduction of an increased Omega 3 variety in 2012. These varieties are expected to provide consumers with heart health benefits.
The World Initiative for Soy in Human Health (WISHH) program is increasing consumption of soy protein in the developing world. With USAID’s approval of the five Value-Added Soy Proteins for food aid purchase, private voluntary organizations have shown increased willingness to do pilot programs and consider requesting soy protein in their programs. There has also been interest from commercial non-food aid markets for use of soy protein in meat and dairy analogues in Central America, Asia and Africa.

In Japan, the inclusion of soy ingredients in consumer food products has been growing rapidly. Examples include soy peptides in soda and water and soy proteins in beer. The growth of soymilk consumption in Japan closely mirrors the increasing consumption in the U.S. In China and the Middle East, commercial bakeries have introduced commercially viable traditional baked products that are soy protein-enriched. The Jordanian army has recently taken steps to incorporate the soy protein-enriched baked products into their rations.

Soy Protein
The good news is that 82% of consumers perceive soy foods as healthy, an all-time high since USB began measuring consumer attitudes in 1999. However, there is a dark side not reflected in these perception statistics. Attacks on soy, particularly related to soy genistein intake, have increased in number and intensity. Some foreign governments (France, Israel and Japan) have recommended restrictions on soy intake among infants, children and expectant mothers. The heart health claim may be reconsidered based upon recent research showing that soy protein does little to reduce LDL cholesterol. Overall sales of soyfoods have leveled at about $4 billion at retail.

**Strategic Approach**
Differentiating U.S. soy oil and soy protein products from other competitive sources by offering improved compositional enhancements is a key strategic factor. By being the first to develop and deliver soy oil and soy protein products with desired compositional traits to our customers, the U.S. can regain and maintain a competitive edge. Customers will be willing to pay premiums to purchase soy products with specific traits. This strategy will be accomplished by building customer preference along with targeted demand building efforts in markets where the U.S. has the potential to see the most return on investment.

Some efforts internationally will focus on encouraging and assisting soy processors to produce soy protein products, such as soy flour, isolates, concentrates, and texturized soy protein. Other efforts will promote the use of and trade in U.S. processed value added soy proteins. In addition, assistance will be provide to promote the use of these products by food processors, flour mills, bakeries, government entities, and hotel-restaurant-industrial (HRI) operations. Continued efforts will be made to build relations with soy-based food operations that represent traditional soy products that include tofu, natto, miso, soymilk, as well as enhanced-value soy protein products such as soy flour, isolates, concentrates, and texturized soy products. This strategy will build confidence and preference for variety specific U.S. food grade soybeans, as well as U.S. processed soy
proteins, as challenges continue to increase from alternative sources of supply. Specific strategies will vary by market size.

Customer Preference
The approach to building customer preference for soy oil domestically will include support of industry efforts to commercialize soy-based oils needing no hydrogenation, and support of industry and QUALISoy efforts to develop soybeans with enhanced traits and characteristics.

USB continues to buoy the efforts of the soy industry to solve the trans-fat issue using soy-based solutions. First, USB is committed to helping gain acceptance of low-linolenic soybeans. These soybeans, with 3 percent or less linolenic acid (versus 7 percent for conventional soybeans), produce oil that needs little or no hydrogenation, thus eliminating trans fats. Through panels at trade shows such as the Institute of Food Technologists, the American Oil Chemists Society and the American Dietetic Association, USB will communicate the low-linolenic message to end users and help drive interest and demand in the new oil. It is estimated that nearly 5 million acres of low-linolenic soybeans could be needed in the marketplace to help replace partially hydrogenated vegetable oils.

In another trans solution initiative, USB contracted with a well-known researcher at Penn State University to complete a Stearic Acid Literature Review. USB also established a broad-based industry coalition on stearic that includes the National Pork Board, the National Cattlemen’s Beef Association, the Chocolate Manufacturer’s Association and numerous other major players. The review identified gaps in existing research and will be used to determine future research that might be required by the FDA to affect a label change. Such a change in the treatment of stearic acid would help position interesterified soy oil as a trans-fat solution and create an opportunity for the possible introduction of high stearate oils, which might replace competitive oils domestically and internationally.

The interest in the healthfulness of soy oil has generated development of soybean varieties that could provide human health benefits, create value-added niche markets and help keep the U.S. soy industry competitive. Technology companies have announced plans to introduce mid-oleic (2009), high-oleic (2010), omega-3 (2012), low-saturate (2012), and other soy oils targeted for human utilization. Some of these varieties will be developed utilizing biotechnology. In FY07, USB should renew efforts to communicate the benefits of biotechnology prior to the introduction of these new soybean varieties.

USB will also continue its focus to leverage funds for research, marketing and promotion of soy oil and soy protein. Through programs such as the Soy Nutrition Institute, QUALISoy and the Soy Health Research Program (SHRP), USB’s investments gain significant return. QUALISoy received an $8.4 million three-year grant, while the SHRP has generated $6.9 million in research funding on only $370,000 in USB investment.

Internationally, the interest is in competing against other vegetable oils, not necessarily in trying to compete head-to-head with South American origin soy oil. The U.S. is unable
to compete on the basis of price and there are no known advantages to U.S. soy oil compared to Argentine soy oil, our chief competitor in world markets. To that end, oil strategies will generally fall into two categories: 1) building loyalty for soy oil in markets where U.S. oil faces less competition from competing origins of soy oil but attempts to counter market share loss to competing oils, and 2) building loyalty with local crushers who market soy oil derived primarily from U.S. soybeans. Most international strategies are targeted at the HRI sector, not the consumer market due to the high cost of such efforts.

In food grade soybean promotion internationally, the strategy has been to build loyalty to U.S.-origin variety specific soybeans designed for a particular end-use. The competition is generally from Canadian and Chinese origin soybeans. Due to concerted marketing efforts to the Japanese soy food trade, the decline in U.S. market share has been reversed and the U.S. market share began to increase last year. The U.S. has seen successful entry into markets in Southeast Asia and Taiwan. This is a market segment where not only does the soybean have to perform, but the relationship between supplier and user is paramount to continued success. International strategies are focused on building those relationships with use of buyers team travel to the U.S., hosting seminars with attendant mini tabletop trade shows, and introducing and escorting potential suppliers to end-use customers.

Demand Building
As demand for soy oil use in biodiesel grows, utilization of soy protein gains greater importance. Human utilization continues to be a solid soy protein utilization area. In FY08, USB needs to enable soyfoods companies to continue to drive consumption of soy protein by eliminating potential barriers to increased use. This effort can be complemented by USB support for the Soy Nutrition Institute.

Domestically, USB will focus on communicating the health benefits of soy oil and soy protein to key audiences. Soy oil is a major source of omega-3 fatty acid consumption for Americans. The new Dietary Guidelines for Americans cites the need for Americans to increase their intake of good fats such as those found in fish, nuts, and vegetable oils. Soy oil is also a good source of Vitamin E. Currently, 88% of consumers perceive soy oil as healthy. Opportunity exists to grow the non-hydrogenated soy oil market. USB and the Soy Nutrition Institute are credible resources on soy and health and will play important roles in responsible communications about soy health benefits.

Another focus area is on continuing to gain acceptability and usage of soy among younger audiences. Soy products are more convenient, cost effective and available than ever before, but many of the federal feeding programs do not incorporate or embrace soy. Research conducted by USB in 2003 demonstrated that many food service directors were unaware of the availability and health benefits of soy. Research conducted by the Illinois Soyfoods Research Center confirms the acceptability of soyfoods among elementary age children. USB-supported soy acceptability research among a more diverse middle school population in the Washington, DC area will be leveraged in 2008.
In Asian countries, soyfoods – rich sources of high quality protein – have been popular with health-conscious consumers for several decades. More recently, the popularity of soyfoods in these countries has increased markedly because of research suggesting that these foods may offer substantial health benefits beyond their role in meeting nutrient needs. Much of the soy protein strategy internationally is aimed at building demand for U.S.-origin soy protein in new applications unknown in local markets. This includes focusing on the nutritional as well as the functional properties of soy protein products in the baking, meat processing and food processing industries.

The WISHH program focuses on building demand for U.S.-origin soy protein in developing countries in Asia, Central America and Africa. Strategies include introducing soy protein as a food ingredient in indigenous staple foods that have broad market appeal, and providing product samples so that potential customers can experience the product in their own factories/facilities. The strategy also includes working with/through national government and non-governmental agencies and international private voluntary organizations interested in development, education and nutrition; a new market development concept is gaining ground in international circles targeting populations at the “base of the economic pyramid”. WISHH will work with private and public partners to further market growth among the populations that need soy the most. In addition to WISHH, the India program has a varied program with multiple strategies. From working with entrepreneur development to participation in trade shows and working with national and provincial government feeding programs, the strategies target all segments of society, from the poorest of the poor to wealthy Indians seeking healthier food.

WISHH recently expanded to include the World Soy Foundation: A Program of WISHH. The World Soy Foundation is a 501c3 organization founded by U.S. soybean farmers that works collaboratively with humanitarian organizations, corporations, public and private foundations, international organizations, US and international governments and individuals to deliver soy protein and nutrition education to people in developing nations.

**Ability to Impact:**
Throughout the world, USB can impact individual consumers, health professionals, government agencies, food processors and manufacturers, bakeries, flourmills and the hotel-restaurant-industrial (HRI) sector about perceptions of soy healthfulness. This is accomplished through education and communications about the economic, functional, and health benefits of utilizing soy protein and soy oil in human food. USB can significantly impact the domestic soy oil market share through support of soy-based solutions to the trans fat issue. Through the QUALISOY effort, USB can move improved traits into the market, which will provide solutions to end user needs and protect the current soy oil market. Building upon prior successes, USB programs in Human Utilization can continue to have a major impact and return on investment.

Internationally, there has been great interest shown by U.S. soy protein manufacturers in promoting their products through the WISHH program, a key to fulfilling demand created by program strategies. Efforts in Central America have proven successful as 2 small bakeries in Honduras purchased 4 MT of defatted soy flour. The bakeries in Honduras
also signed several agreements with a hotel and grocery store chain to supply their breads. Also in collaboration with IM Pakistan, a QSP container arrived and commercial sales continue in the country, mainly for soy flour for use in the baking industry.

Target Area Allocation: $3,999,858

Strategy: Customer Preference (Domestic Marketing, International Marketing)

Opportunity #1 – Protect Soy Oil Market Share
Prevent the loss of the domestic soy oil market share.

Tactical Approach: Domestic – Protecting the Oil Market
1. Support commercialization of low-linolenic oil, mid-oleic and high-oleic oil to replace up to 6 billion pounds of partially hydrogenated oils by 2010.
2. Support research into stearic acid to provide information for possible labeling changes.
3. Communicate soy-based trans solutions to targeted audiences, particularly food companies, regarding increased oleic oils.
4. Begin initial communications around new soy oils including Omega 3, low-saturate, high stearate.

Performance Measures:
• Loss of soy oil market share in 2008 minimized to no more than 6 percent.
• Facilitate Stearic Steering Committee and provide information and research (clinical and market) to facilitate label change efforts by industry.
• Funding for stearic research generated from several industry sources.
• Provide staff and communications support to QUALISOY’s and industry’s new trait introductions with a focus on increased oleic trans solutions
• Communicate health benefits of soy oil.

Opportunity #2 - Build Customer Preference for U.S. Soy in Growth Markets
Build relationships with, and provide service to, buyers and end users in high growth international markets where the U.S. has significant market share and International Marketing programs can influence preference for U.S. soy. The growth markets of China, Southeast Asia, Middle East/Eurasia, and Latin America provide great opportunities for expansion of soy for use in human food.

