THE ECONOMIC STATUS AND PERFORMANCE OF PLANT BIOTECH IN 2003

CLIP REPORT

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Biotech Crops Provide Economic Boost on the Farm and Beyond the Farm Gate

Thursday December 11, 1:30 pm ET

WASHINGTON, Dec. 11 /PRNewswire/ -- Plant biotechnology already is creating high-paying jobs and economic value and will deliver even more value both on the farm and beyond the farm gate in the years ahead, according to a study by University of Minnesota professor C. Ford Runge.

"The vast stock of plant breeding and genomic research and development knowledge that led to the biotech revolution will generate billions of dollars in additional economic benefits for farmers and others in the agrifood value chain and within public and private research communities," Runge said.

Four commercial biotech crops -- corn, soybeans, cotton and canola -- represented $20 billion in value in the United States in 2002, half of the total $40 billion value of the four crops.

Runge, director of the Center for International Food and Agricultural Policy and Distinguished McKnight University Professor of Applied Economics and Law, released the study during a news conference at the National Press Club. He is scheduled to present the study later today at the Fall Forum of the National Conference on State Legislatures in Washington, D.C.

The study, "The Economic States and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," is an up-to-date effort to provide a detailed view of biotechnology's value at the farm level and beyond the farm gate, where the crops -- and the research and development that creates them -- generate additional jobs, income and investment in the agrifood chain and public and private research community.

The U.S. Corn Belt and cotton-growing regions gained the most economic value from planting biotech crops in 2002, led by Iowa ($3.8 billion), Illinois ($2.5 billion), Minnesota ($2.2 billion), Nebraska ($1.8 billion), Indiana ($1.3 billion) and South Dakota ($1 billion). Following these major corn and soybean growing states, Missouri was next with $1 billion, followed by North Dakota ($689 million), Ohio ($619 million) and cotton-producing states Arkansas ($670 million) and Mississippi ($528 million).

"The economic impacts of plant biotechnology also are increasingly evident beyond the farm gate and in individual states active in biotech research and development," Runge said. "Beyond

the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the United States. The number of agricultural and food scientists are increasing as workers are attracted to the biotech sector's above-average wages, and large number of individual states are reaping the benefits of this investment and job-related activity."

"While 41 of 50 states had some type of biotech initiative by 2001, those that have aggressively adopted and invested in biotechnology are reaping the greatest rewards," Runge said. Corn Belt states with higher adoption levels of biotech crops have a greater number of ag and food science jobs than those with lower levels of adoption. For example, Iowa, one of the top five states in crop biotech adoption, has 50 ag and food science jobs per 100,000 jobs, more than lower adoption states. The average annual salary for these jobs in 2001 was $52,310 -- more than one and a half times the U.S. average of $34,020.

In Wisconsin, where 56 of the 200 bioscience companies are dedicated to agriculture, the study indicated there are 21,000 workers who account for $5 billion of the Badger state's economy.

In the past two years, field tests have been conducted on 100 new biotech crop traits by 40 universities and 35 private sector companies -- from a new variety of corn with an improved nutritional profile for use as an animal feed to a type of wheat that can better withstand droughts. Runge said continued investment in research and development -- along with more public education about the benefits of biotechnology -- is key to achieving further gains from plant biotechnology.

"As consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech," he said. "That translates directly into high social rates of return in the form of educational and job opportunities."

The study is available at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf. Support for the study was provided by the Council for Biotechnology Information. The results are those of the authors alone and not the University of Minnesota.

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Study: Biotech crops lift Minnesota's economy

550 words
12 December 2003
10:08
Associated Press Newswires
English

MINNEAPOLIS (AP) - Minnesota **biotech crops** were valued at $2.15 billion last year, but also led to benefits beyond farms in the form of high-paying jobs, income and investment in the agricultural food chain, according to a new study.

The study by the University of Minnesota shows that the value of such **crops** in Minnesota was behind Iowa and Illinois last year.

Plant biotechnology, which involves transferring and transforming genetic material, has provoked opposition from some consumers who see it as "Frankenstein food." Nonetheless, a rapidly increasing number of farmers have been won over by the managerial and cost benefits of **biotech crops**, statistics show.

The **plant biotechnologies** are creating new agricultural and food science jobs that pay 1.5 to 2 times the average typical wage for U.S. workers, said the study's author, C. Ford Runge, professor of **economics** at the University of Minnesota.

Such jobs were unknown a decade ago. New **biotech** companies are **cropping** up as part of a "remarkable genomics-based transformation of agriculture," said Runge, who is director of the University's Center for International Food and Agricultural Policy and a McKnight professor of applied **economics** and law.

The $70,000 study, released in Washington, D.C., was paid for by the **Council for Biotechnology Information**, an organization that bills itself as promoting scientific information about the advantages of **biotechnology** in **agriculture** and food.

Companies such as DuPont, Monsanto and Syngenta Seed are among members that support the organization.

Runge pointed to a 2003 survey by Minnesota's employment department that found 170 firms involved in **biotech** in Minnesota alone. Of those, two in five were in the agricultural and industrial sectors.

Nationwide, Runge said, commercial **biotech crops** of corn, soybeans, cotton and canola represented a total value of $20.9 billion in 2002. That's half of the total $40 billion value of the four **crops**, Runge said.

"On Minnesota farms, **biotech** varieties are accounting for a more and more substantial share of **crops** planted, and this translates into **crop** value, at least in the case of corn and soybeans and rapeseed, of at least $2.15 billion in 2002," Runge said.

It's unclear how much of that money is actually new wealth, above what farmers would have planted with conventional varieties. But what is clear, Runge said, is that when farmers used seeds with **biotech** traits, average profits rose by $5 to $60 per acre of corn, and by about $15 per acre for soybeans.

The steadily increasing adoption of **biotechnology** in the fields comes as farmers sit at their kitchen tables this winter, deciding what kind of seeds to **plant** in the spring.

Pat Duncanson and his spouse, Kristin Weeks-Duncanson of Blue Earth County, are among those farmers.

Using satellite transmissions and data from seed companies, the University of Minnesota and other sources, the Mapleton farmers are selecting what **biotech** traits they want in their **crops** to fight insects, weeds and disease in their corn and soybeans.

"We weigh the pros and cons to using new products," Pat Duncanson said, "although some of the **biotech** products are such a part of the landscape now that we hardly call them new anymore."

Biotech crops were first introduced commercially in 1996.

AP Newswire

Nebraska harvests more than $1.8 billion in biotech crops

161 words
12 December 2003
14:37
Associated Press Newswires
<javascript:NewWindow('FIISrcDetails','?from=article&ids=aprs');void(0);>
English

GRAND ISLAND, Neb. (AP) - A new study says Nebraska farmers harvested more than $1.8 billion in economic benefits from plant biotechnology in 2002.

