

CROPBIOTECH UPDATE

A weekly summary of world developments in agri-biotech for developing countries, produced by the Global Knowledge Center on Crop Biotechnology, International Service for the Acquisition of Agri-biotech Applications SEAsiaCenter (ISAAA)

November 24, 2006

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*** GLOBAL ***

HARVARD PAPER: TECH ADVANCES KEY TO SUSTAINABLE FOOD SECURITY

To achieve a future where food security exists, food production is more sustainable and friendly to the environment, governments must recognize the global consequences of agricultural policies and overcome the resistance of entrenched interest groups. Gerald Nelson, professor in the Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, makes this conclusion in an article "Sustainable Food for the World: Rethinking Policy, Technology and the Environment," in the Harvard International Review online edition.

Nelson adds that technological advances will be a key part of that future. In particular, he notes that the improvements in genetics and production practices that involve more knowledge-intensive inputs, including organic practices, will need to be location-specific. Citizens must demand, he says, that their governments allow the private sector to operate profitably while providing a regulatory environment that encourages sustainability, safety, and equality.

Read the article online at <http://hir.harvard.edu/articles/1455/>

EDIBLE COTTONSEED PRODUCED THROUGH RNAI

Aside from being a source of fiber, cotton may soon be also used as food. Researchers in Texas announced that they have developed an edible cotton variety using RNA interference (RNAi). RNAi is a mechanism that uses double stranded RNA to significantly reduce the expression level of a gene. This technology was applied by the researchers to target a gene in the gossypol production pathway, thereby 'silencing' it. Gossypol is a toxic compound in cottonseed that is harmful to humans and animals.

An edible cottonseed has the potential to feed millions of people a year, said Keerti Rathore, a member of the research team. In addition, meal residues can also be used as feed for livestock and poultry, making the plant more valuable. Rathore said that it will take about a decade for the edible cottonseed to be available in the market.

The complete press release is at <http://aqnews.tamu.edu/dailynews/stories/SOIL/Nov2006a.htm>.

STRATEGIC R&D FRAMEWORK FOR UNDERUTILIZED PLANT SPECIES

The International Center for Underutilized Crops in Colombo, Sri Lanka, and the Global Facilitation Unit for Underutilized Species in Rome have released a "Strategic Framework for Underutilized Plant Species Research and Development, with Special Reference to Asia and the Pacific, and to Sub-Saharan Africa". Edited by H. Jaenickle and I. Höschle-Zeledon, the document serves as a guide for research and development practitioners and investors to help them identify areas of possible intervention and collaboration.

A product of global electronic consultation and two regional workshops in 2006, it reviews current activities, provides examples of success and emphasizes the need to improve resource mobilization in support of underutilized plant species research and development, including urgent work to collect baseline information and formulate indicators to guide future action.

See the document at http://www.icuc-iwmi.org/files/News/Strategic%20Framework%20doc_web%20version.pdf

*** AFRICA ***

LIBERIAN PRESIDENT AWARDED HUNGER PROJECT PRIZE

H.E. Ellen Johnson Sirleaf, President of the Republic of Liberia and the first woman elected president of an African nation, received The Hunger Project's 2006 Africa Prize for Leadership for the Sustainable End of Hunger. The award, referred to as the Nobel Prize for Africa, is given to African leaders who “exhibit remarkable courage, vision, and commitment to the well-being of Africa’s people”.

The Hunger Project is an international NGO that works in partnership with people across Sub-Saharan Africa, South Asia and Latin to sustainably end hunger.

Read more on the Africa Prize for Leadership at <http://www.africaprize.org>.

ISAAA BANANA PROJECT WINS AWARD

The International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCenter Tissue Culture Banana Project was voted the best project during the 10th Kenya Agricultural Research Institute’s (KARI) Biennial Science Conference, which ended in Nairobi last week.