1. Work with U.S. exporters of IP/food Grade soybeans to increase the longer-term grower-exporter-purchaser partnership mindset in SE Asia and the Middle East.
2. Differentiate U.S. IP soybeans from competitive sources of supply by educating customers in SE Asia and the Middle East of a stable and secure supply of value-
added food grade soybeans and abundance of various varieties that provide processors with the ability to more precisely fit beans to their specific needs.

3. Bring teams of SE Asian IP/Food Grade soybean buyers to the U.S. to increase awareness and understanding of the capabilities of the U.S. soybean industry to deliver high quality products that meet the customers various demands as well as further customers’ understanding of the logistics system in the U.S. for delivery of IP soybeans.

4. Provide technical assistance to crushers, refiners and food processors in all targeted large growth markets to produce quality soy-based foods and food ingredients, properly refined soybean oil, and assist them in introducing new soy products into food uses in local markets.

5. In all targeted large growth markets, work to increase knowledge and expand consumption of soy protein and oil, as appropriate, in the HRI sector, bakery, and food processing industries by hosting seminars, conferences and trade shows that promote preference and loyalty for U.S. IP and food grade soybeans.

6. Respond to inquiries and concerns regarding use of biotech soybeans in food.

**Performance Measures:**

- In China, 4 soyfood and beverage producers will develop a preference for U.S. food-grade soybeans.
- In Latin America, 5 companies will introduce a new product/product enhancement/line extension that includes soy as an ingredient and that results in the incremental purchase of soy by each company.
- In the Middle East, 2 crushers and/or food processors will demonstrate interest in the production of soy foods through either 1) equipment inquiries or purchases or 2) purchases of imported U.S. soy food or soy flour product.
- In Southeast Asia, 4 soy food producers will develop a preference for U.S. IP food grade soybeans.

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**Opportunity #3 - Build Customer Preference for U.S. Soy in Mature Markets**

Foster relationships with, and provide service to, the food industry in large international markets where the U.S. has been the dominant supplier but growth is limited. Activities in Japan, Korea, Taiwan, and Europe are focused more on building customer preference for U.S. products and adding value, rather than building demand.


1. Continue work with U.S. exporters of IP/Food Grade soybeans to reinforce and expand efforts to service their customers in large mature markets.

2. Address customers’ concerns about the expansion of biotech soybean production in the U.S. by assuring customers of a stable and secure supply of value-added food grade soybeans and soy protein ingredients from the U.S., which will allow them to expand their local premium soyfood and soy ingredient markets.
3. Organize and support buyer teams of key food processors to observe U.S. production and infrastructure, including meeting with exporters to develop personal relationships and long-term loyalty to U.S. products.
4. Maintain meaningful presence in the local markets and serve as information resource and liaison to sustain customer loyalty.
5. Host seminars, conferences and trade shows to promote preference and loyalty for U.S. IP and food grade soybeans.
6. Work with food and oil processors to increase knowledge of further processing oil without hydrogenation to alleviate trans fat concerns.
7. Respond to inquiries and concerns regarding use of biotech soybeans in food.

**Performance Measures:**
- In Japan, members of soy food manufacturers’ associations will continue to purchase U.S. IP food grade soybean at levels similar to the previous years or will increase their volume.
- In Korea, 6 oil-based food processors and crushers will send their staff to IM provided trainings on U.S. soybean oil.
- In Europe, 2 companies will begin sourcing IP soy from the U.S.
- In Taiwan, at least 40% of the preferred customers will utilize a minimum of two of the ideas presented by IM to increase soy consumption and improve the hygiene and marketing of soy foods.

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**Opportunity #4 - Build Customer Preference for U.S. Soy in Emerging Markets**
Emerging growth markets provide excellent opportunities to increase consumption of U.S. soybeans and soy products by creating purchasing loyalties and preference for U.S. soy during their infancy and development. These opportunities exist in India, the Caribbean, Russia, Pakistan, Bangladesh, Sri Lanka, Sub-Saharan Africa and the North African countries of Algeria, Tunisia and Morocco.

1. Focus technical information and on-site training to existing and planned crushing facilities, oil refineries, and processors demonstrating ways to increase their profitability by using U.S. soybeans and soy protein ingredients.
2. Provide training and nutritional information to preferred customers in the soyfood sector to enhance awareness of new soy products and markets.
3. Encourage combined cargoes of soybean meal, soybeans, corn, and other U.S. products to facilitate logistical and transportation issues.
4. Educate key buyers on hedging and other purchasing-related issues to encourage preference for U.S. soybeans and soybean products.
5. Support travel by industry decision-makers to the U.S. to visit processing facilities and participate in short courses and exhibitions.
6. Maintain meaningful presence in the local markets and serve as information resource and liaison to sustain customer loyalty.
Performance Measures:
- In India, at least 6 pharmaceutical/food processors will produce and market soy food products made from high value U.S. soy complex.
- In the Caribbean, 47 food companies, government institutions and PVO’s will be convinced of the potential for U.S. soy.
- In the CIS, 12 soy food companies will adopt the IM promoted technologies.
- In the Maghreb, 10 customers will receive technical assistance in crushing and refining of soybeans and soybean oil.
- In Pakistan and Bangladesh, 9 food manufacturers will use U.S. soybeans.

Ability to Impact
The USB effort to communicate the benefits of soy protein in the diet has proved effective with nearly 80 percent of U.S. consumers perceiving soy products as healthy. Eighty-eight percent of consumers view soy oil as healthy. Nearly 40 percent of U.S. consumers are aware of specific health benefits of including soy in their diet.

Approximately a 6 percent decline in soy oil usage has occurred over the past two years. Low-linolenic soybeans are gaining acceptance by farmers and end users. Nearly 2 million acres of low-linolenic soybeans were planted in 2007. Low-linolenic soy oil demand continues to outstrip production. Approximately five million acres of low-linolenic soybeans may be needed to meet market demand.

The USB-funded stearic acid literature review has identified gaps in existing research and will aid in the development of relevant, needed research. Creation of the Stearic Acid Steering Committee established USB leadership and will help leverage USB funds. In the long-term, the way that FDA decides to identify stearic acid on the nutrition label could have significant impact on the use of interesterified soy oil and could create a market for high stearate soybeans, which would help maintain U.S. competitiveness throughout the world.

Strategy/Tactical Approach Allocation: $1,553,505
Domestic Marketing: $584,009
International Marketing: $969,496

Strategy: Demand Building (Domestic Marketing, International Marketing)

Opportunity #1 – Support Health Benefits of Soy
Grow non-hydrogenated soy oil and soy protein use through research and promotion of health benefits.

Tactical Approach: Domestic – Nutrition Research and Protein/Oil Market Growth
1. Broaden discussion and communications of soy health benefits to include daily health benefits of soy oil and soy protein consumption.
2. Counter concerns about soy’s impact on growth and development through support of Loma Linda University’s Seventh Day Adventist consumption study.
3. Support systematic review of genistein and estrogen impacts.
4. Through the Soy Nutrition Institute (SNI), aid in development of a coordinated industry research agenda.
5. Build on “Soy Goes to School “study to leverage opportunities for soy use in the National School Lunch Program.
7. Provide information to position soy for greater inclusion in 2010 Dietary Guidelines.

Performance Measures:
- Priority list of research needs developed through the SNI.
- Funding sources for research identified.
- Maintain consumer perception of healthiness of soy products near 80% mark.
- Assure that dietary fatty acid and implications of soybean trait enhancements research is communicated to health professionals, food companies and other influencers.
- Leverage “Soy Goes To School” trial program results through presentations and publications.
- Complete gap analysis and identification of opportunities in Dietary Guidelines; support information gathering and dissemination to influencers.

Opportunity #2 – Build Demand for U.S. Soy in Growth Markets
Rapidly growing, large volume international markets provide a dynamic opportunity to increase the use of U.S. soybeans and soy ingredients for human use. Focus in these growth markets, which include China, Southeast Asia, Middle East/Eurasia and Latin America, is on building demand for which the U.S. can compete over building customer preference.

Tactical Approach: International – Expand Markets for Value-Added Soy Products
1. Through seminars and demonstrations, promote use of food grade soy proteins to flour millers, food processors, and bakers as a means of increasing nutritional levels of foods, while improving functional properties and reducing costs.
2. Conduct tests and demonstrations with targeted customers to determine the most cost effective specifications to include soy flour with traditional wheat flour-enriched products.
3. Fund local advertising to stimulate interest among food manufacturers to use soy protein additives and provide them with useful tools and information to help them successfully promote soy-enriched products.
4. Hold marketing seminars for bakers or food manufacturers, developing media kits and press releases, placing advertorials in key food trade publications and organizing
soy protein manufacturers with booths at key food ingredients and bakery trade shows.

5. Facilitate studies and address issues relevant to soy utilization, to include consumer understanding of soy health and nutritional benefits.

6. Bring teams to the U.S. or other areas within the region for training and to see new soy products.

7. Work with governmental and social agencies to convince them of the economic and nutritional advantages they can realize by incorporating soy into their food programs.

**Performance Measures**

- In China, 5 soyfood and beverage producers will try U.S. food-grade soybeans in their research and development.
- In Latin America, 4 new government and/or social programs in the region will incorporate soy, in one form or another, into their food programs.
- In the Middle East, 6 soy flour producers will begin producing soy flour from U.S. origin beans.
- In Southeast Asia, 8 soy food producers will become knowledgeable about U.S. IP food grade soybeans.

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**Opportunity #3 – Build Demand for U.S. Soy in Mature Markets**

Large mature markets require attention to maintain and slightly increase U.S. market share of U.S. soybeans for food usage. Opportunities exist in Europe, Japan, Taiwan, and Korea to create demand for value-added soy products.

**Tactical Approach: International – Expand Markets for Value-Added Soy Products**

1. Promote the health benefits of soy-based food products to consumers and food processors.
2. Increase the demand for premium quality soyfoods such as tofu and soymilk.
3. Collaborate with soyfood trade associations and companies to increase demand for soy-based food products.
4. Partner with food companies to develop new soy-based food products and assist them in promoting these products to consumers.

**Performance Measures:**

- In Japan, soy-based food trade associations, key traders, large retailers and the food chain will purchase an estimated 520,000 MT of US IP soybeans.
- In Korea, 5 oil-based food processors will learn how soybean oil of the RBD form can be processed without hydrogenation to have physical properties suitable of oil-based food processing.
- In Europe, 5 companies will have researched U.S. suppliers of IP soybeans.
- In Taiwan, at least 90% of the preferred customers will recognize the value of IM’s support and services and demonstrate that value by purchasing a majority of their soybeans from the U.S.
Opportunity #4 – Build Demand for U.S. Soy in Emerging Markets
As the focus of the global population continues to look toward more nutritious diets, particularly among the rapidly rising populations in the developing world, the U.S. soy protein and oil industry holds a key advantage in filling that need with value-added soy products. Opportunities exist in India, the Caribbean, Russia, Pakistan, Bangladesh, Sri Lanka, Sub-Saharan Africa and the North African countries of Algeria, Tunisia, and Morocco.

Tactical Approach: International – Expand Markets for Value-Added Soy Products
1. Educate food processors and bakeries of the benefits of incorporating soy protein into local products such as bread, pastries, soy-enriched noodles and meat food products.
2. Provide functional and health benefit information to international government/social/NGO food programs and assist them in efforts to include soy protein products in their programs.
3. Share nutritional knowledge with soyfood-based associations and companies producing soy products and assist them in their product development and promotional efforts.
4. Provide technical assistance to soybean oil refiners and food processors to improve the quality and marketing of soybean oil and food containing value-added soy.
5. Provide samples of value-added soy protein to food companies interested in creating or expanding product lines for industrial scale product trials.