The study by University of Minnesota Professor C. Ford Runge was released Thursday. Runge is director of the school's Center for International Food and Agricultural Policy.

He said the study focused on the impact of plant biotechnology at the farm level and the economic benefits it is providing to the nation's economy.

Of the crop value biotech crops reaped for Nebraska in 2002, $802 million worth was from soybeans and nearly $1.04 billion from corn.

The study looked at biotech corn, soybean, cotton and canola crops, which represented $20 billion in value in the nation in 2002. That is half of the total $40 billion value of the four crops. Runge said that farmers are increasingly adopting biotech crops because they increase profitability.

Minneapolis Star Tribune

Biotech crops lift Minnesota's economy

Joy Powell, Star Tribune Staff Writer
Published December 12, 2003

Biotech crops in Minnesota delivered a hefty economic boost to the state last year that rippled far beyond farms to create high-paying jobs, income and investment in the agricultural food chain, according to a study released Thursday. Minnesota biotech crops alone were valued at $2.15 billion last year, behind Iowa and Illinois biotech crop values, the University of Minnesota study shows.

Plant biotechnology, which involves transferring and transforming genetic material, has provoked opposition from some consumers who see it as "Frankenstein food." Nonetheless, a rapidly increasing number of farmers have been won over by the managerial and cost benefits of biotech crops, statistics show.

The plant biotechnologies are creating new agricultural and food science jobs that pay 1.5 to 2 times the average typical wage for U.S. workers, said the study's author, C. Ford Runge, professor of economics at the University of Minnesota.

Such jobs were unknown a decade ago. New biotech companies are cropping up as part of a "remarkable genomics-based transformation of agriculture," said Runge, who is director of the University's Center for International Food and Agricultural Policy and a McKnight professor of applied economics and law.

The $70,000 study, released in Washington, D.C., was paid for by the Council for Biotechnology Information, an organization that bills itself as promoting scientific information about the advantages of biotechnology in agriculture and food.

Companies such as DuPont, Monsanto and Syngenta Seed are among members that support the organization.

Runge pointed to a 2003 survey by Minnesota's employment department that found 170 firms involved in biotech in Minnesota alone. Of those, two in five were in the agricultural and industrial sectors.

Nationwide, Runge said, commercial biotech crops of corn, soybeans, cotton and canola represented a total value of $20.9 billion in 2002. That's half of the total $40 billion value of the four crops, Runge said.

"On Minnesota farms, biotech varieties are accounting for a more and more substantial share of crops planted, and this translates into crop value, at least in the case of corn and soybeans and rapeseed, of at least $2.15 billion in 2002," Runge said.

It's unclear how much of that money is actually new wealth, above what farmers would have planted with conventional varieties. But what is clear, Runge said, is that when farmers used seeds with biotech traits, average profits rose by $5 to $60 per acre of corn, and by about $15 per acre for soybeans.

The steadily increasing adoption of biotechnology in the fields comes as farmers sit at their kitchen tables this winter, deciding what kind of seeds to plant in the spring.

Pat Duncanson and his spouse, Kristin Weeks-Duncanson of Blue Earth County, are among those farmers.

Using satellite transmissions and data from seed companies, the University of Minnesota and other sources, the Mapleton farmers are selecting what biotech traits they want in their crops to fight insects, weeds and disease in their corn and soybeans.

"We weigh the pros and cons to using new products," Pat Duncanson said, "although some of the biotech products are such a part of the landscape now that we hardly call them new anymore."

Biotech crops were first introduced commercially in 1996.

Kristin Weeks-Duncanson, past president of the Minnesota Soybean Growers Association, said 79 percent of the 2003 soybean crop in Minnesota was planted with biotech seeds.

The couple saved $15 an acre because the biotech soybeans needed less spraying -- an advantage that environmentally-conscious consumers should welcome, Weeks-Duncanson said.

"We know that there's huge economic value to biotechnology, especially for soybeans, not only at the farm gate but beyond the farm gate, and to feed a hungry world," she said.

Plant biotechnology will generate even more value in the future, Runge said.

"The vast stock of plant breeding and genomic research and development knowledge that led to the biotech revolution will generate billions of dollars in additional economic benefits for farmers and others in the agrifood value chain and within public and private research communities," Runge said.

CropDecisions.com

Study Shows Economic Benefits Of Biotech Crops

Dec. 11, 2003

Plant biotechnology already is creating high-paying jobs and economic value and will deliver even more value both on the farm and beyond the farm gate in the years ahead, according to a study by University of Minnesota professor C. Ford Runge.

"The vast stock of plant breeding and genomic research and development knowledge that led to the biotech revolution will generate billions of dollars in additional economic benefits for farmers and others in the agrifood value chain and within public and private research communities," Runge said.

Four commercial biotech crops -- corn, soybeans, cotton and canola -- represented $20 billion in value in the United States in 2002, half of the total $40 billion value of the four crops.

Runge, director of the Center for International Food and Agricultural Policy and Distinguished McKnight University Professor of Applied Economics and Law, released the study during a news conference at the National Press Club.

The study, "The Economic States and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," is an up-to-date effort to provide a detailed view of biotechnology's value at the farm level and beyond the farm gate, where the crops -- and the research and development that creates them -- generate additional jobs, income and investment in the agrifood chain and public and private research community.

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"The economic impacts of plant biotechnology also are increasingly evident beyond the farm gate and in individual states active in biotech research and development," Runge said. "Beyond the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the United States. The number of agricultural and food scientists are increasing as workers are attracted to the biotech sector's above-average wages, and large number of individual states are reaping the benefits of this investment and job-related activity."

"While 41 of 50 states had some type of biotech initiative by 2001, those that have aggressively adopted and invested in biotechnology are reaping the greatest rewards," Runge said. Corn Belt states with higher adoption levels of biotech crops have a greater number of ag and food science jobs than those with lower levels of adoption. For example, Iowa, one of the top five states in crop biotech adoption, has 50 ag and food science jobs per 100,000 jobs, more than lower adoption states. The average annual salary for these jobs in 2001 was $52,310 -- more than one and a half times the U.S. average of $34,020.

In Wisconsin, where 56 of the 200 bioscience companies are dedicated to agriculture, the study indicated there are 21,000 workers who account for $5 billion of the Badger state's economy.