The project, which started in December 2002, beat over 200 projects for the first prize. The evaluation was done by a team of experts commissioned by KARI prior to the conference, whose theme was “Responding to challenges and opportunities through the development and dissemination of innovative agricultural technologies, knowledge and approaches”.



Dr Felister Makini Center Director KARI Kisii, Mr. Kassim Were of ISAAA, and Ms Nasambu Okoko (right), also of KARI Kisii, display the trophy during the conference

The project aims to establish a self-sustaining system of production, distribution and utilization of farmer-preferred varieties of (TC) banana packaged with suitable micro credit component, and to strengthen its distribution network, orchard management and post harvest utilization.

In 2002 it was voted third best project during the 7th KARI Scientific Biennial Conference. It also won the First Place Medal in the Global Development Network (GDN) Awards for Science and Technology for Development, an initiative of the World Bank and the Government of Japan in 2000.

For more information contact Kasim Were at k.were@cgiar.org or d.otunge@cgiar.org.

PROGRESS IN SOUTH AFRICAN BIOTECH REVIEWED

In a review published in the journal Trends in Biotechnology, researchers at the University of Pretoria wrote that the investments of the South African government to develop its biotechnology sector are now paying off. There are several biotechnological innovations now available commercially.

However, to further encourage the growth of the sector, the review by Thomas Cloete and colleagues cites that South African researchers should develop their entrepreneurial drive. This is needed to increase the small, medium and micro-enterprises (SMMEs) in the country and help provide employment opportunities to many.

One reason why South African university researchers just publish their results instead of patenting and commercializing their product is the high cost of registering foreign patents. The review said that the South African government can help by simplifying access to research funding and increase support for public research and development efforts.

The abstract, with link to the full article for subscribers, is at <http://dx.doi.org/10.1016/j.tibtech.2006.10.009>.

UN AGENCIES CONVENED TO SUPPORT NEPAD

At least 20 United Nations agencies and departments convened last week in Ethiopia to devise ways of working jointly in an effort to support the New Partnership for Africa's Development (NEPAD). The Partnership was designed to address issues such as escalating poverty level, underdevelopment, and the continued marginalization of Africa. Participants of the meeting agreed to coordinate action for Africa's development, in accordance with a "cluster system". By working as a cluster, the capabilities of each UN agency are fully utilized.

"This meeting is a bold attempt to resuscitate the UN cluster system, and to give direction to the joint work of the agencies with regard to NEPAD," said Abdoulie Janneh, UN Under-Secretary General and Economic Commission for Africa (ECA) Executive Secretary. As a convener of different agencies working in support of NEPAD, ECA will host the UN/NEPAD secretariat of the regional consultation mechanism and will act as an agent for crosscutting issues.

The news release can be viewed at <http://www.uneca.org/>

AGRICULTURAL RESEARCH COUNCIL OF NIGERIA UNVEILED

Nigerian President Olusegun Obasanjo has approved the launch of the Agricultural Research Council of Nigeria, which would coordinate agricultural research in the country, provide effective linkage with production in agriculture, and promote food security. "I believe the Research Council can do a lot to bridge the gap between research and food production, and we will hold them responsible for this. They have to be practical and realistic and establish the appropriate connections necessary for success", he stated.

Read the press release at

http://www.nigeria.gov.ng/aso%20rock%20news_agriculturalresearchcounciltakesoff.aspx.

*** THE AMERICAS ***

ARGENTINA SUNFLOWERS SUSTAIN YIELD INCREASE

A study that analyzed 20 years of research data showed that the oil yield of commercial sunflowers in central Argentina has been continuous. From 1983 to 2005, there was a genetic gain of 11.9 kg per hectare per year, for oil yield. This increase was attributed to plant breeding activities that produced varieties with biotic stress resistance and yielding ability in favorable environments. Sunflower production in Argentina started in the 1930s with open-pollinated varieties, then with hybrids in the early 1970s.

