Biobased Solutions for GOVERNMENT

Go to www.soybiobased.org to sign up for the electronic version of this newsletter and to see profiles of how biobased products are successfully used across America.



John Motter

DEAR READER

The United Soybean Board's Biobased Products Stakeholders' Dialogue was an exciting opportunity to meet some of the customers of the approximately 600,000 U.S. soybeans farmers like me. Dr. George Washington Carver would surely have smiled if he had walked through the lobby like all of us did to see the many products made from plants that are available to government agencies, universities and more.

Biobased companies of all sizes displayed diverse products that showcased our theme: *Innovation*

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Move Over Petroleum, Make Way for the Biobased Economy

USB Biobased Dialogue Stakeholders See Next Steps

iobased manufacturers and government representatives joined the United Soybean Board (USB) on June 17 & 18, 2014 in Washington, D.C. to discuss their roles in reversing America's petroleum-laden past and accelerating the nation's biobased future.

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From left, USB Director
John Motter, U.S.
Department of Agriculture
Deputy Secretary Krysta
Harden and Executive
Director of The George
Washington University's
Sustainability Institute
Kathleen Merrigan discuss
the soy-backing system
used in SYNLawn products
with Anastasia Phillips,
owner SYNLawn New York
and Hussein Habeeb also
of SYNLawn New York.





Medford New Jersey Public School Director of Operations and Technology Joe Biluck.

Biodiesel Pioneer Embraces Additional Biobased Products

oe Biluck has never been afraid to try something new. As director of operations and technology for Medford Township Public Schools, in Medford, New Jersey, he implemented sustainable practices long before it became the trend.

1997: After Biluck conducted extensive research and gained the support of his school district, Medford is the first school district in the country to use biodiesel. They continue to use biodiesel in their school bus fleet today.

2005: Medford receives the National Biodiesel Board's "Eye on Biodiesel" award in the "Inspiration" category and the Environmental and Energy Study Institute's "National Clean Bus Leadership Award".

2007: U.S. Department of Energy National Clean Cities program names Medford "Alternative Energy Pioneer" and the school receives the New Jersey Governor's Environmental Excellence award in the "Environmental Leadership" category.

DEAR READER

Continued from page 1

and Agriculture Grow Together. The Dialogue was an important opportunity to listen and learn from government and company representatives as well as college students who have strong views on sustainability. I was excited to think that our conversations can lead to children and grandchildren, like my grandsons Randy and Ryan, having lives that are:

- · Less dependent on petroleum;
- Freer of harsh chemicals; and
- Lived in a US economy offering exciting careers making biobased products that none of us can even imagine today.

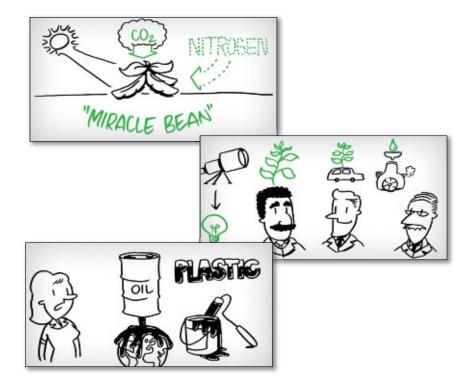
Soybean farmers are committed to such a future, and doing it sustainably. I'm proud to say that I am a third-generation family farmer. In fact, it was my strong grandmother who started our farm in Ohio. My father has always said that we have the responsibility to leave the land better than we found it. We have to be lifelong learners.

I depend on innovations and technology that allow me to farm more sustainably than anything my dad or grandmother envisioned. For example, I use global positioning satellite systems to grid sample our land. It allows us to prescribe the exact amount of nutrients needed for the crop, keeping the fertilizer where the plant can use it best.

Thanks to agricultural biotechnology, I grow more than 60 bushels of soybeans per acre of land. Without biotechnology, my dad's average yield in 1979 was 30 bushels of soybeans an acre. He also had to use more pesticides and herbicides and till the ground more, which required him to use more diesel fuel. U.S. productivity increases have made an abundant soybean supply for food, feed and biobased products for this country as well as made soybeans an export success story for America.

John Motter
 United Soybean Board
 Customer Focus Action Team Chair





New Videos Tell the Biobased Story

If a picture is worth a thousand words, then a video must be worth 10,000, right? USB offers three new videos that help convey the sustainability story of soy-based products.