Performance Measures:
• In India, activities promoting U.S. high value soy products will result in the import of over 5,000 MT of U.S. soy products.
• In the Caribbean, 3 companies will introduce a new product/product enhancement/line extension that includes soy as an ingredient, leading to an incremental purchase of U.S. soy.
• In the CIS, 2 crushers will follow IM’s recommendations.
• In the Maghreb, 9 refiners will improve the quality of their soybean oil.
• In Pakistan and Bangladesh, 17 food manufacturers will use soybeans in their production.
• With the help of WISHH, underdeveloped countries will use food aid products provided by the U.S.

Ability to Impact
The Soy Nutrition Institute will leverage industry and governmental funds to initiate research that can address concerns about the safety of soy, as well as generate news about the health benefits of soy. Current discussions are being held with the National Cancer Institute to fund a $4-5 million study on soy and breast cancer.

Internationally, IM efforts have led to entry into two markets for U.S.-origin food-grade soybeans (Taiwan and Vietnam). As the experience in these markets grow the potential for significant demand to follow is great. There are also efforts underway in the Middle East with specific U.S. soy protein manufacturers to grow demand for their specific products. Again, as experience grows and the positive messages get dispersed within the
market, significant growth has been seen in U.S. exports to the region. This is evidence of the ability to impact the market.

Through WISHH and its partners, people in underdeveloped countries will receive the nutrition and food aid they need in order to survive.

Strategy/Tactical Approach Allocation: $2,446,353
Domestic Marketing: $1,345,903
International Marketing: $1,100,450

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Target Area: Supply
Goal
Increase the production of an improved U.S. soybean to meet the needs of the end user.

Strategy: Composition (Production; Domestic Marketing)
- Tactical Approach: Develop Improved Varieties/Germplasm
- Tactical Approach: Standardized Measurement Adoption for Value Capture
- Tactical Approach: Commercialize and Evaluate Improved Varieties
- Tactical Approach: Recognizing Market Value and Economic Impact

Strategy: Yield (Production)
- Tactical Approach: Protect and Increase Yield Potential

Strategy: Select Yield and Quality (SYQ Initiative)
In July 2007, the Board determined that the SYQ Initiative mission can now be met as part of the Domestic Marketing program with support from the Communications program.

Strategy: Analytical Measurements and Market Standards (AMMS Initiative)
In July 2007, the Board determined that the AMMS Initiative mission can now be met as part of the Production program with support from the Communications program.

Market Environment
Maintaining the competitiveness of U.S. soybean producers in the global market requires ongoing compositional improvements. Oil compositional improvements are needed to maintain competitiveness with other food use oil sources, especially in light of the Food and Drug Administration’s trans-fats labeling requirements for food items that went into effect January 1, 2006. Meal compositional improvements are necessary to maintain soybean meal’s preferred position as the protein source of choice in poultry and meat production animal rations. Composition improvements that do not sacrifice yield are necessary to increase intrinsic value of the crop, resulting in maximized profit for soybean farmers.

As U.S. soybean production has shifted north, a larger portion of the crop consists of soybeans with lower protein. The northwestern soybean belt region, in particular, has problems producing high-protein meal soybeans. This region is also geographically nearest to the Pacific Northwest, where soybeans are most likely to be shipped to Asia. The market has sent a clear signal to U.S. soybean producers through market basis that this portion of the crop has less market value. Furthermore, South American soybeans, primarily those from Brazil, provide approximately 1% higher protein to our customers. International customers have indicated that the U.S. soybean must increase crude protein in order to remain competitive in the future.
The value of soybeans is broken down by its main components of oil and protein. Ninety-three percent of U.S.-consumed soybean oil is utilized as human food for salad oil, frying, baking, margarine and other uses.

Although soy oil does not naturally contain any trans fats, consumer health concerns about trans fats has prompted food manufacturers to search for oil alternatives that do not require partial hydrogenation for use in certain baking and frying applications. In order to maintain market share, new soybean varieties that produce oils that do not require partial hydrogenation are necessary. With the help of USB and QUALISOY, low-linolenic acid soybeans have been introduced to the market. But other soy oil alternatives are also needed as quickly as possible. USB must continue to move soybean varieties through the research pipeline, such as mid-oleic and high oleic lines that can compete with canola, sunflower, palm and other vegetable oil alternatives. Increased Omega 3 oils are also in the pipeline (2012) and will provide additional human health benefit.

At the same time, the surge in biodiesel production is increasing soybean oil demand for this important fuel alternative. Soybean oil is the primary feedstock for biodiesel production in the U.S. As the industry is beginning to refine manufacturing practices, it is known that specific soy oil properties may be beneficial in improving the quality of biodiesel fuel. Fortunately, the same properties that reduce the need for hydrogenation, reduced linolenic acid and increased oleic acid, also improve the quality of soybean oil for biodiesel. USB will need to monitor those developments for potential soybean improvements that may optimize soy biodiesel production.

The other major component of soybeans is protein, primarily in the form of soybean meal. The majority of U.S.-produced soybean meal is consumed as animal feed, primarily for poultry and pork. Soybean producers are facing greater competition from alternate protein sources for livestock and poultry as the result of increased biofuels production. The Energy Bill’s Renewable Fuels Standard has resulted in dramatic increases in ethanol production. Made from corn, ethanol production results in the byproduct Distillers Dried Grains with Solubles (DDGS). DDGS represent competition for soybean meal use in animal agriculture. At the same time, increased biodiesel production is placing other protein meals on the global market, such as canola meal and sunflower meal. Add to that the fact that increased global biodiesel production is projected to dramatically increase the supply of soybean meal as a result of the need to crush more soybeans to supply the oil for biodiesel manufacture. The animal feed market is experiencing a glut in ingredient alternatives.

When making choices, animal nutritionists look closely at ingredient composition and least-cost options to formulate diets. U.S. soybean producers will have a greater chance of success in maintaining market share as a protein source for animal feeds if they can offer enhanced compositional traits to their customers. For example, increasing the energy value of soybean meal would provide a tangible benefit to feedformulators. In addition, removing anti-nutritionals from the meal would enable soybean meal use to increase in aquaculture feeds.
The majority of U.S.-produced soybeans are sold on the commodity market, which compensates growers based on market price/bushel x volume. Maximizing return per acre must include developing varieties that protect yield from stresses, including Asian Soybean Rust, Soybean Cyst Nematode (SCN) and drought. Increasing yield potential through genetic modifications and developing production practices that minimize variable production costs will also help maximize returns per acre.

Maximizing return per acre for soybean production is even more critical during the current period of high corn prices that is being driven by ethanol production. Soybean trait improvements in the areas of reducing input costs or increasing crop value are critical to maintain the economic incentives for farmers to continue planting soybeans.

To accelerate adoption of new varieties that target health and functionality improvements, USB has engaged the industry by founding the QUALISOY Board. QUALISOY’s primary focus is to facilitate industry cooperation to identify and commercialize soybean improvements that address major market issues.

A critical component of developing compositional improvements is the ability to measure those improvements accurately and reliably. The market does not have a consistent process to measure components such as fatty acids, amino acids, soluble sugars and phytate-phosphorus. While various organizations have their own analytical methods and calibrations, the same soybean sample analyzed by two different labs will often provide different results. A process to implement uniform measurement and results reporting throughout the value chain will ensure that increased intrinsic soybean value is identified and can be properly rewarded by domestic and international buyers.

**Strategic Approach**

The overall strategic approach for Supply involves compositional improvements in soybeans to enhance component quality for oil and protein, ultimately enriching the value of U.S.-produced soybeans by moving away from treating all soybeans as commodities and providing customers with soybeans with improved traits. In order to understand customer needs, it is important to collect market data on soybean consumption and usage for oil, meal and whole beans by market segment. Further, collaboration with industry on efforts to improve protein and oil content and to improve measurements of soybean traits is critical in order to provide quantifiable evidence of trait improvement. USB must also have an understanding of how processing impacts the final quality of soybean components and whether processing quality negates or enhances soybean trait improvements.

At the same time, the Supply strategic approach must focus on soybean yield improvements. The main elements are to protect existing yield potential from biotic and abiotic stresses by identifying new resistance traits and to increase the existing yield potential. According to the annual USB-funded “Soybean Disease Loss Estimate”, the U.S. has lost anywhere between 250 and 500 million bushels of soybeans per year to disease over the past few years, depending on the year. Minimizing those losses by
developing varieties resistant to major soybean diseases like SCN and Sudden Death Syndrome (SDS) will enhance U.S. soybean production.

Although Asian Soybean Rust was less of a problem in 2006 than had been feared, it was detected in more states and more counties and moved farther north than in previous years, indicating that it is still developing and spreading as a disease in the U.S. Asian Soybean Rust will continue to have the potential to cause substantial yield loss while, at the same time, increasing the cost of production due to increased fungicide use.

Developing proper tools for measurement of quality traits through the Production program’s measurement projects will provide the standardized reference chemistry needed to help change the market view of soybeans from a whole bean commodity to a component-driven market that addresses buyers’ needs. To complement the research aspects of the Supply Target Area, it is important that any process to change market behavior include: 1) an industry commitment to provide incentives for higher quality soybeans; and 2) an assurance that varietal data on composition is available to aid farmers in choosing the best varieties. Engaging the industry is critical to driving market acceptance.

**Ability to Impact**
Impact in the Supply Target Area can be shown through the development of tools and traits that will add value to the U.S. soybean crop with rewards that can be felt at the farmer level, whether through higher prices, mitigating crop losses, or capitalizing on production efficiencies. This effort will ensure that the U.S. soybean industry can remain competitive in the global market by providing buyers of U.S. soybeans the traits they need without sacrificing yield for U.S. soybean producers. It is important to note that research to improve the U.S. soybean is an ongoing journey, not a destination. Any U.S. soybean crop improvements will likely be incorporated into foreign soybeans within three to four years, so continuous research for incremental improvements can impact supply through the strategies of composition and yield. Impact can also be made by actively engaging the industry to drive market acceptance.

**Target Area Allocation: $9,853,978**

**Strategy: Composition (Production)**
USB will maintain or increase domestic and international demand and subsequent market value of U.S. soybeans by improving the composition of U.S.-produced soybeans. This strategy involves research to increase protein levels, decrease phytate-phosphorus, and modify the fatty acid makeup of oil to avoid the need for partial hydrogenation. Soybean genomics research continues to develop tools soybean breeders need to improve compositional traits more efficiently and effectively.

Research will continue in FY08 to incorporate the quality traits defined by the market into elite commercial germplasm to meet the needs of soybean end-users. These traits will be incorporated into high-yielding soybean varieties with desirable agronomic
qualities, such as disease resistance. In FY08, research will continue to determine functionality of oil and meal from promising lines.

Another focus for USB within the composition strategy is to develop analytical standards to measure quality trait improvements accurately and reliably in order to maximize added value throughout the value chain. USB will continue to work collaboratively with the American Oil Chemists Society (AOCS), GIPSA, NIR instrument manufacturers and others to develop a standardized analytical approach that can be used throughout the value chain to determine total oil, specific fatty acid levels and crude protein content. It is expected that this research can eventually be expanded to include the measurement of phytate, specific amino acids and digestible sugars in soybeans.

Opportunity #1 – U.S. Soybean Composition
Identify oil and meal traits and the genes that influence those traits to improve the quality and subsequent competitiveness of U.S. soybeans as defined by the market.

Tactical Approach: Develop Improved Varieties/Germplasm
1. Evaluate oil trait opportunities currently being developed by the composition research team. Continue to develop germplasm lines with oleic acid levels that are stable across environments. Conduct industry functionality tests on “new oil” to qualify and quantify improvement(s).
2. Identify genes that regulate synthesis of limiting amino acids, or that regulate protein level, metabolizable sugars and fatty acids.
3. Identify genes that reduce phosphorus excretion in poultry/swine operations (by lowering phytate levels in the seed composition).
4. Work with public and private sector researchers to identify commercial soybean varieties that exhibit higher protein levels while maintaining commercial agronomic standards.