The study, conducted by Abelardo de la Vega and colleagues, noted a slowdown in the progress of yield improvement in the last ten years, from 1995–2005. However, they have attributed this to breeding activities which focused on grain-oil concentration during that period. The researchers have determined that sunflower germplasm pools still have substantial genetic variability that can be exploited to sustain yield improvement until 2010.

The abstract of the report, with links to the full article for subscribers, is at:

<http://dx.doi.org/10.1016/j.fcr.2006.05.012>.

ETHANOL OR FIBERBOARD – THE FATE OF SOYBEAN PLANTS

It would seem like a tall story, but this soybean line has a rare ability to stand up straight all season, despite their unusual height of up to 7 feet. Soybean plants often lodge—fall down—as they grow taller. Scientists at the Agricultural Research Service (ARS) of the United States Department of Agriculture believe these soybean plants can be utilized as fiberboard and other wood-substitute products.

Thomas Devine, an ARS geneticist, suspected one reason the experimental line of soybeans stood so straight all season was the unusually strong cellulose fibers in their sapling-like stalks. The difference between plants with strong cellulose and those with weak cellulose fibers is where they ultimately end up - the former in briquettes and wood substitutes, while the latter in cellulosic ethanol production.

ARS chemical engineer Justin Barone hopes to design a test that plant breeders can use to determine the strength or weakness of a plant's cellulose. Giving breeders a test for cellulose

strength would allow them to distinguish between plants apt for use as fiberboard and those suitable for ethanol production.

The complete news release is available at <http://www.ars.usda.gov/is/pr/2006/061122.htm>.

*** ASIA AND THE PACIFIC ***

BIOFUELS TO INCREASE GM CROPS ACCEPTANCE

The craze for biofuels might just be the push needed for the acceptance of genetically modified (GM) crops. Charles McElhone of the National Farmers Federation in Australia, was quoted by the online news service The Age, as saying the pressure to use biofuels will increase new markets.

McElhone said the GM debate currently centers on food, but once GM is available for fuel then it would be difficult to segregate GM canola, for instance, as either for food or fuel. Australian canola farmers, however, could be affected by this move as they currently receive a small premium on the world price due to Australian canola being GM-free.

See the article at <http://www.theage.com.au/news/business/genetically-modified-crops-may-get-biofuels-injection/2006/11/19/1163871272553.html>.

BIOTECHNOLOGY: NEW VISTA TO TACKLE WORLD FOOD SECURITY

Indian Union Minister of Environment and Forests Sh. A. Raja said that biotechnology has created enormous potential in health and medicine and is unlocking a new vista for tackling various complex problems of world food security. Referring to agriculture, he said genetic engineering and marker-assisted selection will assist in the development of high yielding crops. These thoughts were shared by the Minister in his inaugural address during the International Conference on the Implications of Cartagena Protocol on Biodiversity held by the Ministry of Environment and Forest (MOEF) from 20-22 Nov in New Delhi.

Dr Ahmed Djoghlaif, Executive Secretary, Convention on Biological Diversity (CBD), highlighted the importance of biotech crops and noted that modern biotechnology is one of the new knowledge-intensive technologies that have the potential to make a significant contribution to the improvement of mankind, particularly in the fields of agriculture and food security.

Full press release at Press Information Bureau, Government of India website: <http://pib.nic.in/release/release.asp?relid=22141> and CBD website: <http://www.biodiv.org/doc/speech/2006/sp-2006-11-20-bs-en.pdf>

For more information, contact: Dr M Hota at hota@nic.in or Dr Vibha Ahuja at vibhaahuja@biotech.co.in.

DECREE ON IP LAW FOR PLANT VARIETIES IN VIETNAM AVAILABLE ONLINE

Vietnamese Prime Minister Nguyen Tan Dung has issued regulations detailing provisions of the Law on Intellectual Property regarding plant varieties.