Often called the "miracle bean," U.S. soybeans can collectively remove from the atmosphere the carbon equivalent of taking 22 million cars off the road in just one year. Each year, nearly 600,000 independent U.S. farmers plant, grow, and harvest trillions of soybeans. This new whiteboard video (http://www.soybiobased.org/busy-beans) explains.

Other videos highlight soy-biobased success stories such as Ford Motor Company's use of soy-based foam in headrests and seat cushions and The Pennsylvania State University's use of soy-based hydraulic fluid in its elevators.

Take a look at these videos and use them to educate others about the many benefits of soy-based products.

Click here (http://www.soybiobased.org/soy-biobased-videos/) to view the videos and/or request a copy for your use.





Biobased speed networking scored as a top-rated Dialogue session, benefiting both procurement representatives and biobased manufacturers who met through it. Foreground from left, USDA Agricultural Research Service's Jessica McDonagh and Sandy Morgan speak with BioBlend Renewable Resources, LLC Vice President Bill Smith.

Move Over Petroleum, Make Way for the Biobased Economy

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More than 95 percent of the attendees rated the program excellent or above average. All biobased manufacturing representatives who completed surveys said their participation would aid them in marketing their biobased products.

USB's Biobased Products Stakeholders' Dialogue brought together stakeholders from throughout the supply chain including biobased product manufacturers, policy makers, researchers, students, and others. U.S. Department of Agriculture Deputy Secretary Krysta Harden and other government leaders discussed the progress of USDA's BioPreferred® Program. It has helped spur biobased procurement within the Federal government and has positive ripple effects throughout the economy.

USB organized the Dialogue in cooperation with The George Washington University Sustainability Institute led by Executive Director of Sustainability Kathleen Merrigan.

From left, Reichhold Coatings North America Technology Director Scott Cooley describes the company's new platform of biobased low-volatile organic compounds for paints and resins with Deputy Secretary Harden and USB's John Motter.



USDA BioPreferred® Program Manager Ron Buckhalt (left) and Division Chief for USDA Office of Procurement and Property Management Jeffrey Goodman answer questions from biobased stakeholders about program implementation.

Cindy 2

Biodiesel Pioneer Embraces Additional Biobased Products

Continued from page 1

Looking to build on his success with biodiesel and the other sustainability initiatives he champions, Biluck turned to biobased products. About two years ago, he participated in a USB-sponsored biobased product demonstration project through which he tried a number of soy-based cleaning products and lubricants. Biluck was so pleased with the performance and environmental benefits of the products he pursued additional opportunities to integrate biobased products into his school district.

Here's what he had to say:

Q: Why did you first decide to give biobased products a try?

A: Two reasons actually, one was for a specific problem and another for a broader approach.

First, we were experiencing an issue with an emission control system on a particular diesel engine, and I needed a solution.

Second, given our work in sustainability and biofuels, it was a natural progression for me to evaluate the performance of these new products. My work over the years with the United Soybean Board has exposed me to a number of innovative goods and materials. Recently, I participated in their biobased workshops. These events placed me in direct contact with businesses that offer products manufactured to solve specific problems we deal with such as one relative to emission systems. I also learned about products that claimed to perform as well or better than the petroleum counterparts. Looking to reduce the level of exposure of my staff to hazardous materials, I was curious as to whether the biobased products performed as marketed. So, I wanted to gain further experience.

Q: What do you see as the benefits of biobased products?

A: One of the primary benefits is helping to create American jobs. Expanding market opportunities in the agricultural sector is vital. Another is minimizing risk. It is my responsibility to reduce the exposure levels of my staff and the building occupants to potentially toxic and harmful substances. The use of biobased products will help me satisfy this obligation. Finally, I'm always on the lookout for products made in America that can perform equally or better than their synthetic counterpart.

Q: How do they perform compared to the petroleum-based products you had been using?

A: The result of our pilot showed that the tested products performed as well as or better than products I've used for many years. For example, our mechanics reported that the biobased hand cleaner removed the grease and dirt but did not dry out their skin like the former product. The white board cleaner I tested performed exceptionally well. The penetrating lubricant performed equally as well and did not flare when torches were used.

Q: How does using biobased products complement your other sustainability initiatives?