Performance Measures:
• Germplasm with improved oil/fatty acid composition developed and functionality of the improved oil determined.
• Traits identified that improve metabolizable energy, reduce phytate, increase protein levels, and provide a balance of limiting amino acids to eliminate or minimize the need to add synthetic amino acids to feed rations.
• Overall gene regulation to facilitate incorporation into elite commercial germplasm understood through genomic research.

Opportunity #2 – U.S. Soybean Composition
Incorporate genes conferring compositional quality traits into elite commercial germplasm to meet the needs of soybean end-users.

Tactical Approach: Develop Improved Varieties/Germplasm
1. Develop markers and other genomic tools to enable breeders to identify and incorporate genes/QTL for desirable traits into elite germplasm more easily.
2. When a trait has been identified and the corresponding gene/QTL has been incorporated into advanced germplasm, ensure that the germplasm is made readily available to public and private breeding programs.
3. Encourage private sector breeders to include in their breeding programs all traits identified as needed by the market to complement existing compositional improvements.

Performance Measures:
- Genes for improved compositional traits identified and incorporated into elite soybean germplasm in MG 00-VII. To date, six QTL have been identified for oleic acid. At least two genes for low-linolenic acid have also been identified. Three different genes have been identified as being involved with the low phytate trait. At least two genes that affect protein level are known. Numerous breeding lines have been released to breeders and some new public varieties have been released.
- Germplasm provided to commercial and public breeders for inclusion in elite soybean varieties.

Opportunity #3 – U.S. Soybean Composition
Develop analytical standards that accurately and reliably measure quality traits in order to maximize added value throughout the value chain.

Tactical Approach: Develop Improved Varieties/Germplasm
1. Utilize third parties (GIPSA, AOCS) to work with the industry to establish and implement a joint plan to develop analytical standards.
2. Solicit inputs and agreement by industry participants for all phases of the plan.
3. Identify key manufacturers of analytical equipment and provide approved methodology requirements for future equipment. Ensure that, to the extent possible, equipment improvements for precise measurements are applicable to all steps of the value chain from the elevator to the end-user.
4. Develop an efficient, effective wet chemistry analytical method for amino acid, phytate-phosphorus and carbohydrates.

Performance Measures:
- Consensus reached on wet chemistry analytical standards among project member companies and organizations. Laboratory training and certification program developed and implemented.
- Consensus reached among a core group of industry companies on both the primary (wet chemistry) and secondary (field evaluation – NIR, as an example) methodologies that will be used in support of the project goals.
- Library of samples developed and made available through AOCS, from which participating analytical laboratories will standardize their equipment and build calibration curves. An NIR certification and proficiency testing process is developed.
Constraint #1 – Commercialization of Improved U.S. Soybean Varieties
Existing analytical technology cannot measure some attributes rapidly or cost-effectively.

Tactical Approach: Commercialization and Evaluation of Improved Varieties
1. Continue efforts to ensure industry adoption of the best analytical methods for timely and cost effective measurement of oil, protein and fatty acid composition.
2. Work with NIR manufacturers and others to ensure that when the same soybean sample is measured with different instruments or at different points in the value chain, the results are nearly enough equal to meet the needs of the value chain.
3. Continue to build the lab certification and proficiency testing program to standardize test results.
4. Generate a database of wet chemistry values for use in developing calibration files.
5. Refine wet chemistry analytical methods to measure amino acid levels and explore methods for other soybean meal attributes, such as phytate-phosphorus and soluble sugars.

Performance Measures:
• Industry-accepted analytical approach developed to measure meal and oil traits in soybeans that meet targets identified by end users.
• Labs continue to participate in the proficiency program and variation in lab-to-lab results is reduced.
• Database of wet chemistry values for use in developing calibration files generated.
• The NIR Technical Committee continues to work together to standardize NIR measurement to meet the needs of the value chain.

Constraint #1 – Develop Standard Measurements for U.S. Soybean Traits
The market compensation benefits of constituent versus commodity value of soybeans are unknown to producers due to lack of information on regional variation and soybean composition.

Tactical Approach: Standardized Measurement Adoption for Value Capture
1. Incorporate 2007 crop soybean survey samples into survey database.
2. Work with universities, government or private companies to collect representative seed samples for NIR analysis.
3. Assuming successful development of NIR technology for analysis of soybeans and soybean meal, analyze samples and develop a soybean composition profile for each region providing protein, oil, fatty acids, amino acids, phytate-phosphorus and soluble sugars.
4. Communicate to stakeholders in the value chain soybean composition on a regional basis.
Performance Measures:
- Regional soybean composition assessment developed of U.S. soybeans for both oil and meal components.
- Relational database and specific reports for value chain stakeholders developed and results are posted on a Web site.

Strategy: Composition (Domestic Marketing)
The Domestic Marketing composition strategy consists of several facets: 1) providing resources to support the strategic goals and implementation activities of the QUALISOY Board; 2) developing analytical methods to measure fatty acid composition in an industry-accepted manner; 3) developing analytical methods to measure amino acid levels, net energy and other soybean meal attributes; 4) understanding the impact of processing on meal quality and economics; and 5) collecting, understanding and communicating data on consumption of U.S.-produced soybeans and soybean components.

Opportunity #1 – Commercialization of Improved U.S. Soybean Varieties
Make meal and oil trait improvements with sufficient economic benefits commercially available throughout the supply chain.

Tactical Approach: Commercialization and Evaluation of Improved Varieties
1. Quantify historic consumption of U.S.-produced soybeans by component and by market segment.
2. Quantify trait valuations throughout the supply chain, quantify their economic benefit to soybean farmers and assess other market implications such as biodiesel demand.
3. Utilize QUALISOY to engage the market in identifying trait(s) for future enhancement in order to meet end user requirements.
4. Assess feasibility of enhanced soybean meal traits as recommended by the Animal Nutrition Working Group.
5. Understand how processing impacts quality traits improvements.

Performance Measures:
- Database of historic soybean consumption and utilization of U.S.-produced soybeans from 2001 through 2006 marketing years enables USB to assess historic market conditions and make decisions on future priorities.
- List of prioritized soybean meal and oil traits that are both technically feasible and of sufficient market value for commercialization enables USB and QUALISOY to move forward in the trait enhancement research pipeline.
- Report on the impact of processing on meal quality and economics enables USB to assess end market value of trait improvements and determine whether processing quality projects are in order.
Opportunity #2 – Commercialization of Improved U.S. Soybean Varieties
Facilitate commercialization of soybean oil with an improved health profile and functionality.

Tactical Approach: Commercialization and Evaluation of Improved Varieties
1. Communicate “trans solutions” message about trait improvements such as the low-linolenic and mid-oleic soybean oils to food companies and related participants in the soybean oil supply chain.
2. Evaluate the new, enhanced soybean oil functionality performance and end user acceptance in the marketplace. Build on successful low-linolenic soybean adoption strategies for future trait introductions. Lay the groundwork for the introduction of mid-oleic soybean oil.
3. Serve as a catalyst to close the gap between farmers, seed producers, processors and end users so that the entire industry can benefit from the production of specialty varieties, especially low-linolenic soybeans.
4. Promote to supply chain participants the health benefits of soybean oil.

Performance Measures:
• Market analysis of low-linolenic soybean usage shows user acceptance and quality performance characteristics throughout the marketplace. Market is eager for mid-oleic soybeans.
• Farmers are receiving a premium that encourages sufficient planting of low-linolenic soybeans and end users have adequate supply to encourage continued and expanded usage.

Opportunity #3 – Commercialization of Improved U.S. Soybean Varieties
Leverage QUALISOY’s industry contacts and influence to support the introduction of new traits valued by customers.

Tactical Approach: Commercialization and Evaluation of Improved Varieties
1. Increase awareness of QUALISOY to oil refiners, food and feed industries.
2. Engage key industry participants regarding the changing dynamics and impact of trait improvements or “outside” factors such as biodiesel demand on soybean meal.

Performance Measures:
• Key industry participants are informed regarding changing market dynamics for soybean meal and oil and are also informed regarding QUALISOY’s role in making soybean trait improvements.
• The number of companies utilizing QUALISOY as a source for information continues to increase.

Constraint #1 – U.S. Soybean Market Value and Economic Impact
U.S. soybean producers are generally unaware of the negative market response due to lower/declining protein levels.
Tactical Approach: Recognizing Market Value and Economic Impact
1. Refine analysis of economic impact of lower crude protein as 2003 - 2006 data becomes available, such as international export data, South American data and South American production impact.
2. Develop market impact statements slanted toward seed company sales of soybean seeds and farm income to engage farm managers.
3. Communicate the results of the economic analysis to the academic community and industry regarding the constituent value of U.S. soybeans.
4. Maintain and improve the existing soybean value calculator and “InfoBase”.
5. Increase the number of data sources to further quantify the economic impact of lower protein soybeans.
6. Leverage quality data from state programs where quality testing exists without yield results.

Performance Measures:
• Negative economic impact demonstrated of lower protein and oil levels in U.S. soybeans to farmers, seed companies and farm managers.
• 2006 and 2007 crop information incorporated in InfoBase.
• Two additional data sources acquired that further clarify economic impact in support of higher protein and oil.
• State quality testing databases incorporated into InfoBase to support the higher protein and oil economic impact message.

Constraint #2 – U.S. Soybean Market Value and Economic Impact
The U.S. soybean commodity market compensates producers for bushels/acre. Few economic incentives exist to most U.S. soybean farmers for planting higher quality compositional trait varieties, specifically higher levels of crude protein.

Tactical Approach: Recognizing Market Value and Economic Impact
1. Build on existing procurement program successes to continue processor recognition of the value of compositional improvements.
2. Quantify market impact for each procurement program to determine whether programs can be self-sustaining.
3. Expand processor procurement programs that increase market recognition of protein and/or oil improvements.
4. Develop awareness programs targeting grain elevator points in North and South Dakota.
5. Solicit procurement impact data from processor programs to develop a generic procurement impact message.
Performance Measures:
- Established 2007 protein and oil procurement programs maintained for the 2008 crop year.
- Collaborative improved protein/oil awareness message with Indiana and Ohio QSSBs established.
- Quantitative assessment provided from processors to support increase in market value due to procurement program.
- One new protein and oil procurement program established.
- Processor procurement program impact assessment developed and incorporated into the overall communication message.

Constraint #3 – U.S. Soybean Market Value and Economic Impact
Access to soybean crude protein and/or oil analytical information is limited, which restricts a farmer’s ability to choose soybean varieties with higher levels of crude protein and/or oil.

Tactical Approach: Recognizing Market Value and Economic Impact
1. Work with seed variety companies to ensure that crude protein and oil information on all commercial varieties is available.
2. Ensure that seed germplasm companies incorporate crude protein and oil as part of the screening process when selecting lines to advance through to a commercial status.
3. Collaborate with seed company sales representatives, farm managers and processor procurement locations to participate in farmer meetings and promote the higher protein and oil message and the procurement programs.

Performance Measures:
- Oil and protein data incorporated into communications of at least three major seed companies through product literature and company Web sites.
- Varietal comparisons of protein and oil levels for all varieties currently available through existing procurement programs provided to farmers and farm managers.

Ability to Impact
Soybean composition can be impacted in at least two ways. First, because USB has emphasized the need for improved compositional traits and has funded public research, seed companies have also recognized that while yield and agronomic properties will always be vital, improved composition to meet global competition is also important. Results of this change of emphasis can be seen by the introduction of low-linolenic acid soybean varieties by at least two commercial companies and by the fact that commercial companies are also seeking other quality improvements. Second, USB can impact soybean composition by continuing to fund research to improve compositional traits, by understanding the gene regulation of specific traits, and by interacting with seed companies to ensure quality traits are included as part of germplasm advancement. Current genomics efforts will impact composition by providing necessary tools to researchers for the development of high-yielding soybean varieties with improved traits. Because this genomics research is being done by public researchers using USB funding,
the genomics information is available to all plant breeders, not just to breeders in one or two commercial companies. In addition, USB and industry platforms such as QUALISOY can impact composition by helping move quality traits into the market to meet the needs of end users. Further impact can be realized through communication with the soybean value chain to emphasize the importance of improved traits.