The Decree, including five chapters and 39 articles, states the responsibilities of State managers and procedures in discovering new varieties. The Decree will apply to Vietnamese organizations and individuals, and also to foreign organizations and foreigners residing permanently or owning breeding or trading units in Viet Nam.

The new regulations replace Decree 13/2001/ND-CP, dated April 20, 2001.

For full details of this decree (104/2006/ND-CP dated September 22, 2006) in Vietnamese, access <http://www.agbiotech.com.vn/vn/?mnu=preview&key=1161>

BANGLADESH COMPLETES NATIONAL BIOSAFETY FRAMEWORK

Bangladesh's Department of Environment Ministry of Environment and Forests (MoEF) has completed the country's national biosafety framework. It was presented during the National Workshop on the Development of the National Biosafety Framework for Bangladesh for participatory quality improvement and suggestions. During the workshop, Honorable Advisor (Minister-in-charge) Justice Md. Fazul Haque, Ministry of Environment and Forest, said that biotechnology can revolutionize agriculture, health, industry and related sectors by conferring qualities to crops such as resistance to biotic and abiotic stresses, nutritional quality and enhanced productivity. He was joined by other agricultural experts in calling for the institutionalization of the framework. The session was attended by about 150 people representing biosafety related stakeholders.

For additional information, contact Dr. K.M. Nasiruddin of the Bangladesh Information Center at k.nasiruddin@isaaa.org.

*** EUROPE ***

EFSA RECONFIRMS SAFETY OF MON810 MAIZE

The European Food Safety Authority (EFSA) has reconfirmed the safety of genetically modified MON810 maize, following a review of scientific information provided by EU Member State Greece and a meeting with Greek experts in July 2006. According to the EFSA GMO Panel, no new data and specific scientific evidence were presented that would invalidate the initial risk assessment and justify the prohibition of cultivation of MON810 maize in Greece.

For the press release, visit

http://www.efsa.europa.eu/en/science/gmo/gmo_opinions/ej411_greek_safeguard.html

EFSA OPENS PUBLIC CONSULTATION ON DRAFT GUIDANCE DOCUMENT RE GM PRODUCTS

The European Food Safety Authority (EFSA) has opened the public consultation on a Draft Guidance Document of the GMO Panel for renewal of authorizations of existing GM products lawfully placed on the EU market. Potential applicants, national authorities and other regulatory bodies, key stakeholders and all interested parties are expected to comment on this draft guidance document.

The Guidance Document aims to assist applicants in the preparation and presentation of applications for renewal of authorization of existing products according to Articles 11 and 23 of Regulation (EC) 1829/2003 on genetically modified food and feed. An application for renewal of authorization for an existing product can only be submitted for the 26 products listed in the Community Register of existing products.

For more information, visit

http://www.efsa.europa.eu/en/science/gmo/gmo_consultations/gmo_guidance_existing_products.html.

Read the draft guidance document at

http://www.efsa.europa.eu/etc/medialib/efsa/science/gmo/gmo_guidance/gmo_guidance_existing_Par.0001.File.dat/gmo_draft_guidance_existing_products_en.pdf.

CO-EXTRA PROJECT ON CO-EXISTENCE AND TRACEABILITY OF GMOs

Co-Extra, 4-year Integrated Project funded by the European Commission and coordinated by the National Institute for Agronomic Research (INRA) in France, has been up and running since 2005. The program is geared towards co-existence and the detection of genetically modified organisms (GMOs) in the EU market. Under Co-Extra, biological containment methods are studied and validated, and practical tools and procedures for implementing co-existence are provided to European stakeholders. The program also designs and integrates GMO detection tools and elaborates new techniques for cost-effective detection of as yet unapproved or unexamined GMOs. It integrates co-existence and traceability practices around the world by surveying GMO policies and practices in and beyond the EU. Co-Extra hopes that the outcomes of the project will help economic stakeholders meet consumers' requirements for reliable choices in the market.