In the past two years, field tests have been conducted on 100 new biotech crop traits by 40 universities and 35 private sector companies -- from a new variety of corn with an improved nutritional profile for use as an animal feed to a type of wheat that can better withstand droughts. Runge said continued investment in research and development -- along with more public education about the benefits of biotechnology -- is key to achieving further gains from plant biotechnology.

"As consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech," he said. "That translates directly into high social rates of return in the form of educational and job opportunities."

St. Louis Business Journal

December 11, 2003

Study: Ill., Mo. see economic boost from biotech crops

Illinois gained $2.5 billion and Missouri gained $1 billion from planting biotech crops in 2002, according to a study by a University of Minnesota professor Thursday.

The study, by C. Ford Runge, director of the Center for International Food and Agricultural Policy, showed that plant biotechnology is already creating high-paying jobs and economic value, and will deliver more value in the years ahead.

Midwestern states that grow corn, soybeans and cotton have benefited the most from planting biotech crops, the study showed, led by Iowa, which has seen a $3.8 billion economic impact. Illinois is second with $2.5 billion, followed by Minnesota, Nebraska, Indiana, South Dakota, Missouri, North Dakota, Ohio, Arkansas and Mississippi.

"The economic impacts of plant biotechnology are also increasingly evident beyond the farm gate and in individual states active in biotech research and development," Runge said in a statement. "Beyond the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the United States. The number of agricultural and food scientists are increasing as workers are attracted to the biotech sector's above average wages, and large number of individual states are reaping the benefits of this investment and job-related activity."

The report said Corn Belt states with higher adoption levels of biotech crops have a greater number of agricultural and food science jobs than those with lower levels of adoption. Statistics from the U.S. Department of Labor show that both Missouri and Illinois have nine ag and food science jobs per 100,000 jobs. The average annual salary for these jobs in 2001 was $52.310, compared to the U.S. average of $34,020.

The complete report is available at www.apec.umn.edu/faculty/frunge/plantbiotech.pdf.

Crop Biotech Update

December 12, 2003

BIOTECH CROPS PROVIDE ECONOMIC BENEFITS

Plant biotechnology is creating high-paying jobs and economic value and will deliver even more value for both farmers and other stakeholders in the agrifood chain. This was the conclusion of a study by C. Ford Runge, a professor at the University of Minnesota and director of the Center for International Food and Agricultural Policy.

According to the Council for Biotechnology Information, the study entitled "The Economic States and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," is an up-to-date effort to provide a detailed view of biotechnology's value at the farm level and beyond the farm gate.

The U.S. Corn Belt and cotton-growing regions gained the most economic value from planting biotech crops in 2002, led by Iowa ($3.8 billion), Illinois ($2.5 billion), Minnesota ($2.2 billion), Nebraska ($1.8 billion), Indiana ($1.3 billion) and South Dakota ($1 billion).

Runge noted that aside from the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the US. The number of agricultural and food scientists were also found to be increasing and that more states are reaping the benefits of this investment and job-related activities.

The study is available online at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf

Des Moines Register (online and print editions)

Iowa produces $3.8 billion in biotech corn, soybeans

By PHILIP BRASHER
Register Washington Bureau
12/12/2003

Washington, D.C. - When it comes to growing genetically engineered crops, no state comes close to Iowa.

Iowa produced $3.8 billion worth of biotech corn and soybeans in 2002, far more than No. 2 Illinois at $2.5 billion, according to a study released Thursday.

Iowa's crops alone accounted for about 18 percent of the value of all major biotech crops - corn, soybeans, cotton and canola - grown nationwide.

Ford Runge, an agricultural economist at the University of Minnesota, said the success of biotech crops shows their appeal to farmers and the potential for future growth in the industry.

Soybeans engineered to be immune to the weedkiller Roundup now account for more than 80 percent of all soy grown in the United States. Popular varieties of corn and cotton are designed to be toxic to insect pests.

In 2002, the latest year for which data were available, farmers nationwide produced $20.9 billion in genetically engineered crops, including $11 billion worth of soybeans and $7 billion worth of corn. Biotech cotton was valued at $2.7 billion and canola crops at $115 million.

Iowa produced $2 billion worth of biotech soybeans and $1.8 billion worth of corn.

Runge said Iowa also has been a leader in biotech research, especially in corn and soybeans.

States like Iowa "that have aggressively adopted and invested in biotechnology are reaping the greatest rewards," Runge said.

Iowa has 50 agricultural and food science jobs per 100,000 jobs, far more than other states with lower rates of biotech crop production, he said.

Iowa State University scientists conducted nine field studies on biotech crops from 2001 to 2003, more than any other public institution except for the University of Idaho, which also had nine trials, the report found.

"Biotechnology has had a major impact in the state and will in the future," said Stephen Howell, director of Iowa State's Plant Sciences Institute. "A lot of visionaries in the state have been moving pretty aggressively in this direction, as they should."

The widespread adoption of gene-altered corn and soybeans has encouraged interest in biotechnology, Howell said.

Runge's report was paid for by the Council for Biotechnology Information, a group set up by major biotech companies to promote the industry.

Grand Island Independent

Published Friday, December 12, 2003

Biotech crops providing economic boost to Nebraska

By Robert Pore
robert.pore@theindependent.com

Despite drought conditions that lowered Nebraska crop production last year, the state was still able to harvest more than $1.8 billion in economic benefits from plant biotechnology, according to a study released Thursday by University of Minnesota professor C. Ford Runge.

Runge is director of the Center for International Food and Agricultural Policy and Distinguished McKnight University Professor of Applied Economics and Law.

The study, "The Economic Status and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," was designed to be an economic assessment of the status and performance of plant biotechnology, along with ongoing research and development, he said.

Runge said the study not only focused on the impact of plant biotechnology at the farm level, but also the economic benefits it is providing to the nation's economy.

"We have found that the states that have been most ready to adopt the technology on the farm level are also reaping some of the greatest benefits beyond the farm gate," he said. "Based on these trends, we believe that it will deliver more value at both levels -- behind and beyond the farm gate -- to the national economy in years ahead."

The four commercial biotech crops -- corn, soybeans, cotton and canola -- included in the study represented $20 billion in value in the United States in 2002, half of the total $40 billion value of the four crops.

"I think this indicates fairly clearly the degree to which the growers of these commodities are now relying on biotech crops to derive value from their production," Runge said.

He said the farm value of biotech crops has affected many states in a substantial way.

"The economies of these farm states have been affected by the decision of farmers to plant biotech crops," Runge said.

Of the $1.8 billion in crop value that biotech crops reaped for Nebraska in 2002, $802 million was from soybeans and $1.039 billion came from corn.

Runge said the on-farm impact of these crops is what's driving producers to adopt new biotech crop varieties.