People throughout the value chain have become involved in the USB-sponsored quality component measurement program. Without USB’s involvement, this would have been difficult, if not impossible. Genomics research efforts are providing scientists with much needed tools and are also helping put soybean researchers in a position to compete for research grants from the National Science Foundation, USDA’s Cooperative State Research Education and Extension Service and other public agencies.

Using marker-assisted selection (MAS) in the USB-funded winter nursery in Puerto Rico has allowed researchers to determine which crosses contain genes of interest by examining the seed prior to planting. This greatly reduces the time and work involved in breeding projects. The use of MAS in the low-stachyose, or increased digestible sugars, projects allows researchers to make selections at early growth stages and to concentrate on the 20% of the crosses that contain the trait of interest.

New information that low-phytate lines with good yield and good germination can be developed addresses earlier concerns that this might not be possible. Earlier work with oleic acid levels indicated that development of stable mid-oleic varieties in early maturity groups would be difficult, but the new gene alone or in combination with other mid-oleic genes shows promise in addressing this issue.

Checkoff-funded genomics research helped to position soybeans to be chosen by the Department of Energy’s Joint Genomics Institute for sequencing. This project, valued at more than $11 million worth of research, is progressing well, and results should be published late in 2008. Low-linolenic soybean varieties, resulting from both public research and from private companies, have been grown under contract for two years, and demand is increasing. USB-funded researchers have released new lines with one or a combination of low-linolenic, mid-oleic, and high protein for use by public and private breeders in 2007.

Because of its unique position in the industry, USB can play a critical role in helping move desirable traits out of the laboratory and into the marketplace. Industry meetings with each sector of the value chain identified specific targets for both oil and meal that must be changed to ensure that U.S. soybeans remain competitive in the world market.

Support and funding for QUALISOY has raised its profile and reputation and has increased legitimacy of the low-linolenic soybean oil trait and, as a result, has accelerated adoption and commercialization of the trait. This has created an environment where more processors and food and feed manufacturers are participating in USB-funded programs that will accelerate further innovation.
The initial successes accomplished with the low-linolenic trait will enable QUALISOY and USB to leverage the introduction of future enhanced varieties for soybean meal and oil.

**Strategy/Tactical Approach Allocation:** $5,525,008

**Production:** $3,554,554  
**Domestic Marketing:** $1,970,454

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**Strategy: Yield (Production)**  
Research and development efforts in the yield strategy focus on ensuring maximum yield efficiency. The strategy involves research to increase the level of resistance to environmental stress such as drought, and biotic stress such as rust, SCN and SDS through plant breeding and management practices.

In addition, efforts will continue in FY08 to accelerate the process of developing and commercializing elite germplasm containing new selected traits that lead to higher-yielding soybean varieties. This includes genomics research to identify and develop genetic markers and other genetic tools to make plant breeding more efficient and to reduce the time needed to bring varieties with new traits to market. In some cases, soybean breeders are using marker-assisted selection to do things that might otherwise not be possible or practical. The strategy also includes research to develop publicly available transformation methods that do not have the licensing constraints of patented methods. Another yield strategy involves developing improved agricultural production systems, predictive models and monitoring systems, and translations of these systems into practices.

In FY08, USB will continue to leverage research dollars by providing funds to USDA and university scientists whose overhead and operating costs are paid by public funds. USB will also collaborate with USDA under a Memorandum of Understanding to coordinate research efforts and ensure that both checkoff and public funds will be used efficiently and effectively.

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**Opportunity #1 – Improve U.S. Soybean Yields**  
Improve average U.S. soybean yields by increasing the level of plant resistance to environmental stress, targeted pests, and diseases in elite and near commercial varieties.

**Tactical Approach: Protect and Increase Yield Potential**

1. Assess annually the economic impact of major diseases that affect soybean production areas.
2. Continue to support research programs on SDS, soybean rust, drought, SCN and other priority biotic and abiotic stresses.
3. Identify genes/QTL involved in resistance of plants to targeted biotic/abiotic stresses, and determine the function of these genes/QTL.

4. Support genomics research to develop tools that increase plant breeding effectiveness and efficiency. Identify markers associated with genes for resistance to targeted biotic and abiotic stresses, and make the markers available to other researchers.

**Performance Measures:**
- Varieties and/or germplasm developed with increased resistance/tolerance to biotic and/or abiotic stresses to protect yield potential.

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**Opportunity #2 – Improve U.S. Soybean Yields**
Accelerate the process of developing and introducing new traits into elite germplasm that will ultimately lead to high-yielding varieties.

**Tactical Approach: Protect and Increase Yield Potential**
1. Provide support to a research team(s) that can develop transformation technology for use with USB-targeted traits and with germplasm from other USB-funded projects within the yield and composition strategies.
2. Develop yield data from field trials for one or more major QTL derived from exotic germplasm.

**Performance Measures:**
- Transformation and regeneration system implemented that more efficiently incorporates key traits into targeted germplasm lines.
- Major yield QTL from exotic germplasm identified and breeding efforts to incorporate these QTL into adapted germplasm and elite varieties initiated.
- Genomic tools such as maps, markers, genomic sequencing, and micro arrays developed for use by breeders to make selections more efficiently and effectively.

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**Opportunity #3 – Improve U.S. Soybean Yields**
Increase yield potential by supporting development of improved agricultural production systems, predictive models and monitoring systems, and translation of these systems into practices.

**Tactical Approach: Protect and Increase Yield Potential**
1. Work with universities to identify the most significant management practices that constrain production efficiency in the major soybean production areas and develop multi-year research plan(s) to minimize the loss of production efficiency. Ensure that all researchers collect and share their specific data with project colleagues.
2. Support research efforts to develop predictive models for movement of rust and other airborne diseases.
Performance Measures:
- Specific on-farm recommendation(s) that farmers can adopt to maximize production efficiency developed and distributed via brochures and Web site information.
- Recommendations and research results communicated to farmers, Certified Crop Advisors and other interested parties via Web sites, meetings and literature pieces.
- Systems to predict and monitor plant disease spore movement through the air made available.

Ability to Impact
Soybean yield can be impacted by USB’s research efforts to develop varieties that are resistant to biotic and abiotic stresses. The impact will be made more in protecting existing yield potential from loss to stresses than in increasing genetic yield potential. As is the case with all plant breeding efforts, the impact will not be realized for several years due to the length of time required for such research to occur. It is imperative that soybean yield research continue to build upon work already done to develop resistant soybean varieties.

The identification of yield genes with the potential to increase soybean yields by as much as 10% or more along with the development of markers for the genes will greatly expedite the process of moving these genes into a wide variety of germplasm adapted to the various soybean maturity groups across the U.S. Research also can result in the development of a new type of broad-spectrum resistance to SCN. Research to date shows promise in identifying lines that show some resistance to rust. The sentinel plot program funded by USB, NCSRP, and USDA continued to provide an early warning system to keep farmers across the U.S. informed of the location and movement of the disease during 2007. This program has been clearly responsible for minimizing unnecessary soybean rust fungicide applications and saved soybean farmers untold money. Perhaps most important is the ongoing involvement of USB farmer-leaders and staff in rust research planning meetings and the willingness of the checkoff to dedicate funds to address needs in rust research. This level of USB involvement has been instrumental in developing and implementing a strategic plan to address rust in the U.S.

Strategy/Tactical Approach Allocation: $4,328,970

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Target Area: Industry Relations
Goal
Build awareness of the soybean checkoff as an effective and efficient organization, and establish the soybean checkoff as an impartial resource of soybean information among all U.S. soybean farmers to positively impact their global competitiveness.

Strategy: Soybean Producers and Industry
• Tactical Approach: Customer Knowledge and On-Farm Competitiveness

Strategy: USB Board and QSSB Support
• Tactical Approach: Checkoff Partners

Strategy: Research Coordination
• Tactical Approach: Effective Use of Research Dollars

Strategy: Transportation Competitiveness
• Tactical Approach: Transportation Analysis

Market Environment
The United States continues to maintain its number one spot as the primary producer and export of soybeans, although significant competition remains with South American countries. Not only is worldwide consumption of soy increasing, which spawns the increase of soybean exports, but customer preference for U.S. soy is apparent in several regions around the world. This leading position is showcased by U.S. farmers and their general positive feeling about the soybean industry and, more specifically, their own farms. The March 2007 United Soybean Board (USB) Soybean Producer Attitude survey results show that soybean farmers are very optimistic about the future of the soybean industry. This optimism drops slightly when viewing their own operations, but still, nearly half of all farmers believe their own operations will get better in the next three years. This optimistic outlook may also be attributed specifically to the growing biodiesel industry.

The biodiesel boom has been partially fueled by the ethanol boom. As renewable fuels, including biodiesel, become more mainstream not only in the United States, but internationally as well, soybeans and corn are increasingly competing for tillable crop ground. As has been in years past, farmers tend to make their planting decisions based on price, and based on survey results, just over a quarter of soybean farmers will be planting fewer soybeans in 2007. The majority of those farmers attribute that decision to the increased value of corn. Despite the expected decrease in soybean production during 2007, support for the soybean checkoff remains high at 73 percent. That support is directly linked to the number of programs that farmers recognize as a checkoff program. Of farmers that know three programs, checkoff support is at 92 percent, while producers who only know one program is at only 66 percent. This scenario reiterates the
“knowledge = support” communications approach that USB has adopted over the past several years.

Although support for the soybean checkoff is high, nearly a third of farmers feel the soybean checkoff is no longer needed. In fact 12 percent of farmers who support the checkoff feel that it is no longer necessary. And to segment further, 17 percent of farmers who have invested in ethanol or biodiesel production support the checkoff, but feel it is no longer necessary. That leads to an assumption that many farmers feel biodiesel is “The Answer.” While biodiesel continues to be a great opportunity for the U.S. soybean industry, other ramifications exist with increased renewable fuel production. The first is that ethanol production produces dried distiller grains (DDGs), which can be utilized as a high-energy and high-nutrient feed source for livestock and poultry. As ethanol production increases, the amount of DDGs fed to animal agriculture could begin to increasingly replace soybean meal in livestock and poultry rations. The second issue is that as biodiesel production continues, there may be a surplus of soybean meal. Research results show that only half of farmers believe that the growing number of DDGs will have some impact of the price of soybean meal in the livestock industry.

Currently, the number one domestic customer of the soybean meal is the animal agriculture industry. Animal agriculture plays a strong role for the soybean industry consuming the vast majority of domestic soybean meal. As the soybean checkoff invests in funds to educate farmers and rural neighbors about the benefits of animal agriculture, the anti-livestock groups continue to ramp up their efforts and convey mistruths about livestock and poultry production. Despite consumers’ concerns over animal welfare, food quality and food safety remain important to most consumers. It will be important to educate farmers on not only the importance of animal agriculture for their own bottom line, but also on the balance needed between renewable fuel production and providing high-quality feed for the animal agriculture industry. The success of both industries ultimately determines the success of the U.S. soy industry.

Another consumer food interest on the rise is soyfoods. The majority of soyfoods consumed by the general population is in the form of soybean oil. The issue of trans fats has been in the news in recent months. To stay competitive, the soybean industry will have to address trans fats, and has done so with the development and adoption of low-linolenic and other trait-enhanced soybeans. Educating farmers on the different varieties available and the need to look for certain oil and protein levels will be important as the industry continues to move toward select varieties for end uses.