Read the complete project description at http://www.coextra.org/project_description/.

RESEARCH

TRANSGENIC SEED WITH INCREASED LONGEVITY

Results of a study on transgenic tobacco indicated that a protein called *HaHSFA9* from a sunflower gene could increase the resistance of seeds to deterioration and increase longevity. The protein also helps in improving seed germinability in the field under high soil temperature.

Researchers at the Consejo Superior de Investigaciones Científicas in Spain believe that there are similar genes to *HaHSFA9* in other monocot and dicot plant species. Once found, these genes may be transferred to major crops to increase the longevity of their seeds, or to reduce the negative effects of high temperatures during seed formation.

The open access article is available at

<http://www.plantphysiol.org/cgi/content/full/142/3/1102>.

IMPROVING CASSAVA PROTEIN THROUGH BIOTECH

Cassava is an important food crop in tropical developing countries. It is a rich source for carbohydrates, but is low in vitamins and proteins. Consumers who rely mostly on this crop as staple may encounter protein energy malnutrition (PEM). To help prevent PEM, biotechnological strategies may be used to increase the levels of protein and essential amino acids in cassava tubers.

In the review by Martin Stupak and colleagues, they cited that due to the genetic nature of cassava, crop improvement through classical breeding is difficult. They suggest that the quickest way to accomplish biofortification (the process of breeding food crops that are rich in micronutrients) of cassava roots is to introduce genes from other plants. Stupak and colleagues also suggests that artificially designed proteins with an optimized essential amino acid composition may also be used. Their review published by the journal Trends in Food Science & Technology outlines several ways to accomplish this.

The abstract, with links to the full paper for subscribers, can be accessed at <http://dx.doi.org/10.1016/j.tifs.2006.06.004>.

DOCUMENT REMINDERS

IFPRI'S POLICY BRIEFS ON BIOENERGY

The International Food Policy Research Institute (IFPRI) released 12 new policy briefs that examine the potential opportunities and risks that bioenergy may pose for poor people and farmers in developing countries. The briefs contain recommendations that were derived from experiences in Europe and other developing countries.

The set of briefs is available at <http://www.ifpri.org/2020/focus/focus14.asp>.

BIOTECH DOCUMENTS DATABASE

CropLife International is providing a collection of published papers on agri-biotech products through an online database. CropLife said the document collection provides credible scientific information about the demonstrated benefits associated with the use of agri-biotech products, and about their safety. The database provides abstracts of peer-reviewed papers and/or links to complete documents which may be of interest to stakeholders.

The database can be accessed at <http://croplife.intraspin.com/BioTech/>.

ANNOUNCEMENTS

TISSUE CULTURE WORKSHOP IN BURUNDI

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) Biotechnology and Biosafety Programme will hold a regional workshop on tissue culture at the Novotel Hotel, Bujumbura, Burundi on November 29 to December 1, 2006. The workshop aims to explore ways for the better utilization of tissue culture to contribute to increased productivity, value addition and regional competitiveness of agriculture in the sub region.

Registration details may be obtained by emailing Dr. Charles Mugoya, Regional Coordinator, ASARECA Biotechnology Program (ECABIO), at c.mugoya@asareca.org or Ms. Annet Namuli at a.namuli@asareca.org.

ASIA PACIFIC CONFERENCE ON PLANT TISSUE CULTURE AND AGRIBIOTECHNOLOGY 2007

The Asia Pacific Conference on Plant Tissue Culture and Agribiotechnology will be held in Kuala Lumpur, Malaysia from June 17-21, 2007 under the auspices of the Asia Pacific Association of Plant Tissue Culture and Agribiotechnology and The Academy of Sciences Malaysia. The conference will cover various areas in biotechnology such as plant cell and tissue culture, aquaculture and animal biotechnology, biotechnology in horticulture and forestry, pharmaceuticals and health-care products, environmental biotechnology, industrial biotechnology, and bioinformatics and systems biology.