"It is clear why farmers have been adopting these crops," he said. "They are manifesting managerial efficiencies and they lead to increased profits per acre."

For example, Runge cited previous studies that have shown that farmers planting Bt corn, a biotech variety designed to combat corn borer, have seen profit increases of as much as $60 per acre. Similar studies have shown that biotech soybeans have allowed farmers to see as much as $15 per-acre profit increase.

"Regardless of what individual studies say about individual profitability on different farms, the most compelling evidence to me as an economist on the efficacy of the technology is the revealed preference of farmers to plant these biotech seeds year after year," Runge said.

For example, the U.S. Department of Agriculture estimated that in Nebraska, farmers planted 87 percent of their soybean acreage this year to biotech varieties, compared to 72 percent in 2000. Nebraska farmers planted 55 percent of their corn crop this year to all biotech varieties, up from 34 percent in 2000.

Another statistic that Runge said illustrates the rapid rate of adoption of biotech crops by U.S. farmers is that in 1996, only 4 percent of the nation's corn crop was planted to biotech varieties. In 2003, 40 percent of the nation's corn crop was biotech.

That dramatic growth is even more reflected in soybeans. In 1996, 9 percent of the nation's soybean acres were planted to biotech varieties, compared to 81 percent in 2003.

Runge said continued research and development in both the private and public sectors in biotechnology plants will yield substantial benefits to society, such as increased crop production and crop varieties that are better adaptable to cold and drought weather conditions.

Along with the benefits biotech crops will provide to producers, Runge said new biotech varieties will also provide environmental benefits. Corn and soybeans fed to livestock have lower phosphorous levels, which will help reduce the rate of water quality problems associated with livestock waste.

New biotech varieties also have product quality traits that will benefit consumers, such as improved digestibility in wheat for people intolerant to certain glutens, increased beta carotene in potatoes and oil crop traits that reduce the levels of transfatty acids that contribute to obesity.

"These new traits clearly suggest that the benefits are to be captured not just at the farm level, but beyond it," Runge said.

He also said the economic impacts of plant biotechnology are increasingly evident beyond the farm gate and in individual states active in biotech research and development. In Nebraska, 32 out of every 100,000 workers are employed as agricultural and food scientists, second in the nation only to Iowa.

"Beyond the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the United States," Runge said. "The number of agricultural and food scientists is increasing as workers are attracted to the biotech sector's above-average wages, and a large number of individual states are reaping the benefits of this investment and job-related activity."

He said as consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech.

"That translates directly into high social rates of return in the form of educational and job opportunities," he said.

The study is available at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf.

INFO BOX

Value of biotech traits by state: 2002 (millions of dollars)

2002	All Biotech	Soybeans	Corn
U.S.	$20.899	$11.026	$7.040
Iowa	$3.816	$2.004	$1.811
Ill.	$2.546	$1.756	$790
Minn.	$2.154	$1.151	$995
Neb.	$1.841	$802	$1.039
Ind.	$1.258	$1.057	$201
S.D.	$1.023	$581	$441

AgWeb.com

12/12/2003

Study Says Biotech Benefits Reach Beyond the Farm

by *Roger Bernard*

Benefits to farmers from biotech crops have been touted consistently as one of the factors that should win support for their use. Now there's a new study from the University of Minnesota's Center for International Food and Agricultural Policy which adds to the case for biotech crops, actually finding value beyond farming.

Biotech usage is creating new ag and food science jobs that 1.5 to 2 times the average typical wage for U.S. workers, according to the study's author and University professor C. Ford Runge. He says these types of jobs weren't around even a decade ago and it underscores the spreading impacts that biotech crops have beyond the farm.

I*owa is the top state in creating higher-paying agricultural and food science jobs, with Nebraska ranking second, according to the data.*

Of course there are plenty of on-farm benefits and economic plusses, too, the study notes.

Based on 2002 crop data, the study said biotech varieties of soybeans, corn, canola and cotton accounted for $20 billion in value, about half the total value the four crops generate in the United States. Iowa led nationally, with $3.8 billion in value, while Nebraska was fourth with $1.8 billion in value. Minnesota biotech crops were valued at $2.15 billion last year, behind Iowa and Illinois.

Runge said when farmers used seeds with biotech traits, average profits rose by $5 to $60 per acre of corn, and by about $15 per acre for soybeans.

Some 41 of the 50 U.S. states had some type of biotech initiative by 2001, according to the report.

St. Paul Pioneer Press

Biotech backup builds

BY LEE EGERSTROM
Pioneer Press
513 words
12 December 2003
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3C
English

Minnesota farmers already are producing crops valued at $2.2 billion annually from biotechnology engineered seeds, but Midwestern states may be gaining even greater value from the science-based jobs and businesses serving the biotech revolution, a University of Minnesota economist said Thursday.

C. Ford Runge, holder of a McKnight chair for applied economics and law, and research associate Barry Ryan have completed a study called The Economic Status and Performance of Plant Biotechnology in 2003. They presented it at a meeting of the National Conference of State Legislatures in Washington, D.C.

Runge said 41 of the 50 U.S. states had adopted some type of initiative by 2001 to attract or develop biotechnology research. Runge's study showed there is logic for doing so. States where farmers have quickly adopted biotechnology genetics products are also gaining most of the research and development work going into creating biotechnology for plants, he found.

The biotechnology jobs, from scientist to assistant, pay $52,310 in average annual income, which is 1½ times greater than the U.S. average annual salary of $34,020, he said.

The study said Minnesota farmers produced corn, soybean and canola crops valued at $2.2 billion in 2002, making Minnesota the third-largest state after Iowa and Illinois in adopting plant biotechnology.

Wisconsin ranks 12th in biotech farm use, with 2002 corn and soybean crops from the **genetically modified** seeds valued at $498 million.

But off the farm, Runge said, Wisconsin has 200 companies involved with biotechnology research and development projects. Of them, 56 are involved with agricultural research, he said, while about 5,000 people are employed in biotech research at Wisconsin universities and laboratories. The bioscience companies and institutions in Wisconsin employ 21,000 people and account for about $5 billion annually to the state's economy, he said.

Minnesota, meanwhile, has an estimated 176 companies involved in various aspects of biotechnology, although a majority of these firms have medical rather than agricultural objectives. However, Syngenta has its seed operations based in Golden Valley and is one of the six international leaders in plant biosciences that account for $26 billion in annual seed sales.

The study noted that employment in the sector grew by more than 1,000 jobs in both states between 1998 and 2002.

In a conference call with reporters before his presentation, Runge said corn, soybeans, canola and cotton are the current crops employing biotechnology. But research is continuing on wheat, sugarbeets, rice and potatoes, creating jobs and attracting students to science careers, he said.