Additionally, the Communications Committee has adopted the Select Yield and Quality (SYQ) message in FY08 since the initiative will be sunset at the close of FY07. The SYQ message is intended to educate farmers in the upper Midwest about the need to meet certain oil and protein levels. These levels will help their beans be more profitable and marketable, and several facilities are offering premiums based on these levels. The communications surrounding SYQ in FY08 will continue to educate farmers and help change their behaviors in selecting seed varieties.
With all of these variables affecting the soybean industry, the 2009 Soybean Checkoff Request for Referendum will be particularly important. There are only two remaining communications cycles between now and the Request for Referendum. Soybean farmers must feel confident in the checkoff’s ability to not only address these issues, but to provide impartial information about industry trends and innovations to help them stay competitive and profitable. This requires two types of external communications: those that report activities and programs of the soybean checkoff, and those that convey industry information to soybean farmers. The combination of these two types of communications will help farmers understand the necessity of the checkoff and hopefully increase the number of farmers who feel the checkoff is a good investment for the industry. Additionally, the soybean checkoff will need to continue to communicate internally to its directors, staff and state checkoff organization leaders and staff, so that a clear, consistent message can be distributed to all soybean farmers.

Finally, the Communications Committee will also adopt the Rust Communications effort in FY08 with the sunset of that initiative at the close of FY07. The rust program is intended to reimburse QSSBs in the more southern regions of the country who experience problems with rust. The communications surrounding this effort will educate farmers on how to spot rust, and the importance of scouting and monitoring their fields to catch rust at its earliest stages.

It is important to note that through these external communications, USB brands the soybean checkoff, not the individual organizations that work within the checkoff. Historic research shows a high level of recognition with the soybean checkoff brand, but a low level of recognition with the myriad of soybean organizations, including the American Soybean Association, USB and the 29 Qualified State Soybean Boards (QSSBs). When farmers have the opportunity to participate in a Request for Referendum, they are not presented with organizational names like the United Soybean Board or the Maryland Soybean Board, only the “checkoff.” The objective is to increase checkoff brand recognition among soybean farmers by increasing brand acceptance among internal audiences, such as farmer-leaders, QSSBs and soybean associations. Brand acceptance can be increased by providing two-way communications and increasing coordination efforts between all internal audiences. Pertinent information must be provided to all internal audiences on a timely basis and presented in a consistent and concise manner. This will help ensure that when communicating externally, the soybean checkoff as a whole is speaking with one voice to minimize contradictions and maximize retention among soybean farmers.

**Strategic Approach**

**Soybean Producers and Industry**

The soybean checkoff is mandated to communicate to all soybean farmers about checkoff investments in programs and activities. This prospectus information will be distributed using paid, earned and grassroots communications efforts, and will focus on the major program areas of USB. At the same time, the soybean checkoff is considered a third-party expert and source of information in the soybean industry. To continue this positioning, the soybean checkoff will continue to distribute information on trends, innovations and
technologic advances in the soybean industry to farmers across the country using a three-tiered communications approach. Industry representatives will also be included in both of these types of communications. These representatives include allied industry organizations and other commodity organizations, which are often considered other sources of information for farmers. Therefore, sharing soybean checkoff information with industry representatives allows those representatives, in turn, to share soybean checkoff information to farmers, extending the reach of communications efforts.

USB Board and QSSB Support
To help build strong soybean checkoff brand awareness among the farmer audience, it is imperative that all checkoff communications provide consistent, concise messaging. To do this effectively, internal communications will play a vital role. USB directors and staff and QSSB directors and staff must be aware of the programs, activities, issues and opportunities that the soybean industry and the soybean checkoff are focused on. Internal communications, then, becomes the lifeline of an efficient, effective organization, and can be divided into two areas: general communications support and customized communications support. General communications support includes two-way information sharing among and between USB and QSSB representatives. Information about soybean checkoff strategies, priorities and investments are shared on a regular basis so that consistent, concise messaging can be built to distribute to soybean farmers. Customized communications support, on the other hand, includes developing materials for a specific individual or purpose to assist in communicating to the producer audience. These specific requests may include speeches, talking points, and presentations to state-specific ads, brochures or Web sites. When working with QSSBs, it is important to proactively communicate issues, messages or opportunities. This allows the states ample time to tie in any new materials into their current plans or consider them for their upcoming fiscal year. Additionally, providing opportunities for USB and QSSB farmer-leaders to interact is a priority within this target area, and has led to successful partnerships in recent years.

**Ability to Impact**
USB is responsible to every contributor of the soybean checkoff, each of whom has a vested interest in the activities of the checkoff. Within the soybean industry, USB is largely viewed as a reliable, third-party resource. The combination of the two allows USB to make a strong impact on the soybean industry.

**Target Area Allocation:** $6,323,434

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**Strategy 1: Soybean Producers and Industry (Communications)**

**Strategic Approach**
The soybean checkoff is mandated to communicate to all soybean farmers about checkoff investments in programs and activities. This prospectus information will be distributed using paid, earned and grassroots communications efforts, and will focus on the major program areas of USB. At the same time, the soybean checkoff is considered a third-party expert and source of information in the soybean industry. To continue this positioning,
the soybean checkoff will continue to distribute information on trends, innovations and technologic advances in the soybean industry to farmers across the country using a three-tiered communications approach. Industry representatives will also be included in both of these types of communications. These representatives include allied industry organizations and other commodity organizations, which are often considered other sources of information for farmers. Therefore, sharing soybean checkoff information with industry representatives allows those representatives, in turn, to share soybean checkoff information to farmers, extending the reach of communications efforts.

**Constraints/Opportunities**

1. Many farmers do not recognize the value and influence of the soybean industry beyond the farmgate, making customer-driven behavior shifts by farmers unlikely.
2. The vast size of the soybean industry creates challenges when trying to leverage checkoff priorities across the value chain and affiliated ag organizations.

**Tactical Approach: Customer Knowledge and On-Farm Competitiveness**

The soybean checkoff provides two types of communications messages to soybean farmers and industry leaders and influencers. The first type of communications message is considered an investment report, or how soybean checkoff dollars are invested. This message is required by the Act & Order, and mandates that the checkoff communicate to each and every U.S. soybean farmer how it invests their checkoff dollars. Informing farmers of all of the checkoff activities and program areas is very important, particularly as the checkoff faces the Request for Referendum in 2009. The second type of communications message is considered information sharing. The soybean checkoff is perceived as a resource for providing unbiased research and information to the farmer and industry audiences. The checkoff provides accurate information and industry trends that have been learned through checkoff programs. Additionally, the soybean checkoff should also help educate soybean farmers about their end markets and how those end markets impact individual farms.

Since the messaging to this audience segment is complex, it is recommended that a three-tiered approach be utilized to increase message retention through frequency and consistent delivery. Those three tiers include paid communications, such as Beyond the Bean or print and radio ads; earned communications, which includes developing relationships with ag media to increase coverage of checkoff messages; and grassroots, which allows for one-on-one, farmer-to-farmer exchanges. These three tiers, while effective as stand alone tactics, are extremely effective when properly coordinated.

**Performance Measures**

- Maintain support of the soybean checkoff among U.S. soybean farmers at 70 percent or higher.
- Increase the percentage of soybean farmers who believe the soybean checkoff is a good investment for the industry by 4 points, to 72 percent.
- Increase the percentage of soybean farmers who know two or more programs or activities of the soybean checkoff from 55 to 59 percent.
• Increase the number visitors to the USB Web site by 5 percent.

**Ability to Impact**
USB has a high ability to impact communications to soybean farmers. Effectiveness of USB communications is reflected in the semi-annual producer attitude survey. In March 2007, 81 percent of farmers could name at least one activity of the checkoff, and 55 percent of those farmers could name at least two. In the same survey, 73 percent of farmers supported the soybean checkoff. This truly demonstrates USB’s ability to impact soybean farmers’ knowledge and awareness of the checkoff.

Additionally, USB has a solid opportunity to impact the soybean industry within this strategy only because of the size of this audience. Consistent communications with these associations and organizations should enhance communications to U.S. soybean farmers since many farmers are in frequent contact with these groups. In some cases, relationships have already been established, thus ability to impact is increased. In other cases, past relationships do not exist, requiring additional time and additional resources, thus the ability to impact is lessened in the first year.

**Strategy/Tactical Approach Allocation: $4,784,727**

**Strategy 2: USB Board and QSSB Support (Communications)**

**Strategic Approach**
To help build strong soybean checkoff brand awareness among the farmer audience, it is imperative that all checkoff communications provide consistent, concise messaging. To do this effectively, internal communications will play a vital role. USB directors and staff and QSSB directors and staff must be aware of the programs, activities, issues and opportunities that the soybean industry and the soybean checkoff are focused on. Internal communications, then, becomes the lifeline of an efficient, effective organization, and can be divided into two areas: general communications support and customized communications support. General communications support includes two-way information sharing among and between USB and QSSB representatives. Information about soybean checkoff strategies, priorities and investments are shared on a regular basis so that consistent, concise messaging can be built to distribute to soybean farmers. Customized communications support, on the other hand, includes developing materials for a specific individual or purpose to assist in communicating to the producer audience. These specific requests may include speeches, talking points, and presentations to state-specific ads, brochures or Web sites. When working with QSSBs, it is important to proactively communicate issues, messages or opportunities. This allows the states ample time to tie in any new materials into their current plans or consider them for their upcoming fiscal year. Additionally, providing opportunities for USB and QSSB farmer-leaders to interact is a priority within this target area, and has led to successful partnerships in recent years.
Constraints/Opportunities
1. A coordinated approach to communications and priorities by the checkoff family creates increased opportunities for success.

Tactical Approach: Checkoff Partners
Communications to USB directors and staff and QSSB directors and staff is defined as internal communications. These internal communications are necessary to run an efficient and effective organization on behalf of U.S. soybean farmers. It will be very important for soybean farmers to hear consistent, concise messaging from both state and national checkoff representatives. The way to ensure that consistent, concise messaging is to provide timely, accurate, transparent communications to the entire checkoff family. This organizational support is necessary to maintain operations, not only by communications staff, but for USB staff. These internal communications can be categorized as general support and customized support. Generalized support includes providing tools for and distributing information about program areas and activities for the entire soybean checkoff family to utilize. Customized support includes providing materials and/or staffing for a specific request, like for a director speech or a QSSB Web site, and is designed specifically for an end user or end purpose. The combination of these types of internal communications will enhance communications to U.S. soybean farmers and help ensure that a concise soybean checkoff message is delivered to soybean producers.

Performance Measures:
• Maintain support of the soybean checkoff among U.S. soybean farmers at 70 percent or higher.
• Increase the percentage of soybean farmers who believe the soybean checkoff is a good investment for the industry by 4 points, to 72 percent.
• Increase the percentage of soybean farmers who know two or more programs or activities of the soybean checkoff from 55 to 59 percent.
• Increase the number visitors to the USB Web site by 5 percent.
• Establish partnerships or partnership opportunities with 15 QSSBs.

Ability to Impact
Leading the charge to increase internal coordination of communication materials and cooperation will assist in external communication to soybean farmers about the soybean checkoff and its programs. Efforts to streamline information to both checkoff and association national and state farmer-leaders and staff will help ensure that a concise soybean checkoff message is consistently delivered to soybean farmers.

Strategy/Tactical Approach Allocation: $1,538,707

Strategy 3: Research Coordination (Production)
Strategic Approach
USB seeks to ensure that checkoff funds and public research funds are utilized efficiently and that appropriate research targets are identified, funded and pursued. Efforts aim to coordinate the development by state and national checkoff organizations of priorities, strategies and activities to optimize total soybean research sector resources. USB, regional checkoff organizations and QSSBs share information and engage in frequent discussions related to research. Much of the research coordination effort with the research community has been through the Production Program’s Research Coordination strategy. In addition, in 2004, the Board established a Research Coordination Task Force to help ensure an open, transparent process for setting checkoff research priorities. In July 2007, the Board determined that the objectives of the Research Coordination Task Force can now be met through regular meetings of the program committees, since these meetings have representation from ASA and are often attended by QSSB staff.