Deadline for the submission of abstracts is on Feb. 28, 2007. For more information, visit <http://ns.aimst.edu.my/apacpa2007/index.htm>.

SUMMIT ON FOOD SECURITY IN AFRICA SLATED IN NIGERIA

A summit on food security in Africa will be held in Abuja, Nigeria from December 4-7, 2006. The proposed summit is part of the initiatives of the African Union (AU) and the New Partnership for Africa's Development (NEPAD) to ensure food availability to the African population. The summit aims to adopt a declaration on food security and launch the Green Wall Sahara initiative for the socio-economic development of Africa. Issues concerning the creation of an African common market and the adoption of modalities for proper monitoring and consolidation of the AU food security ventures will be discussed.

For more information, visit

http://www.nigeria.gov.ng/pressreleasenovember21.aspx#NIGERIA_HOLD_SUMMIT_ON_FOOD_SECURITY_IN_AFRICA_IN_DECEMBER_2006

U.S. SOYBEAN RUST SYMPOSIUM

The 2006 U.S. National Soybean Rust Symposium will be held 29 November to 1 December 2006 in St. Louis, Missouri. During the three day event, participants will hear presentations about the

soybean rust situation in North and South America, results of the 2006 rust control studies, and perspectives on the long term effects of soybean rust to the farming systems and the chemical industry. Asian soybean rust is considered a major threat in the U.S. soybean production as well as in South America. It was identified five years ago in Paraguay and Brazil.

More information at <http://www.apsnet.org/online/sbr/>.

8TH AGRICULTURAL SCIENCE CONGRESS-2007

The Tamil Nadu Agricultural University is hosting the 8th Agricultural Science Congress-2007 at Coimbatore during Feb 15-17, 2007 under the guidance of the National Academy of Agricultural Sciences (NAAS). The theme of the congress is "Science for Livelihood Security and Rural prosperity". The congress expects to make strategic, technological and policy formulation aiming at an "Ever Green Revolution" in the country for food and nutritional security and rural prosperity.

For detail information contact: Dr. P. Santhana Krishnan at registrar@tnau.ac.in or visit <http://www.tnau.ac.in/nasc/Home.htm>.

BIOTIC AND ABIOTIC STRESS RESPONSES IN PLANTS

A meeting aimed to discuss topics related to biotic and abiotic stress responses in plants is slated in New Delhi, India on 11-13 December 2006. Among the topics to be covered are RNA interference (RNAi) technology, viral suppressors, model systems, comparative genomics, and the use of transgenics for stress tolerance. The meeting is organized by the International Centre for Genetic Engineering and Biotechnology (ICGEB).

More information at http://www.icgeb.org/MEETINGS/CRS06/11_13dicembre.pdf.

BIOFUELS SUPPLEMENT

*** NEWS AND TRENDS ***

FIRST INTEGRATED BIOETHANOL-BIODIESEL PLANT OPENS IN BRAZIL

<http://www.agenciabrasil.gov.br/noticias/2006/11/21/materia.2006-11-21.9932096957/view>

Brazil's first integrated ethanol-biodiesel plant was recently opened this November by no less than Brazilian President Luiz Inacio Lula de Silva. Located in Barra do Bugres, Mato Grosso (in Brazil's soybean belt), the plant will produce cane-derived ethanol and biodiesel from soybean. The plant is seen to boost Brazil's failing soy and oilseed crushing industries. The integration of bioethanol and biodiesel in a single integrated plant is said to provide major infrastructure and energy savings.

CARBONPOSITIVE IMPLEMENTS MAJOR FORESTRY AND BIOFUEL PROJECT IN CHINA

<http://www.carbonpositive.net/viewarticle.aspx?articleID=469>

Carbonpositive, an organization involved in sustainable bioenergy projects in developing countries has secured about 266,000 hectares of land in Yunnan province, China, for reforestation and biofuels crops. About 2,000 hectares will have already been planted with *Jatropha* by February 2007. Biodiesel production from *Jatropha* plantations is said to contribute to China's current five-year plan to have biodiesel as a substitute for coal.