Foreign correspondents based in Washington asked Runge if benefits from biotechnology are under threat by European concerns about the safety of foods made from **genetically modified** commodities. Questions of trade and policy were beyond the scope of the study, Runge said, but farm use of the new seeds signal that farmers are convinced the technology produces profits and that markets exist for their crops.

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St. Paul Pioneer Press, Knight Ridder/Tribune Business News

University of Minnesota Economist Studies Plant Biotechnology, Related Jobs

By Lee Egerstrom, Saint Paul Pioneer Press, Minn.
Knight Ridder/Tribune Business News
554 words
12 December 2003
Saint Paul Pioneer Press (KRTBN)
English

Dec. 12--Minnesota farmers already are producing crops valued at $2.2 billion annually from biotechnology engineered seeds, but Midwestern states may be gaining even greater value from the science-based jobs and businesses serving the biotech revolution, a University of Minnesota economist said Thursday.

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Omaha World Herald

Iowa, Nebraska cashing in on biotech

BY CHRIS CLAYTON

Iowa reaps more value from biotech crops than any other state, but Nebraska isn't far behind, according to a new report.

The technology behind genetically modified crops also creates high-paying science jobs in states where farmers plant more biotech crops, therefore pushing the economic impact of biotechnology beyond the farm.

"We know that these states are leading the way in creating jobs for biotech and food scientists," said Ford Runge, a professor at the University of Minnesota and the author of the report.

Runge is director of the university's Center for International Food and Agricultural Policy. Financial supporters of the center include two of the nation's largest food-processing companies: Cargill Inc. and Archer Daniels Midland Co.

Based on the 2002 crop, Runge's study showed that biotech varieties of four crops - soybeans, corn, canola and cotton - account for $20 billion in value, about half the total value the four crops generate in the United States.

Iowa led nationally, with $3.8 billion in value, while Nebraska was fourth with $1.8 billion in value, according to the report.

Farmers in Midwestern states have readily accepted biotech crops, particularly in soybeans and corn. Soybeans, introduced in genetically modified varieties in 1996, now account for 81 percent of the total crop. In Nebraska, 86 percent of the soybean crop has a biotech trait, while about 84 percent of Iowa's soybeans are biotech varieties.

According to the U.S. Department of Agriculture, about 52 percent of Nebraska's corn crop this year was planted with biotech seeds. In Iowa, the number was 45 percent.

"This indicates fairly clearly . . . the growers of these crops are relying on biotechnology," Runge said.

Outside the farm, Iowa also is the top state in creating higher-paying agricultural and food science jobs, driven by research and development funding from the federal government, private companies and land-grant universities.

Nebraska ranked second in creating biotech-based jobs, according to the report.

"While 41 of 50 states had some type of biotech initiative by 2001, those that have aggressively adopted and invested in biotechnology are reaping the greatest rewards," Runge said.

The report noted that while land-grant universities in Iowa and Nebraska study both corn and soybeans, the University of Nebraska-Lincoln has more initiatives in soybean development, while Iowa State University in Ames is a leader in research on corn.

TruthAboutTrade.org

Biotech crops provide economic boost on the farm and beyond the farm gate

Plant biotechnology already is creating high-paying jobs and economic value and will deliver even more value both on the farm and beyond the farm gate in the years ahead, according to a study by University of Minnesota professor C. Ford Runge.

"The vast stock of plant breeding and genomic research and development knowledge that led to the biotech revolution will generate billions of dollars in additional economic benefits for farmers and others in the agrifood value chain and within public and private research communities," Runge said.

Four commercial biotech crops -- corn, soybeans, cotton and canola -- represented $20 billion in value in the United States in 2002, half of the total $40 billion value of the four crops.

Runge, director of the Center for International Food and Agricultural Policy and Distinguished McKnight University Professor of Applied Economics and Law, released the study during a news conference at the National Press Club. He is scheduled to present the study later today at the Fall Forum of the National Conference on State Legislatures in Washington, D.C.

The study, "The Economic States and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," is an up-to-date effort to provide a detailed view of biotechnology's value at the farm level and beyond the farm gate, where the crops -- and the research and development that creates them -- generate additional jobs, income and investment in the agrifood chain and public and private research community.

The U.S. Corn Belt and cotton-growing regions gained the most economic value from planting biotech crops in 2002, led by Iowa ($3.8 billion), Illinois ($2.5 billion), Minnesota ($2.2 billion), Nebraska ($1.8 billion), Indiana ($1.3 billion) and South Dakota ($1 billion). Following these major corn and soybean growing states, Missouri was next with $1 billion, followed by North Dakota ($689 million), Ohio ($619 million) and cotton-producing states Arkansas ($670 million) and Mississippi ($528 million).

"The economic impacts of plant biotechnology also are increasingly evident beyond the farm gate and in individual states active in biotech research and development," Runge said. "Beyond the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the United States. The number of agricultural and food scientists are increasing as workers are attracted to the biotech sector's above-average wages, and large number of individual states are reaping the benefits of this investment and job-related activity."

"While 41 of 50 states had some type of biotech initiative by 2001, those that have aggressively adopted and invested in biotechnology are reaping the greatest rewards," Runge said. Corn Belt states with higher adoption levels of biotech crops have a greater number of ag and food science jobs than those with lower levels of adoption. For example, Iowa, one of the top five states in crop biotech adoption, has 50 ag and food science jobs per 100,000 jobs, more than lower adoption states. The average annual salary for these jobs in 2001 was $52,310 -- more than one and a half times the U.S. average of $34,020.

In Wisconsin, where 56 of the 200 bioscience companies are dedicated to agriculture, the study indicated there are 21,000 workers who account for $5 billion of the Badger state's economy.

In the past two years, field tests have been conducted on 100 new biotech crop traits by 40 universities and 35 private sector companies -- from a new variety of corn with an improved nutritional profile for use as an animal feed to a type of wheat that can better withstand droughts. Runge said continued investment in research and development -- along with more public education about the benefits of biotechnology -- is key to achieving further gains from plant biotechnology.

"As consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech," he said. "That translates directly into high social rates of return in the form of educational and job opportunities."

The study is available at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf. Support for the study was provided by the Council for Biotechnology Information. The results are those of the authors alone and not the University of Minnesota.

AgBio World

Biotech crops providing economic boost to Nebraska

- Grand Island Independent By Robert Pore, December 12, 2003

Despite drought conditions that lowered Nebraska crop production last year, the state was still able to harvest more than $1.8 billion in economic benefits from plant biotechnology, according to a study released Thursday by University of Minnesota professor C. Ford Runge.