A: For many years, our district has been successful in the implementation of a number of sustainable strategies. This approach has saved hundreds of thousands of utility dollars, improved our environment, and significantly reduced our



energy use. One of the tenets of sustainability is to create a healthier environment for the building occupants and the staff maintaining that facility. This is even more critical in schools occupied by small children. The use of biobased products is consistent with that sustainable goal in that their use reduces and/or eliminates the presence of volatile organic compounds (VOC's) in our schools.

Q: What types of biobased products are you using now?

A: We use spray lubricants, hand cleaner, drain and septic treatment, mold and mildew remover, carpet shampoo, white board restorer, all-purpose cleaner, motor oil, and truck/bus wash. This fall, our students will be the first in the nation to walk into a school with the soy-backed Yellowstone Collection carpet.

Q: Are there other biobased products are you hoping to use in the future?

A: I am also looking into using a soybean-oil-based parking lot striping paint.

Q: What would you tell others who are looking to incorporate the use of biobased products in their facilities?

A: One of the most rewarding aspects of approaching my work through the lens of sustainability, and there are many, is conducting business knowing that we are not contributing to the "problem". We are finding ways to provide our students with a high-quality education, while at the same time, diminishing our impact on the environment, reallocating excess utility funds back into instruction, and lessening the hazardous impact to those who use and maintain our fleet and facilities. I encourage others to seek information about biobased products. Learn how these materials perform and how they will enhance their service operations. Test and evaluate the long-term benefits these products offer.

Q: How do you see integrating student education with the use of biobased products?

A: One of our major goals is to take what we've done with our facilities and weave it into the tapestry of classroom instruction. There are so many opportunities to use our buildings, systems, and products as practical learning labs. We're beginning to develop methods to incorporate a number of these opportunities. Showing students how to solve problems is far more critical than memorizing and regurgitating basic facts. For example, we hope to demonstrate that the use of biobased products is an important component in an overall strategy to reduce asthma triggers in schools. Like the slogan for the American Lung Association says, "If you can't breathe, nothing else really matters." We could enlist the students help in the evaluation process of the biobased products to monitor performance. Their research could include how the product is made (science), where it's made (social studies), and understanding the ratios of constituent components (math).



Biobased Feedstocks, Intermediates and Complex Products Now Eligible for USDA Designation



Biobased Intermediates & Complex Products 101: A Primer

ome biobased products are easy to recognize. Soy-biobased cleaning products, inks, paint, greases and oils, are all finished products. Others are not as obvious because they are an ingredient, rather than a finished product. For example, soy polyols are used to make foam and other materials such as coatings, binders, sealants and adhesives. In turn, these materials are used to make components for complex finished products we use every day, such as mattresses, furniture and even cars.

Through the Federal BioPreferred® program (www.biopreferred.gov), the USDA designates categories of biobased products for a federal procurement preference. Minimum biobased content standards are established for each product category. As shown on page 10, USDA has 97 BioPreferred-designated biobased product categories required for preferred federal purchasing. The program has helped spur biobased procurement within the Federal Government and created a springboard for state and local procurement as well as the private sector.

Until recently, feedstocks, intermediates, and complex products (made up of multiple individual components) had not been eligible for USDA designation for federal purchasing preference. USDA issued new guidelines on August 1, 2014 that make feedstocks, intermediates and complex products eligible for USDA designation under the federal purchasing preference program.

USDA will establish minimum biobased content for each designated feedstock and intermediate. In addition, because the federal government does not directly purchase large quantities of feedstocks and intermediates, USDA has established a process for designating final finished products made with the feedstocks and intermediates it designates.

The following are several examples of biobased feedstocks and intermediates:

 Ashland – Soyad™, a formaldehydefree adhesive, and Envirez™, unsaturated polyester resin used in a variety of molding, laminating and pultrusion applications.

- Archer Daniels Midland Evolution Chemicals™ biobased propylene glycol, used in unsaturated polyester resins, coolants and antifreeze, hydraulic and brake fluid, aircraft deicing fluid, heat transfer fluids, paint and coatings.
- BioBased Technologies Agrol[®] products, used in polyurethane applications for building products, furniture, automotive, adhesives, carpet backing and industrial coatings.
- Cargill BiOH® polyols, used to make flexible foam in upholstered furniture and bedding, carpet backing, and automotive seats.
- Reichhold BECKOSOL AQ® alkyd latex materials, used in paints and coatings.