The Production Program’s strategy funds numerous efforts, including development of a checkoff database that is used by many to determine what research is being funded and to avoid redundancy. In addition, work continues to accelerate the development of new research tools and new soybean cultivars by enabling increased communication among public- and private-sector researchers to collaborate on research efforts, share technology advances and set research priorities for improvement of U.S. soybeans. USB and AgSource work with USDA/ARS and other public funding agencies to determine areas of common interest.

Coordination also includes facilitating the efforts of the research community to determine how best to map the soybean genome. As a result of USB funding, a genomics research program has been implemented with leading soybean researchers and excellent progress has been made. At a May 2007 meeting of researchers sponsored by USB, a Soybean Genomics Strategic Plan was updated. Rust will remain important for research coordination. In FY07, rust’s impact on soybeans is being evaluated, research progress will be assessed and coordinated efforts will be supported to develop research plans for future years.

It is important to recognize that research coordination involves more than simply funding meetings or developing databases. Farmer-leaders and staff spend substantial time participating on planning committees, advisory groups and task forces to ensure that research efforts are addressing issues that the checkoff has identified as being important to soybean farmers. For example, farmer-leaders and staff have participated actively in planning for rust research, SCN research, genomics and reviews of ongoing national programs of USDA-ARS.

Opportunity #1
Facilitate the coordination and development by state and national checkoff organizations of priorities, strategies and activities to optimize use of total soybean research resources.

Tactical Approach: Effective Use of Research Dollars
1. Work with QSSBs and regional checkoff organizations to identify research priorities that need greater coordination to develop ideas for joint workshops, jointly funded research projects and leverage activities.
2. Meet with key states individually to create an ongoing dialogue and sharing of priorities and activity plans.
3. Participate in international, national, state and regional conferences, research meetings and project reviews. Invite regional staff and leaders to attend selected Production Committee meetings.

**Performance Measures:**
- A searchable production research database that includes all national, regional and QSSB soybean checkoff-funded projects is updated annually and provided to interested parties. This database is used by USB and regional committees to minimize redundancy and to increase coordination of research efforts.
- Research priorities and plans are coordinated between NCSRP, SSRP and USB to reduce redundancy and increase coordination of research efforts.
- The soybean community is informed of important issues in soybean research via Production Quarterly, developed and distributed four times per year. Increase readership by ten percent, as determined by circulation.

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**Opportunity #2**
Accelerate development of new research tools and new soybean cultivars by facilitating increased communication among public and private sector researchers to collaborate research efforts, share technology advances and set priorities for improvement of U.S. soybeans.

**Tactical Approach: Effective Use of Research Dollars**
1. Facilitate workshops of public and private researchers to identify priority soybean research areas and develop strategic plans to address constraints.
2. Coordinate soybean research initiatives that include university, government and private researchers from across regions and disciplines.

**Performance Measures:**
- As a result of effective communication and collaboration by scientists who participate in USB-sponsored programs, research in checkoff-targeted areas will be advanced by scientists agreeing on priorities, reducing redundancy and allowing researchers to benefit from the work of others.

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**Opportunity #3**
Facilitate research community efforts to determine how best to map the soybean genome and how best to utilize the data generated by the DOE-JGI genome sequencing effort

**Tactical Approach: Effective Use of Research Dollars**
1. Facilitate follow-up workshops for soybean genomics researchers to discuss the present state of soybean genomics and agree on recommendations for next steps.
2. Ensure that the updated strategic plan, action plan and research programs agreed on by the soybean community and funded by USB are continuing to progress according to schedule.

**Performance Measures:**
- Activities needed to advance soybean genomics, such as development of a physical map, determination of gene function and development of additional genetic markers, are agreed on and undertaken by genomics researchers.
- Researchers continue to use the soybean research community’s strategic plan to guide genomics research. Researchers develop and implement a plan to utilize the data from the DOE-JGI genome sequencing effort.

**Opportunity #4**
Make public agencies and ASA aware of USB research priorities and determine opportunities for USB and public agencies to coordinate research efforts to ensure efficient use of all available research funds.

**Tactical Approach: Effective Use of Research Dollars**
1. Directly and/or through subcontracts, USB will provide staff to develop good working relationships and to serve as technical liaisons with ASA.
2. USB staff and Board members will meet as appropriate with key personnel in public agencies, and will invite key people to attend committee meetings and USB-sponsored research workshops and symposia.

**Performance Measures:**
- Good working relationships established with USB and key personnel in public agencies to explore areas of research to address issues of common interest.
- ASA provided with information on areas of research interest and advised on technical issues surrounding these areas.

**Ability to Impact**
Checkoff organizations are the only organizations providing the opportunity for coordination of research among the government, public universities and private industry. These activities require an “honest broker” that is not seen as having a profit motive or a possible conflict of interest. Participation by farmer leaders and staff on teams, committees and task forces provides a “real world” perspective to help researchers understand the needs of farmers. Without this coordination effort, funds will be spent on redundant projects, while other important research targets may be ignored. Coordination is vital if checkoff funds are to be leveraged with public support of research.

**Strategy/Tactical Approach Allocation: $627,534**
Strategy: Transportation (Competitiveness)

Tactical Approach: Transportation Analysis

Market Environment
- Growing demand for rail transportation has exhausted excess capacity. This allows railroads to charge higher rates.
- The cost of transporting soybeans to customers, often $1.00 to $2.00 per bushel according to USDA, is reducing soybean producer profits and hurting competitiveness in the U.S. and global markets.
- Because grain markets are competitive, producers pay most of any increase in transportation cost through lower basis prices.
- The U.S. Government Accountability Office (GAO) recently concluded that benefits of railroad deregulation under the Staggers Act of 1980 have been distributed unequally.
- Grain and oilseed shippers were identified as more likely to be “captive” to a single railroad and pay higher freight rates as a result.
- GAO pointed out that while rates for shipping coal declined 35 percent from 1985 to 2004, rates for shipping grain actually increased 9 percent.
- Strained U.S. Rail Capacity: A two-year phenomena, likely to last 5-10 years
- Growing reliance on unit and shuttle trains is allowing the railroads to haul more freight with less equipment and employees.
- Shifting traffic to new and larger unit train facilities also means that farmers are hauling soybeans longer distances to reach the facilities.
- Grain handlers and processors are investing more in rail cars and facilities to keep freight moving.
- Local and state taxpayers are spending more on maintenance and repair of roads and bridges because truck traffic is replacing rail to reach larger facilities.
- Where short line railroads might be alternatives, contractual agreements often limit their access to competitive rates.
- Railroad influence on policy-making is growing: USDA/DOT; Surface Transportation Board
- Transportation Issues More Acute Due to Increasingly Strained Capacity as a result of:
  1. Ethanol
  2. Biodiesel
  3. DDGs
  4. Soymeal to Export Facilities
  5. Non-ag commodities – e.g., coal
  6. Multi-modal transportation
  7. Natural disasters – e.g., Katrina, low river levels
  8. Locks & Dams maintenance & construction
The Soybean Transportation Coalition is in the final stage of completing its start up and development phase transpiring over the past 12 months. The STC is now in the midst of recruiting and formally establishing its board of directors. The formal launch of the coalition with 501 C-3 status, strategic plan and leadership in place is scheduled for December 2007 with the execution of its first board meeting.

**Strategic Approach**
The USB Transportation Initiative (TI) Leadership Team, working with the Competitiveness Committee, will provide leadership and stewardship of USB’s financial commitment to the Soy Transportation Coalition. The Soy Transportation Coalition has set its organizational goals and identified short and long-term transportation priorities. Given the complexity of the transportation/rail issues, this program may initially focus only on rail transportation, but that is still an option for the STC. USB financial resources will be used exclusively on research projects and other analytical requirements, recommended by the Soy Transportation Coalition and also by the USB Directors.

- **Rail Rates and Other Transportation Costs:** Rail rates are a priority not only because they are high and reducing the competitiveness and profitability of soybeans, but also because there is no viable option for challenging them, which means that railroads do not have an incentive to work with customers to address rate or service issues. The STC will contribute to an improved understanding of the real costs of the shift to unit and shuttle trains, including added costs to producers of investments in new and larger facilities, trucks and longer truck transportation. Short term, anecdotal evidence could make a valuable contribution to follow up on with the rail industry and others that are affected by that industry. More detailed analysis can contribute to the discussion of a proposed national freight transportation program over the next year and beyond.

- **Captive Shipper and Service Issues:** Railroads charge higher rates to shippers who have fewer options. They charge less to shippers who have access to multiple railroads, or who have access to other modes of transportation. Because many grain elevators and crushing facilities are located on a single railroad, they are captive shippers, with only one practical rail option, even if there is another railroad nearby. Contribute to this process by supporting such a request for funding of an in-depth, independent analysis of the extent of Captive Shipper and Rail Service Problems. Short term, STC efforts should document examples of such problems in each participating state.

- **Infrastructure and Equipment:** Railroads in the U.S. are primarily funded through private investments, while highways and waterways are maintained with public funds. This means that as a country we are subsidizing truck and waterborne transportation, but expect railroads to be funded by investors. With the growth of ethanol production, Distillers Dried Grains and solubles (DDGs) are becoming a competitive source of protein for soybean meal. Address product and car innovations that would enhance soybean and soybean meal handling, and reduce costs, since this has the potential to benefit producers through prices and competitiveness.

- **Getting to Know the Players in Rail Transportation:** Soybean producers and other agricultural producer groups have historically been most comfortable working with
USDA and Agriculture Committees in Congress. Work with customers, local grain and feed dealers and processors, and the rail industry to understand local transportation challenges, and make others aware of them. This can contribute to building a foundation for efforts to build a broader network of coalition partners. Keys to success will include a program of analysis, educational efforts directed at producers and other stakeholders.

**Ability to Impact**
Checkoff strategic approaches for the Transportation Initiative are coordinated with the Soybean Transportation Coalition. There are several QSSB and State Soybean Associations that participate in the STC discussions along with collaboration with the National Oilseed Processors Association (NOPA) and the National Grain and Feed Association (NGFA)

- Initiative started in December 2006, with planning still underway the remaining 9 months of this Fiscal Year.
- Issues related to rail transportation are as important as any the soybean industry faces today.
- Soybean organizations must get involved in these issues due to their current and future impact on farmer profitability.
- Seek state and national / private and public support, resources and commitments to move forward is critical, but key leadership organizations need to be involved.
- Development of an action agenda reflecting local, regional and national priorities from soybean producers’ perspective will set a benchmark for future activities.
- Educational efforts to help producers understand the stakes means a well informed audience and one that can take action.
- Partnerships with other agricultural producers, customer and shipper groups will show a concerted front. USB will be at the helm, but they won’t be alone as the processors and shippers will also be onboard.
- Efforts should result in better service/understanding, operating environment and additional infrastructure investments needed to keep American soybean products competitive.
- Transportation issues are numerous and complex and many will not be easily addressed, but a plan is needed an USB working with the QSSBs and interest parties can develop a plan forward.

**Opportunity #1 – Soy Transportation**
Provide analytical and research support to the Soy Transportation Coalition to ensure that the U.S. soy transportation sector is viable and sustainable.

**Tactical Approach: Transportation Analysis**
1. Rail Rates and Other Transportation Costs Analysis
More detailed analysis on these areas by the USB TI can contribute to the discussion of a proposed national freight transportation program over the next year and beyond.

2. Captive Shipper and Service Issues Analysis
Support the STC by conducting an in-depth, independent analysis of the extent of Captive Shipper and Rail Service Problems. Short term, the STC efforts should document examples of such problems in each participating state.