BP FUELS TECHNOLOGY AND DU PONT BIOSCIENCE BLEND EFFORTS TO DEVELOP NEXT GENERATION BIOFUELS

<http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7018942>

BP and DuPont (both internationally known energy and chemical/science companies, respectively) have formed a partnership to develop "advanced" or "next generation" biofuels, possessing properties that overcome limitations of presently used biofuels.

Biobutanol is the first such advanced biofuel planned for introduction as a gasoline component in the U.K. in 2007. As with ethanol, biobutanol is similarly produced by fermentation of starchy, saccharine or cellulosic feedstocks. The following are its desirable properties: (1) low vapor pressure and tolerance to water, (2) potential for blending at higher concentrations without engine retrofitting, (3) greater fuel economy and fuel efficiency.

*** ENERGY CROPS AND FEEDSTOCKS FOR BIOFUELS PRODUCTION ***

DRYLAND CROPS AS BIOFUELS FEEDSTOCKS

http://www.icrisat.org/Investors/wit_5/wit_5.htm

Dryland crops are said to have the potential to contribute to the development of biofuels in developing countries, while uplifting the living condition of the dryland poor. In a recent message by Dr. William Dar, Director of ICRISAT (International Crops Research Institute for the Semi-Arid Tropics), dryland crops are mentioned as comparably cost competitive with conventional feedstocks (with respect to raw material cost) for biofuel production. They are excited about the potential of the dryland crop, sweet sorghum, for ethanol production. Dr. Dar mentions that sweet sorghum is an efficient fixer of the atmospheric carbon dioxide, requires less irrigation compared to sugarcane, and still packs in a high sugar content in the stalks (about 15% to 20%). ICRISAT is identifying high-sugar parent lines for hybrid breeding from their global germplasm collection. The hybrids could be grown year-round and smoothen out raw material supply problems. Private sector collaborations are being established so that the hybrids find their way to industrial applications.

ICRISAT is also interested in two dryland species whose fruits have a good oil yields for biodiesel production (about 35%): *Jatropha curcas*, a drought tolerant shrub adapted to well-drained wastelands, and *Pongamia pinnata*, a leguminous tree adapted to wastelands with problem soils. The vision is to have village level plantations of these crops to increase economic opportunities for the dryland poor. Genetic variability levels of these species in Asia and Africa is being explored to find varieties with higher oil content and increased income-earning potential.

BIOMASS FEEDSTOCK COMPOSITION AND PROPERTY DATABASE

http://www1.eere.energy.gov/biomass/printable_versions/feedstock_databases.html

This site by the U.S. Department of Energy- Energy Efficiency and Renewable Energy Biomass Program contains information on the composition and physical properties of various biomass resources, a useful database for biofuels researchers.

*** BIOFUELS PROCESSING ***

“FUEL IN A FLASH”: QUICK PRODUCTION OF RENEWABLE BIOFUELS FROM VEGETABLE OILS/BIOMASS

Press Release: http://www1.umn.edu/umnnews/Feature_Stories/Fuel_in_a_flash.html

Complete article: <http://www.sciencemag.org/cgi/content/full/314/5800/801>

Researchers at the University of Minnesota described a new process which can quickly extract hydrogen and carbon monoxide (synthesis gas) from vegetable oil and plant wastes. The process, called “reactive flash volatilization”, may make the production of synthetic diesel fuel and fertilizers more efficient in the future.

In their paper published by the journal Science, Lanny Schmidt and colleagues wrote that energy was generated by spraying soybean oil on a catalyst-coated ceramic foam at a temperature of 800 oC, and with a little amount of oxygen. This resulted in the production of hydrogen and carbon dioxide without any carbon residue. The researchers proposed that the new process may lead to better utilization of plant and animal waste products for energy production, which may in turn help the United States reduce the importation of fossil fuels.