For complex assembled products made with one or more biobased components, the new USDA guidelines establish a procedure to determine the overall biobased content of such products based on its individual components and to designate them for federal purchasing preference.

Complex products discussions took center stage at the USB Biobased Stakeholders' Dialogue. Speakers from left are, USDA Division Chief Jeffrey Goodman, DuPont Industrial Biosciences External Relations Manager Nancy Clark; Paramount Industrial Companies, Inc. Managing Director Richard G. Diamonstein; BioBased Technologies CEO Amy Sorrell; and Columbia Forest Products Director of Marketing Todd Vogelsinger.

To view the sessions, go to http://www.soybiobased.org/2014biobased-stakeholders-dialoguevideo/.

Examples of complex products include:

- Ford Motor Company uses soy-containing foam in car seat cushions and headrests.
- Columbia Forest Products
 manufactures with a soy-based
 adhesive to make decorative
 wood panels used in various
 interior design applications.
- John Deere uses a soy-based, sheet-molding compound for panels in its farm equipment.
- Paramount Sleep and other mattress companies include soy foam in their products.
- Hickory Springs (which also makes a soy-containing foam) and other furniture manufacturers use soy foam in their products.
- Campion Marine uses soy-based resin in their boat construction.



BioBased Technologies® LLC (BBT) is looking to change the world – one product, one customer and one consumer at a time.

"What we want is to see the biobased product industry flourish by utilizing our natural resources grown right here in America," says BBT CEO Amy Sorrell. "As this industry continues to thrive we will see additional jobs in agriculture and technology, and most importantly the creation of more products that will lessen a harmful impact on our environment."

Established in 2003 and based in Springdale, Ark., the company helps make everyday products better for the world by using polyols made from farm-grown plants instead of petrochemicals.

"We are currently working with automotive companies and other industries to stress the importance of using plant-based polyols," says Chief Technical Officer Ken Mitchell. "Consumers like the thought of helping the environment and want companies to do their part, too. This is one way they can feel really good about the products they buy keeping sustainability in mind."

In 2005, BBT created Agrol®, a biobased family of polyols used in manufacturing that can replace some petroleum polyols. The Agrol line is currently used in a variety of products including lubricants, building products, furniture, automotive, adhesives, carpet backing and industrial coatings. The Agrol product line is currently certified to use the "USDA Certified Biobased Product" label. Under USDA's new rule, the Agrol polyols, and final products made using them, also become eligible for USDA designation for preferred federal purchasing.

Sorrell says education and marketing are two parts playing vital roles explaining the benefits of biobased products both with customers and consumers. Innovation and technology play other major factors.



Report Reaffirms Formaldehyde as Known Human Carcinogen

On August 8, 2014, the National Research Council (NRC) of the National Academy of Sciences affirmed that there is sufficient scientific evidence to list formaldehyde as a known human carcinogen.

The NRC report concludes, "Because there is sufficient evidence of carcinogenicity from studies in humans that indicates a causal relationship between exposure to formaldehyde and at least one type of human cancer, the committee concludes that formaldehyde should be listed in the RoC as 'known to be a human carcinogen'."

Fore more, visit: http://www.nap.edu/ catalog.php?record_id=18948

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FRENCH FEET STAND ON SOY

— A soy-backed carpet runner, shown here, protected Appalachian State University's (ASU) Maison Reciprocity energy efficient home in the Solar Decathlon Europe Competition held in Versailles, France. ASU partnered with the Universite de Angers and placed ninth in the highly competitive global event. The soy-biobased runner protected the home's floors from the thousands of people who visited it during the exposition.