3. Infrastructure and Equipment Analysis
One element of the STC agenda would be to address product and car innovations that would enhance soybean and soybean meal handling, and reduce costs, since this has the potential to benefit producers through prices and competitiveness. Such analysis could be completed by this USB project if approved by the TI Leadership team.

4. Rail Transportation Industry Network Development
Play a critical role by completing analyses, building a customer relationship management database, and conducting surveys of the industry to determine the key players and best way forward.

5. USB Communications
Working cooperatively within the soybean value chain the U.S. soybean farmers and the industry can communicate the positive impact of the Checkoff on the overall competitiveness of the U.S. soybean industry.

**Performance Measures:**
- Increase the percentage of soybean farmers aware of the U.S. Railroad industry’s impact on soybean producers’ profitability and long term existence.
- Increase the awareness of the Rail industry of the importance this industry is to U.S. soybean producers long term competitiveness.
- New logistics approaches to moving U.S. soybean products domestically and to international markets will be explored and developed with relevant industry partners.
- The USB Transportation Initiative Directors will evaluate the success of this program based on a performance matrix that is being established for the Transportation Initiative and the Soy Transportation Coalition. Effectiveness of the communications will also be evaluated during the annual Soybean Producer Survey.

**Strategy/Tactical Approach Allocation:** $252,362

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Email: eready@smithbucklin.com

**Program Staff Contact Information for the Transportation Initiative:**

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Email: craig@ussoyexports.org

Dan Duran, Chief Executive Officer, U.S. Soybean Export Council
Phone: 314-754-1325/Fax: 314-754-1351
Email: dduaran@ussoyexports.org
Target Area: Audit & Evaluation

Goal
Assure compliance of checkoff funds with the SPARC-related federal regulations and USB Policy and maximize return on the USB checkoff investment.

Strategy: Compliance

Strategy: Evaluation

Market Environment
The Soybean Promotion Research and Consumer Information Act, Order and the accompanying documents specifically lay out the fiduciary responsibilities in administering checkoff funds. USB is required by this federal legislation to ensure that all checkoff funds are used in accordance with the law. Qualified State Soybean Boards are authorized to collect and expend funds under the Act and Order and are subject to annual review by USB. Primary contractors and subcontractors to USB are required to expend funds in accordance with the Act and Order and USB Policy. All checkoff programs are coming under increasing scrutiny. In this environment, the soybean checkoff aims to maintain the highest level of compliance with SPARC and strong internal controls to protect farmer checkoff dollars. This year, the investment of $51 million in soybean checkoff revenues for the purposes specified in the Soybean Promotion and Consumer Information Act will be made by the United Soybean Board. It is extremely crucial that the United Soybean Board maintain the utmost integrity in their investment and policy decisions.

Strategic Approach
USB has set a proactive tone in the compliance and evaluation areas on behalf of the soybean checkoff. The Audit & Evaluation Committee will seek programs that provide compliance education and information to farmer leaders and staff at both the state and national levels. In FY 2008, USB will aggressively pursue outreach through educational programs, staff-to-staff consultations, and compliance testing in an effort to create more proactive relationships and improve compliance knowledge.

The soybean checkoff aims to uphold the highest standards in targeting checkoff investments in projects and programs that will result in the best return-on-investment. USB has traditionally utilized active evaluation and tracking tools to 1) make decisions, and 2) evaluate the impact of its decisions. These mechanisms help the farmer leaders and staff to make sound future decisions on programs, policies, and resource allocation. The Audit & Evaluation Committee will utilize objective evaluators and farmer leaders to review USB policies and investments to focus future Board decisions.
Target Area Allocation $882,494

Strategy: Compliance

Constraint #1: Lack of Common Knowledge of Compliance Requirements
The diversity and breadth of the USB/QSSB administration of the checkoff program creates inconsistency in the levels of compliance understanding and management.

Tactical Approach:
USB will continue to utilize the Compliance Coordinator to conduct QSSB compliance reviews, act as a compliance resource, and provide educational material to the QSSBs. The compliance program will emphasize relationship building and a review of QSSBs’ marketing plans and budgets in an effort to create greater understanding of the state’s checkoff activities and possible areas for coordination and collaboration. The Compliance Coordinator will also follow-up with QSSBs when it is necessary to implement new or better controls and policies. In FY 2008, the Compliance Coordinator will pay particular attention to the business and compliance practices of the QSSBs with one board structures. A Compliance Team composed of the CEO, A&E Staff, USB Legal Counsel, and USB Consultant Paul Fuller will support the Compliance Coordinator and serve as a resource and problem-solving team. Compliance Team members will be utilized as experts in events and workshops aimed at educating QSSB and USB staff and farmer leaders about compliance issues related to SPARC. USB will distribute material and educate USB directors about important compliance requirements and USB policies.

Performance Measures:
• Compliance reviews of 5-7 QSSBs successfully completed within the year with no outstanding issues, and those audits cleared by USDA.
• Personal contact with all 29 QSSBs on compliance issues and management tactics and personal visits by the Compliance Coordinator to a minimum of twelve states that result in more positive evaluations of USB performance on the annual survey as well as a 15% positive increase in the approval rating of the Compliance Program.
• Provide accurate compliance information to all QSSBs and USB Directors annually.
• Provide two national educational opportunities and multiple individual state educational opportunities for QSSBs and USB which generate a 25% increase in overall contacts with state staff and farmer leaders.

Constraint #2 – Primary and subcontractors need information to implement contractual requirements correctly.
SPARC and its accompanying documents specifically lay out the fiduciary responsibilities in administering the soybean checkoff funds. USB includes these provisions in contracts and is responsible for controls to ensure that its work is being
carried out under the constraints of the law. More than 600 contracts and subcontracts are underway annually.

**Tactical Approach:**
The sheer volume of contracts creates the need for compliance testing and education. A&E will select and conduct 3-5 subcontractor audits and one primary contractor audit in order to test general compliance with the provisions of SPARC. These audits can be triggered by total expenditures, potential conflict of interest or management issues; the audits can also be randomly selected.

**Performance Measures:**
- Audits of one primary and 3-5 subcontractors which identify any compliance issues and reach resolution on all findings.
- Audits and resolutions cleared by the USDA.

**Ability to Impact**
The history of audits and compliance reviews has shown that subcontractors, primary contractors, and QSSBs continue to improve their procedures and internal controls with each audit or compliance review. USB seeks to supplement these compliance checks with continued reinforcement in educational venues. The Board has allocated a mandatory two percent of program budget to the Audit & Evaluation Committee. Historically, the funds have been divided with roughly half allocated to the compliance target area. The Audit & Evaluation Committee recommends that the Compliance strategy budget be set at $485,372 (55% of the amount allocated to the Audit & Evaluation Committee) in order to make an impact on knowledge of compliance requirements and implementation of contractual compliance controls.

**Compliance Allocation - $485,372**

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**Strategy: Evaluation**

**Opportunity #1 – Accurate, objective information can focus checkoff investments for the best return-on-investment**
The Board can make better investments through the use of objective external evaluations as a decision-making tool.

**Tactical Approach: Audit & Evaluation Committee will undertake evaluations in FY 2008 including:**
1) Farmer attitude survey designed to track historical trends and emerging issues which will be utilized in program and communications decisions by the Board and QSSBs.
2) The cost for budget analysis to continually analyze project proposals, contracts, and proposed expenditures and provide staff and committees with this information.
Budget analysis will aid in project funding decisions and price negotiations with potential contractors and subcontractors.

3) Program evaluations to analyze and track the impact and effectiveness of the Board’s processes and projects. The Audit & Evaluation Committee will rely heavily on the suggestions of the Board and its program committees for evaluation projects which best meet the needs of the Board.

4) A Return on Investment Audit required every five years by the Act and Order.

**Performance Measures:**
- Evaluations will be reviewed by all related committees or the Board, with 50% of the recommendations adopted either in total or in part.
- The track record of acceptance will be maintained and institutionalized so that the Board can utilize the information in the future.

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**Opportunity #2 – Development and fine-tuning of USB policy decisions builds integrity of the checkoff program and creates an environment where the best business practices can flourish.**

**Tactical Approach:**
The Audit & Evaluation Committee and Compliance Team will review new USB policies and make recommendations to implement best business practices for the Board and staff.

**Performance Measures:**
- Any new USB policies will be reviewed and approved by the Board and USDA-AMS.

**Ability to Impact**
The history of the Board’s evaluation work has shown that this self-analysis tool is critical to the Board’s ability to make sound decisions and appropriately allocate resources. Evaluations have an impact on focusing future investments and highlighting historic areas of emphasis that are no longer needed. The Board has allocated a mandatory two percent of program budget to the Audit & Evaluation Committee. Historically, the funds have been divided with roughly half allocated to the evaluation area. The Audit & Evaluation Committee recommends that the evaluation strategy budget be set at $397,122 (45% of the Audit & Evaluation Committee budget) in order to conduct evaluation work that provides meaningful insight and recommendations that can be adopted and incorporated into future decision-making by individual committees and by the Board.

**Evaluation Allocation - $397,122**
Program Staff Contact Information:

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Phone: (800) 989-8721
Email: pkanoyo@unitedsoybean.org
UNIVERSO SOYOBEAN BOARD  
SUMMARY BUDGET  
FOR FISCAL YEAR ENDING SEPTEMBER 30, 2008

<table>
<thead>
<tr>
<th>BUDGETED REVENUES</th>
<th>FY2008 BUDGET</th>
<th>Jul-07</th>
<th>Aug-07</th>
<th>Sep-07</th>
<th>PROPOSED AMENDED BUDGET</th>
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<tbody>
<tr>
<td>QSSB Collections</td>
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<td>4,120,625</td>
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<td>51,145,625</td>
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<td>4,120,625</td>
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<td>51,145,625</td>
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<table>
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<tr>
<th>BUDGETED EXPENDITURES</th>
<th>FY2008 BUDGET</th>
<th>Jul-07</th>
<th>Aug-07</th>
<th>Sep-07</th>
<th>PROPOSED AMENDED BUDGET</th>
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<tr>
<td>Animal Utilization</td>
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<td>(75,000)</td>
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<td>(4,396,000)</td>
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<td>44,124,676</td>
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| USB Managed Programs  | 1,250,000     | 350,020 | 0      | 0      | 1,600,020               |
| USB Evaluation of Programs | 794,574 | 87,920 | 0 | 0 | 882,494 |
| USDA                  | 300,000       | 0      | 0      | 0      | 300,000                 |
| Administrative        | 2,351,250     | 206,031 | 0      | 0      | 2,557,281               |
| New Initiatives       | 1,175,250     | 0      | 0      | 0      | 1,175,250               |
| QSSB Assessment Credits | 250,000     | 0      | 0      | 0      | 250,000                 |
| Total Budgeted Expenditures | $45,849,750 | 5,039,971 | 0 | 0 | 50,889,721 |

| Board Unallocated     | 1,175,250     | (919,346) | 0      | 0      | 255,904                 |

Collections estimated upon 3 billion bushels usage at $6.60 average price at 2/19/07 USB board meeting.
Collections estimated upon 2.95 billion bushels usage at $7.30 average price by USB Executive Committee on 7/7/07.
## FY2008 ALLOCATION by Committee

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<tr>
<th>Animal Utilization</th>
<th>International</th>
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<th>Domestic</th>
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<th>Special</th>
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<td>Marketing</td>
<td>Competitiveness</td>
<td>Production</td>
<td>Marketing</td>
<td>New Uses</td>
<td>Communications</td>
<td>Initiatives</td>
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<td>Soybean Producers/Industry</td>
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<td>Checkoff Organizations: USB &amp; QS SBs</td>
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<td>Market Access</td>
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<td>Competitiveness</td>
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<td>Additional Allocation to Cmtee</td>
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<td>To be allocated by Strategy</td>
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