

IN brief

Industry gains on money-back schemes

Risk-sharing agreements that assess innovative drugs based on long-term cost effectiveness may not be helping governments save money, a new study suggests. "In the short term, it's been to [industry's] advantage," says lead investigator Mike Boggild, a neurologist at The Walton Centre in Liverpool. In 2002, the UK government entered a 'risk-sharing' agreement over five multiple sclerosis drugs that the UK's National Institute for Health and Clinical Excellence (NICE) had deemed too expensive. NICE reversed its decision after drug makers dropped their prices and agreed to reimburse government if the drugs did not prove cost effective in the long term. The study results based on two-years' data suggest that the drugs are not cost effective, although Boggild warns it is too early to draw firm conclusions. "The cost effectiveness of the drugs can go in either direction, depending on which assumptions we use," he says. This type of scheme is inherently difficult to run, adds Jon Nicholl, director of the Medical Care Research Unit at Sheffield University, UK, because stakeholders have conflicting interests: the state wants to reduce costs, whereas industry wants to maximize profits. A different approach, in which firms refund treatment costs for nonresponsive patients, may be a better way to improve cost effectiveness, he says.

Asher Mullard

\$2 million rice verdict against Bayer

A St. Louis district court has ordered Bayer CropScience to pay over \$2 million in compensatory damages to two Missouri-based rice farmers whose crops cross-bred with the company's genetically modified (GM) LibertyLink during field testing. When the unwanted presence of transgenic rice was discovered in 2006, several countries halted US rice imports, which led to farmers' economic loss and prompted more than 1,000 similar lawsuits against Bayer CropScience, whose US operations are based in The Research Triangle Park, North Carolina. This first trial, whose verdict was issued last December, has been called a bellwether case. "We are studying the court's award of monetary damages in detail and are considering our options," says Richard Breum, corporate spokesperson for Bayer CropScience in Monheim, Germany. "Since each case is different, we evaluate each separately. Last year the court ruled against the plaintiffs in their efforts to obtain class action status in the litigation, noting overall differences in individual plaintiff's situations and claims." In 2007 the US Department of Agriculture (USDA) decided against pursuing enforcement action against the company. It noted that investigators within the Animal and Plant Health Inspection Service (APHIS) at USDA were "unable to make any definitive determinations" about the inadvertent release, during field trials, of two varieties of LibertyLink rice that then mixed with commercial rice crops in Missouri and several neighboring states.

Jeffrey L. Fox

Biorefineries' stimulus win

Nineteen start-ups have landed the bulk of federal stimulus funding earmarked for industrial biofuel and biomass programs. The US Department of Energy (DOE) in December announced \$564 million in funding towards the building and operating of facilities that convert next-generation feedstocks such as switchgrass and wood chips into fuels and products. Grants range from \$2.5 million to \$81.1 million each (Table 1), which dwarf funds allocated to related areas such as plant genomics research. Small-scale or pilot facilities will receive up to \$25 million, demonstration scale \$50 million, and one company, Bluefire Ethanol in Irvine, California, more than \$81.1 million to build a commercial plant. Amyris Biotechnologies, for example, will add its \$25 million to the \$165 million investment money it has accrued over the last 7 years. The Emeryville, California-based company will use the stimulus grant to expand its pilot facility, explore feedstocks for making renewable hydrocarbons and scale-up production of both fuel and biobased chemicals, says Kinkead Reiling, cofounder. But the money is not intended to cover all biorefinery building costs—the DOE expects grant winners collectively to match prize funds with at least \$700 million in nonfederal investment. "[The grants] can boost investor confidence in those projects and allow companies to attract the full amount of the funding needed to get the project done," says Paul Winters, a spokesperson for the Biotechnology Industry Organization in Washington, DC. Adds Reiling, "It's an excellent shot in the arm for the industry, but compared to the size of the problem [energy crisis], it's small." The stimulus bill, known as the American Recovery and Reinvestment Act, was passed in February 2009.

Emily Waltz

Table 1 Selected biofuel companies receiving US stimulus funds

Company /location	Grant (\$ million)	Project description
Bluefire ^a /California	81.1	To construct a facility that produces ethanol fuel from woody biomass, mill residue and sorted municipal solid waste. The facility will have the capacity to produce 19 million gallons of ethanol per year and will be in Fulton, Mississippi.
BioEnergy International ^b /Lake Providence, Louisiana	50.0	To produce succinic acid from sorghum. The biological process being developed displaces petroleum-based feedstocks and uses less energy per ton of succinic acid produced than its petroleum counterpart.
Enerkem ^b /Pontotoc, Mississippi	50.0	Located at an existing landfill, this project will use feedstocks such as woody biomass and biomass removed from municipal solid waste to produce ethanol and other green chemicals through gasification and catalytic processes.
INEOS New Planet BioEnergy ^b /Vero Beach, Florida	50.0	This project will cultivate algae in ponds that will ultimately be converted into green fuels, such as jet fuel and diesel, using the Dynamic Fuels refining process.
Sapphire Energy ^b /Columbus, New Mexico	50.0	To cultivate algae in ponds that will ultimately be converted into green fuels, such as jet fuel and diesel, using the Dynamic Fuels refining process.
Algenol Biofuels ^c /Freeport, Texas	25.0	To produce ethanol directly from carbon dioxide and seawater using algae. The facility will have the capacity to produce 100,000 gallons of fuel-grade ethanol per year.
UOP ^c /Kapolei, Hawaii	25.0	To integrate existing technology from Wilmington, Delaware-based biofuels firm Ensyn and UOP to produce green gasoline, diesel and jet fuel from agricultural residue, woody biomass, dedicated energy crops and algae.
ZeaChem ^c /Boardman, Oregon	25.0	To use purpose-grown hybrid poplar trees to produce fuel-grade ethanol using hybrid technology. Additional feedstocks such as agricultural residues and energy crops will also be evaluated in the pilot plant.
HALDOR TOPSOE ^c /Des Plaines, Illinois	25.0	To convert wood to green gasoline by fully integrating and optimizing a multi-step gasification process. The pilot plant will have the capacity to process 21 metric tons of feedstock per day.
ICM ^c /St. Joseph, Montana	25.0	To modify an existing corn-ethanol facility to produce cellulosic ethanol from switchgrass and energy sorghum using biochemical conversion processes.
Amyris Biotechnologies ^c	25.0	To produce a diesel substitute through the fermentation of sweet sorghum. The pilot plant will also have the capacity to coproduce lubricants, polymers and other petrochemical substitutes.

^aIncreased funding to existing biorefinery projects. ^bDemonstration scale. ^cPilot scale. Source: US Department of Energy