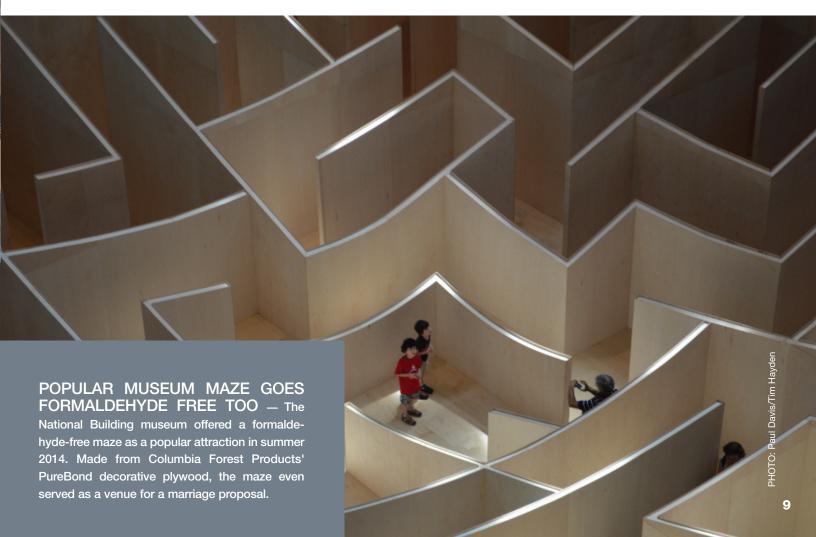
STILL LOOKING GOOD — Hunter Holmes McGuire Veterans Affairs (VA) Medical Center's 12'x12' soy-biobased door mat still looks great after thousands of veterans have walked across it since it was installed in October 2012. The Richmond, Virginia medical facility participated in a USB pilot program for government facilities to evaluate the performance of soy-biobased products. Signature Accord makes the EnviroCel™-backed mats from soybean oil-based polyols manufactured in Georgia. The backing also contains recycled plastic bottles and natural rubber as well as recovered materials. These renewable, recycled, and recovered/reclaimed materials represent 34% of the mat by weight.

FORMALDEHYDE FREE

— Both ASU's Maison Reciprocity and the Rhode Island School of Design/Brown University Solar Decathlon entry, Techstyle Haus, used Columbia Forest Products' (CFP) PureBond decorative plywood. A soy adhesive in the plywood reduces the environmental footprint of the construction and allows the plywood to be formaldehyde-free, an important feature in this competition.



FOR MORE INFORMATION about Solar Decathlon Europe 2014, which is closely related to the U.S. Department of Energy's Solar Decathlon, to be held in Irvine, California in 2015, visit http://www.solardecathlon2014.fr/en/. For information on the ASU's Maison Reciprocity go to http://www.reciprocity2014.com/ and for more on the RISD/Brown entry go to http://www.techstylehaus.com.



Biobased Product Categories Designated by USDA for Federal Procurement Preference

The U.S. Department of Agriculture (USDA) has designated 97 BioPreferred® product categories required for preferred federal purchasing. In the process, minimum biobased content standards are established for each product category. For more details on the product categories go to www.biopreferred.gov

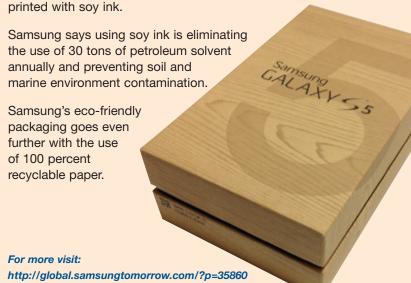
Item	Minimum Biobased Content	Item	Minimum Biobased Content		
Adhesive and Mastic Removers58%		Dethatchers	Dethatchers87%		
Agricultural Spray Adjuvants50%		Diesel Fuel Additive	es90%		
Animal Cleaning Products57%		Dishwashing Produ	ıcts58%		
Animal Repellents79%		Disposable Contair	ners72%		
Aircraft and Boat Clea	ners	Disposable Cutlery	48%		
	's48%		are72%		
	38%		85%		
Air Fresheners and Deodorizers97%		Electronic Components Cleaners91%			
Asphalt and Tar Removers80%		Engine Crankcase Oil			
Asphalt Restorers68%		Erosion Control Materials77%			
Automotive Care Products75%					
Bath Products61%			Expanded Polystyrene (EPS) Foam Recycling Products90%		
Bathroom and Spa Cl	eaners74%		71%		
Bedding, Bed Linens	and Towels12%	Films	e Films85%		
Bioremediation Materi	als86%		e Films45%		
Blast Media	94%		49%		
Candles and Wax Mel	ts88%		Protectors		
Carpets	7%		on-carpet)91%		
Carpet and Upholster	y Cleaners		78%		
	se Cleaners54%	Fluid-Filled Transfo			
Spot Removers	7%		ter-Based66%		
Chain and Cable Lubr	icants77%		il-Based95%		
Composite Panels		•	53%		
	els37%	Foot Care Products	s83%		
	55%	Forming Lubricants	568%		
	23% or Panels89%	Fuel Conditioners	64%		
	Panels94%	Furniture Cleaners	and Protectors71%		
	d Solid Surface Products89%	Gasoline Fuel Addi	tives92%		
		Gear Lubricants	58%		
·	nd Accelerators95%	General Purpose H	ousehold Cleaners39%		
Concrete and Asphalt	Cleaners70%	Glass Cleaners	49%		
Concrete and Asphalt	Release Fluids87%	Graffiti and Grease	Removers34%		
Corrosion Preventative	es53%	Greases	100/		
Cuts, Burns, and Abra	asions Ointments84%		42%		
			72% 30%		
	rpose93%		71%		
Deodorants	73%		re Specified75%		