Runge is director of the Center for International Food and Agricultural Policy and Distinguished McKnight University Professor of Applied Economics and Law.

The study, "The Economic Status and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," was designed to be an economic assessment of the status and performance of plant biotechnology, along with ongoing research and development, he said.

Runge said the study not only focused on the impact of plant biotechnology at the farm level, but also the economic benefits it is providing to the nation's economy.

"We have found that the states that have been most ready to adopt the technology on the farm level are also reaping some of the greatest benefits beyond the farm gate," he said. "Based on these trends, we believe that it will deliver more value at both levels -- behind and beyond the farm gate -- to the national economy in years ahead."

The four commercial biotech crops -- corn, soybeans, cotton and canola -- included in the study represented $20 billion in value in the United States in 2002, half of the total $40 billion value of the four crops.

"I think this indicates fairly clearly the degree to which the growers of these commodities are now relying on biotech crops to derive value from their production," Runge said.

He said the farm value of biotech crops has affected many states in a substantial way.

"The economies of these farm states have been affected by the decision of farmers to plant biotech crops," Runge said.

Of the $1.8 billion in crop value that biotech crops reaped for Nebraska in 2002, $802 million was from soybeans and $1.039 billion came from corn.

Runge said the on-farm impact of these crops is what's driving producers to adopt new biotech crop varieties.

"It is clear why farmers have been adopting these crops," he said. "They are manifesting managerial efficiencies and they lead to increased profits per acre."

For example, Runge cited previous studies that have shown that farmers planting Bt corn, a biotech variety designed to combat corn borer, have seen profit increases of as much as $60 per

acre. Similar studies have shown that biotech soybeans have allowed farmers to see as much as $15 per-acre profit increase.

"Regardless of what individual studies say about individual profitability on different farms, the most compelling evidence to me as an economist on the efficacy of the technology is the revealed preference of farmers to plant these biotech seeds year after year," Runge said.

For example, the U.S. Department of Agriculture estimated that in Nebraska, farmers planted 87 percent of their soybean acreage this year to biotech varieties, compared to 72 percent in 2000. Nebraska farmers planted 55 percent of their corn crop this year to all biotech varieties, up from 34 percent in 2000.

Another statistic that Runge said illustrates the rapid rate of adoption of biotech crops by U.S. farmers is that in 1996, only 4 percent of the nation's corn crop was planted to biotech varieties. In 2003, 40 percent of the nation's corn crop was biotech.

That dramatic growth is even more reflected in soybeans. In 1996, 9 percent of the nation's soybean acres were planted to biotech varieties, compared to 81 percent in 2003.

Runge said continued research and development in both the private and public sectors in biotechnology plants will yield substantial benefits to society, such as increased crop production and crop varieties that are better adaptable to cold and drought weather conditions.

Along with the benefits biotech crops will provide to producers, Runge said new biotech varieties will also provide environmental benefits. Corn and soybeans fed to livestock have lower phosphorous levels, which will help reduce the rate of water quality problems associated with livestock waste.

New biotech varieties also have product quality traits that will benefit consumers, such as improved digestibility in wheat for people intolerant to certain glutens, increased beta carotene in potatoes and oil crop traits that reduce the levels of transfatty acids that contribute to obesity.

"These new traits clearly suggest that the benefits are to be captured not just at the farm level, but beyond it," Runge said.

He also said the economic impacts of plant biotechnology are increasingly evident beyond the farm gate and in individual states active in biotech research and development. In Nebraska, 32 out of every 100,000 workers are employed as agricultural and food scientists, second in the nation only to Iowa.

"Beyond the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the United States," Runge said. "The number of agricultural and food scientists is increasing as workers are attracted to the biotech sector's above-average wages, and a large number of individual states are reaping the benefits of this investment and job-related activity."

He said as consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech.

"That translates directly into high social rates of return in the form of educational and job opportunities," he said.

The study is available at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf.
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AgBio World

Biotech crops provide economic boost on the farm and beyond the farm gate

- Via Agnet, December 11, 2003

WASHINGTON -- Plant biotechnology already is creating high-paying jobs and economic value and will deliver even more value both on the farm and beyond the farm gate in the years ahead, according to a study by University of Minnesota professor C. Ford Runge.

"The vast stock of plant breeding and genomic research and development knowledge that led to the biotech revolution will generate billions of dollars in additional economic benefits for farmers and others in the agrifood value chain and within public and private research communities," Runge said.

Four commercial biotech crops -- corn, soybeans, cotton and canola -- represented $20 billion in value in the United States in 2002, half of the total $40 billion value of the four crops.

Runge, director of the Center for International Food and Agricultural Policy and Distinguished McKnight University Professor of Applied Economics and Law, released the study during a news conference at the National Press Club. He is scheduled to present the study later today at the Fall Forum of the National Conference on State Legislatures in Washington, D.C.

The study, "The Economic States and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," is an up-to-date effort to provide a detailed view of biotechnology's value at the farm level and beyond the farm gate, where the crops -- and the research and development that creates them -- generate additional jobs, income and investment in the agrifood chain and public and private research community.

The U.S. Corn Belt and cotton-growing regions gained the most economic value from planting biotech crops in 2002, led by Iowa ($3.8 billion), Illinois ($2.5 billion), Minnesota ($2.2 billion), Nebraska ($1.8 billion), Indiana ($1.3 billion) and South Dakota ($1 billion). Following these major corn and soybean growing states, Missouri was next with $1 billion, followed by North Dakota ($689 million), Ohio ($619 million) and cotton-producing states Arkansas ($670 million) and Mississippi ($528 million).

"The economic impacts of plant biotechnology also are increasingly evident beyond the farm gate and in individual states active in biotech research and development," Runge said. "Beyond the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the United States. The number of agricultural and food scientists are increasing as workers are attracted to the biotech sector's above-average wages, and large number of individual states are reaping the benefits of this investment and job-related activity."

"While 41 of 50 states had some type of biotech initiative by 2001, those that have aggressively adopted and invested in biotechnology are reaping the greatest rewards," Runge said. Corn Belt states with higher adoption levels of biotech crops have a greater number of ag and food science jobs than those with lower levels of adoption. For example, Iowa, one of the top five states in crop biotech adoption, has 50 ag and food science jobs per 100,000 jobs, more than lower

adoption states. The average annual salary for these jobs in 2001 was $52,310 -- more than one and a half times the U.S. average of $34,020.

In Wisconsin, where 56 of the 200 bioscience companies are dedicated to agriculture, the study indicated there are 21,000 workers who account for $5 billion of the Badger state's economy.