*** BIOFUELS POLICY AND ECONOMICS ***

OVERVIEW OF THE INTERNATIONAL BIOFUELS SCENE

http://www.dpmc.gov.au/biofuels/final_report.cfm

The Australian Biofuels Task Force gives useful information on the international biofuels scene, particularly in the Americas, Asia and Europe. The study makes the following interesting observations: (1) Ethanol and biodiesel are the internationally dominant biofuels; but while these are growing in market share, the contribution to total transport fuel usage is small (about 1%), (2) The major producers of bioethanol are Brazil and the United State in the Americas, while India, China and Thailand are dominant in Asia. Europe is the main producer of almost all of the world’s biodiesel, (3) The driving incentive of many countries in the use and development of biofuels is agricultural support; many countries have subsidies, and regulatory preferences in support of biofuels. The Australian Biofuels Task Force Report also tackles many issues that are helpful in biofuels policy formulation.

LIFE-CYCLE ACCOUNTING STUDY SHOWS BIODIESEL FROM SOYBEAN AND BIOETHANOL FROM CORN ARE NET ENERGY POSITIVE

News Article:

http://www.biofuelsjournal.com/articles/Study_by_University_of_Minnesota_Researchers_Shows_Biofuels_are_Energy_Positive-35954.html

Abstract of Paper:

<http://www.pnas.org/cgi/content/abstract/103/30/11206?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=1&author1=Hill%2C+J&andorexacttitle=and&andorexacttitleabs=and&andorexactfulltext=and&searchid=1&FIRSTINDEX=0&sortspec=relevance&resourcetype=HWCIT>

A study from the University of Minnesota evaluated the energetic, environmental and energy cost/benefits of two major transport biofuels in the United States: biodiesel from soybean and bioethanol from corn. The purpose was to determine whether these biofuels are viable alternatives to biofuels. Their study (published in the journal Proceedings of the National Academy of Sciences) involved the use of “life-cycle accounting of direct/indirect inputs in the complete production and in use life cycles.”

From an energetic standpoint, corn-derived ethanol was shown to have 25% more energy relative to its energy input, while biodiesel had 93% energy gain. From an environmental point of view, biodiesel can reduce greenhouse gas emissions (relative to fossil fuels) by 41%, while ethanol could do the same by 12%. However, despite their having a net energy gain and positive environmental benefits, both biofuels cannot completely replace fossil fuels. Furthermore, the use of soybean and corn for biofuel production will have major impacts on food supplies. Researchers found that only 12% of the gasoline demand and only 6% of the diesel demand could be satisfied. Biofuels produced from low input biomass and grown on agriculturally marginal land was seen to provide much greater economic and environmental benefits.

*** EVENTS ***

INTERNATIONAL AGROENERGY AND BIOFUELS FAIR

November 27 -29, Blue Tree Alvorada, Brasilia- DF, Brazil

http://www.enerbio.com.br/index_EnerbioEnglish.htm

Brazil, a world leader in the production of transport biofuels is hosting the International Agroenergy and Biofuels Fair (Enerbio 2006). International stakeholders in biofuels will discuss the realities and opportunities of ago-energy and a wide variety of related topics including: World Perspectives on Ethanol, the Biofuels World Market, European Biofuel Standards, and Biodiesel World Market.

WORLD BIOFUELS MARKETS CONGRESS AND EXHIBITION

2007 March 6 to March 9, Brussels

<http://www.greenpowerconferences.com/wbm/index.html>

The organizers of the World Biofuels Markets aim to provide an effective opportunity to “network, learn and do business with the international biofuels community”. The topics of the Seminars include: biofuels sustainability; maturing biofuels technology/production efficiency; the growing biofuels feedstocks; and Asian biodiesel production.

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