Item	Minimum Biobased C	ontent	Item	Minimum Biobased	I Content
Hair Care Products Conditioners			General C	ng Products ntenance Products leanerser Maintenance Products	50%
Hand Cleaners and Sanitizers				post Materials	
	rsers		·	eaners	
Heat Transfer Fluids					
Hydraulic Fluids - Mobile Equipment44%		Multipurpose Lubricants			
Hydraulic Fluids - Stationary Equipment44%		Packing and Insulating Materials			
Industrial Cleaners41%		Paint Removers			
Inks		4170		itions	
	3	66%			
Sheetfed - Bl	olorack	49%	Plastic Insulating	ricants g Foam for Residential and Construction	
	- ≥ 25 ppm		Pneumatic Equip	oment Lubricants	67%
Ink Removers and Cleaners79%		· ·	's		
Interior Paints and Coatings			_	cants	
	aterborne Alkydd Solventhorne Alkyd		-		
Oil-Based and Solventborne Alkyd67%				on Cleaners and Solvents	
Laundry Products General Purpose34%		34%		cts	
	Spot Removers		Thermal Shipping		
Leather, Vinyl, and Rubber Care Products55%		55%		y containers	21%
Lip Care Products82%		82%	Non-dural	ble	82%
Lotions and Moistur	izers	59%	Topical Pain Reli	ef Products	91%
Metal Cleaners and Corrosion Removers			Turbine Drip Oils	3	87%
	movers		Two-Cycle Engin	ne Oils	34%
	Cleaners		Wastewater Syst	tems Coatings	47%
Stainless Steel		Water Clarifying	Agents	92%	
Metalworking Fluids General Purp	ose	57%	Water Tank Coat	tings	59%
	ance		Water Turbine Be	earing Oils	46%
Straight Oils		66%	Wood and Conc		
			Membrane	e Concrete Sealersg	
			Wood and Conc	rete Stains	39%



Samsung Saves 30 Tons of Petroleum with Soy Ink

One of hottest smartphones on the market today – the Samsung Galaxy S5 – is packaged in a box printed with soy ink. The Galaxy's manual is also



Plant-based Polyols Boost Sustainability of Cars, Carpets, Coatings and So Much More

Continued from page 7

"BBT is currently pushing the envelope," explains Mitchell. "We're always looking for new and innovative ways to improve our biobased polyols and to think of other ways we can have a positive impact on our environment."

One challenge, however, is making a product cost effective and enticing for customers willing to put sustainability at the top of their list of priorities. Sorrell admits the motivation for a customer to move to biobased products has to go beyond just sustainability.

"Sustainability is interesting and enticing, but the cost of switching from traditional chemicals can be very high," Sorrell says. "We realize there is a huge cost to shut down a production line in order to run a new foam. Our job and our industry's job is to explain why plant-based polyols matter and are worth the investment."

With continued research and development, education, marketing and promotion, BBT is confident more and more customers will begin to see the benefits of investing in biobased products in the coming years.

America's farms are just beginning to tap their potential as a source for natural, renewable biobased products that offer benefits to worker health, the environment, America's economy and energy security. To learn more about the many biobased products made from soybeans, go to www.soybiobased.org. Because of the potential for biobased products to create new markets for soybeans, U.S. soybean farmers have invested millions of dollars to research, test and promote biobased products. Much of this work was done through the United Soybean Board (USB), which is composed of 70 U.S. soybean farmers appointed by the U.S. Secretary of Agriculture to invest soybean checkoff funds. As stipulated in the Soybean Promotion, Research and Consumer Information Act, USDA's Agricultural Marketing Service has oversight responsibilities for the soybean checkoff.



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