In the past two years, field tests have been conducted on 100 new biotech crop traits by 40 universities and 35 private sector companies -- from a new variety of corn with an improved nutritional profile for use as an animal feed to a type of wheat that can better withstand droughts. Runge said continued investment in research and development -- along with more public education about the benefits of biotechnology -- is key to achieving further gains from plant biotechnology.

"As consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech," he said. "That translates directly into high social rates of return in the form of educational and job opportunities."

The study is available at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf. Support for the study was provided by the Council for Biotechnology Information. The results are those of the authors alone and not the University of Minnesota.
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AgBio World

BIOTECH CROPS PROVIDE ECONOMIC BENEFITS

Plant biotechnology is creating high-paying jobs and economic value and will deliver even more value for both farmers and other stakeholders in the agrifood chain. This was the conclusion of a study by C. Ford Runge, a professor at the University of Minnesota and director of the Center for International Food and Agricultural Policy.

According to the Council for Biotechnology Information, the study entitled "The Economic States and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," is an up-to-date effort to provide a detailed view of biotechnology's value at the farm level and beyond the farm gate.

The U.S. Corn Belt and cotton-growing regions gained the most economic value from planting biotech crops in 2002, led by Iowa ($3.8 billion), Illinois ($2.5 billion), Minnesota ($2.2 billion), Nebraska ($1.8 billion), Indiana ($1.3 billion) and South Dakota ($1 billion).

Runge noted that aside from the more than $20 billion in biotech crops grown in 2002, new plant biotech firms and research facilities are being created throughout the US. The number of agricultural and food scientists were also found to be increasing and that more states are reaping the benefits of this investment and job-related activities.

The study is available online at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf.
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CalTraderReport.com

Dec. 15, 2003

US FARMERS CONTINUE TO ADOPT BIOTECH, STUDY SAYS

WASHINGTON, DC - The adoption of agricultural biotechnology in the United States continues to grow, offering increasing economic and environmental benefits, according to results of a study funded by a major US biotechnology institute.

The study sought to determine the level of adoption of biotechnology in the United States, current US biotechnology research and development (R&D) activities, and the future direction of the industry, according to principal investigator C. Ford Runge.

Runge, who is director of the Center for International Food and Agricultural Policy at the University of Minnesota, received funding for the study from the Washington-based Council for Biotechnology Information.

Runge focused on eight crops: maize, soybeans, cotton, rapeseed/canola, wheat, potatoes, rice and sugar beets.

Biotech varieties of the first four - maize, soybeans, cotton and rapeseed/canola - have been commercialized in the US, while biotech varieties of wheat, potatoes, rice and sugar beets are still undergoing field trials.

He found that in 2002 half of the $40 billion in the value of harvested maize, soybeans, cotton and canola was from crops grown from seeds improved by biotechnology.

Of the four commercialized biotech crops, maize produced the largest increase in value per acre - $60 - over acres planted in traditional varieties. One acre is slightly half a hectare.

Herbicide-tolerant soybeans improved profits nearly $15 an acre, Runge said.

Eighty percent of soybeans grown in the US in 2003 was from biotech seeds, up from 9% in 1996. The number of acres planted in biotech cotton in 2003 was 73% compared to 17% in 1996 and the number of biotech-planted acres of maize increased from 4% in 1996 to 40% in 2003, Runge said.

Current agricultural biotechnology research in the US is focusing on improving agronomic, environmental and product quality traits, he added.

Runge found that biotechnology research and development spending is increasing at both the federal and state levels among governments, universities and the private sector. Funding from the

National Science Foundation, most of it funneled through universities, increased 70% between 1996 and 2002, he said.

The US Department of Agriculture (USDA) is expected to spend more than $2.3 billion on agricultural biotech research in 2004, Runge said. Private companies are expected to spend $2.7 billion, he added.

During questioning, Runge said US farmers are choosing biotechnology because it benefits them and consumers. Farmers spend less money and time on pest control and reap higher yields. Consumers are offered foods with greater nutritional value, he said.

"As consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing to and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech."

USAgNet

Iowa Leads the Nation in GMO Crop Values

12/16/2003

Iowa leads the nation in garnering value from genetically modified crops, but Nebraska isn't far behind. GM technology creates high-paying science jobs in states where farmers plant more biotech crops, and that is an impetus to push the economic impact of biotechnology beyond the farm.

"We know that these states are leading the way in creating jobs for biotech and food scientists," said Ford Runge, a professor at the University of Minnesota and the author of the report. Runge is the director of the university's Center for International Food and Agricultural Policy. Financial supporters of the center include two of the nation's largest food-processing companies: Cargill Inc. and Archer Daniels Midland Co.

Based on the 2002 crop, Runge's study showed that biotech varieties of soybeans, corn, canola and cotton account for $20 billion in value, about half the total value the four crops generate in the United States. Iowa led nationally, with $3.8 billion in value, while Nebraska was fourth with $1.8 billion in value, according to the report. Midwest farmers have embraced GM crops, particularly in soybeans and corn. GM soybeans, were first planted in 1996, and now account for 81% of the total crop. In Nebraska, 86% of the soybean crop is GM, and about 84% of Iowa's soybeans are biotech varieties.

BioScience News & Advocate

12/17/03

US farmers continue to adopt biotech

The adoption of agricultural biotechnology in the United States continues to grow, offering increasing economic and environmental benefits, according to results of a study funded by a major U.S. biotechnology institute.

The study, presented to reporters December 11 at the National Press Club in Washington, sought to determine the level of adoption of biotechnology in the United States, current U.S. biotechnology research and development (R&D) activities, and the future direction of the industry, according to principal investigator C. Ford Runge.

Runge, who is director of the Center for International Food and Agricultural Policy at the University of Minnesota, received funding for the study from the Washington-based Council for Biotechnology Information.

Runge focused on eight crops: maize, soybeans, cotton, rapeseed/canola, wheat, potatoes, rice and sugar beets. Biotech varieties of the first four
-- maize, soybeans, cotton and rapeseed/canola -- have been commercialized in the United States, while biotech varieties of wheat, potatoes, rice and sugar beets are still undergoing field trials.

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Of the four commercialized biotech crops, maize produced the largest increase in value per acre -- $60 -- over acres planted in traditional varieties. One acre is slightly half a hectare. Herbicide-tolerant soybeans improved profits nearly $15 an acre, Runge said.

Eighty percent of soybeans grown in the United States in 2003 was from biotech seeds, up from 9 percent in 1996.

The number of acres planted in biotech cotton in 2003 was 73 percent compared to 17 percent in 1996 and the number of biotech-planted acres of maize increased from 4 percent in 1996 to 40 percent in 2003, Runge said.

Current agricultural biotechnology research in the United States is focusing on improving agronomic, environmental and product quality traits, according to Runge.

Agronomic traits include further yield improvement of varieties, increased stalk strength and cold and drought tolerancies.

Environmental traits include low-phytate corn and soybeans that, when digested by livestock, produce lower levels of phosphorous in waste, which in turn means less harmful run-off going into the country's water supply.

Product quality traits are nutritional improvements such as better digestibility of wheat, more beta carotene in potatoes and reduced transfat acids in crop oils, Runge said.

Between 2001 and 2003, 100 traits have undergone testing by 40 universities and 35 companies, he said. By 2001, 41 of the country's 50 states had some type of biotech initiative, he said.

Runge found that biotechnology research and development spending is increasing at both the federal and state levels among governments, universities and the private sector. Funding from the National Science Foundation, most of it funneled through universities, increased 70 percent between 1996 and 2002, he said.

The U.S. Department of Agriculture (USDA) is expected to spend more than $2.3 billion on agricultural biotech research in 2004, Runge said. Private companies are expected to spend $2.7 billion, he added.

During questioning, Runge said U.S. farmers are choosing biotechnology because it benefits them and consumers. Farmers spend less money and time on pest control and reap higher yields. Consumers are offered foods with greater nutritional value, he said.

"As consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing to and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech," Runge said.

The researcher also urged more investment for public education about the benefits of biotechnology.

The Gene Pool Newsletter
Plant Biotechnology News from CropLife America

Volume 6 Issue 33 - December 19, 2003

QUOTED: “The plant biotechnologies are creating new agricultural and food science jobs that pay 1.5 to 2 times the average typical wage for U.S. workers.” - Dr. C. Ford Runge, Minnesota Center for International Food and Agricultural Policy, on the ripple effect of U.S. biotech crop adoption, as noted by the AP, Dec. 12, related to a study on ag biotechnology’s overall benefits to the economy.

BIOTECH ECONOMIC RIPPLE EFFECT NOTED

Dr. C. Ford Runge, director of the Center for International Food and Agricultural Policy, released a study, The Economic Status and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States,” which provides a detailed view of biotechnology’s value at the farm level and beyond, where the crops - and the research and development that creates them - generate additional jobs, income and investment in the agrifood chain and public and private research community. The CBI funded study is available at http://www.apec.umn.edu/faculty/frunge/plantbiotech.pdf.

AgBio World

12/24/03

Biotech Research Helps Create Knowledge-Based Economy

- Council for Biotech Information, Dec.12, 2003 http://www.whybiotech.com/index.asp?id=4188

Plant biotechnology is helping to create a vibrant knowledge-based economy throughout the United States, according to a study by a University of Minnesota professor.

"The vast stock of plant breeding and genomic research and development knowledge that led to the biotech revolution will generate billions of dollars in additional economic benefits for farmers and others in the agrifood value chain and within public and private research communities," said C. Ford Runge, director of the Center for International Food and Agricultural Policy and Distinguished McKnight University Professor of Applied Economics and Law.

The study, "The Economic Status and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States," provides a detailed view of biotechnology's value at the farm level and beyond the farm gate, where the crops -- and the research and development that creates them -- generate additional jobs, income and investment in the agrifood chain and public and private research community. The study was supported by the Council for Biotechnology Information.

"It's clear why farmers have been adopting these crops: managerial efficiencies and increased profits per acre," said Runge.

Since their introduction in 1996: * Bt corn plantings have increased from 4 percent of total U.S. corn acres to 40 percent in 2003. * Biotech cotton plantings have increased from 17 percent of U.S. cotton acres to 73 percent in 2003. * Biotech soybean plantings have increased from 9 percent of U.S. soybean acres to 81 percent in 2003.

"The most compelling evidence for me as an economist of the value of biotech crops is the preference of farmers to plant these crops year after year after year," said Runge.

Four commercial biotech crops -- corn, soybeans, cotton and canola -- represented $20 billion in value in the United States in 2002, half of the total $40 billion value of the four crops.

The U.S. Corn Belt and cotton-growing regions gained the most economic value from planting biotech crops in 2002, led by Iowa ($3.8 billion), Illinois ($2.5 billion), Minnesota ($2.2 billion), Nebraska ($1.8 billion), Indiana ($1.3 billion) and South Dakota ($1 billion). Following these major corn and soybean growing states, Missouri was next with $1 billion, followed by North Dakota ($689 million), Ohio ($619 million) and cotton-producing states Arkansas ($670 million) and Mississippi ($528 million). But the economic effects of plant biotechnology are being felt far beyond the farm.

"New plant biotech firms and research facilities are being created throughout the United States," said Runge. "The number of agricultural and food scientists are increasing as workers are attracted to the biotech sector's above-average wages, and a large number of individual states are reaping the benefits of this investment and job-related activity. While 41 of 50 states had some

type of biotech initiative by 2001, those that have aggressively adopted and invested in biotechnology are reaping the greatest rewards."

Corn Belt states with higher adoption levels of biotech crops -- South Dakota, Nebraska, Kansas, Minnesota and Iowa -- have a greater proportion of ag and food science jobs than those with lower levels of adoption. For example, Iowa, one of the top five states in crop biotech adoption, has 50 ag and food science jobs per 100,000 jobs, more than lower adoption states. The average annual salary for these jobs in 2001 was $52,310 -- more than one and a half times the U.S. average of $34,020. In Wisconsin, where 56 of the 200 bioscience companies are dedicated to agriculture, the study indicated there are 21,000 workers who account for $5 billion of the Badger state's economy.

"This sector now represents enormous value -- and extends to the national economy," said Runge, adding that even more densely populated states such as Connecticut, Maryland and Rhode Island are creating biotech jobs. "The jobs that are being created are knowledge-based, high-paying and highly specialized." In the past two years, field tests have been conducted on 100 new biotech crop traits by 40 universities and 35 private sector companies - from a new variety of corn with an improved nutritional profile for use as an animal feed to a type of wheat that can better withstand droughts. Runge said continued investment in research and development -- along with more public education about the benefits of biotechnology -- is key to achieving further gains from plant biotechnology. "As consumer confidence grows, it will feed the demand for new biotech varieties, increase the advantages of those willing and able to supply them, and indirectly establish a base of support for continued public investments in plant biotech," he said. "That translates directly into high social rates of return in the form of educational and job opportunities."

For more information:
The Economic Status and Performance of Plant Biotechnology in 2003: Adoption, Research and Development in the United States (executive
summary) -- C. Ford Runge and Barry Ryan