

"Attachment A"

MINNESOTA'S STRENGTHS

- ❖ Minnesota ranks as the most livable state (seven years straight), according to Morgan Quitno Press.
- ❖ The Twin Cities has been ranked as the world's fifth most knowledge-competitive region, by U.K.-based Robert Huggins Associates.
- ❖ The Twin Cities ranks as the fourth best place in the U.S. to locate a company, according to *Expansion Management*.
- ❖ Minneapolis-St. Paul was ranked as the best metropolitan area for entrepreneurs, according to *Entrepreneur* magazine.

HOW CAN I FIND OUT MORE ABOUT THE ZONE?

positively
Minnesota

Department of Employment
and Economic Development

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Office of Business Development
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WHAT IS THE BIOSCIENCE ZONE?

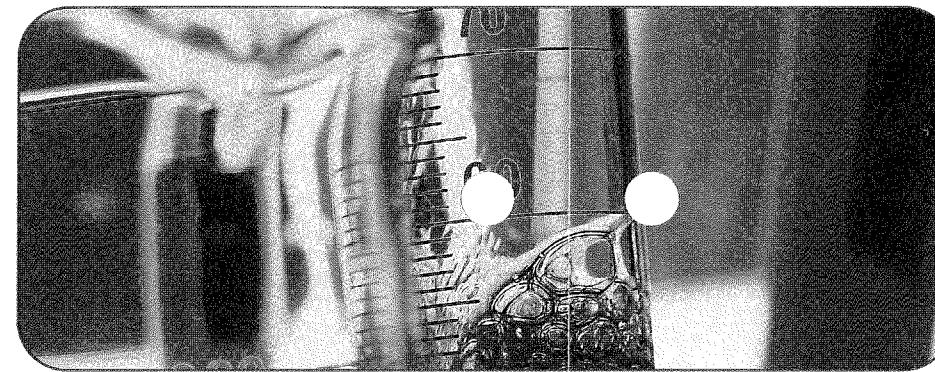
Minnesota's bioscience businesses are now eligible for reduced operating expenses—a tax free zone. The Bioscience Zone is designed to facilitate the development of research and development parks in two areas; one near the University of Minnesota-Twin Cities campuses and a second near the Mayo Clinic in Rochester. The zone will help existing and start-up bioscience companies have greater access to U of M and Mayo researchers and technology. It will also provide tax incentives to help them lower their overall costs to facilitate their growth.

WHO IS ELIGIBLE?

To qualify for the tax exemptions, a business must start-up, relocate to, or expand in the zone. Companies relocating from another site in Minnesota qualify by increasing their employment by 20 percent or making a capital investment of at least 10 percent of gross revenues within the first year they are in the zone.

HOW LONG WILL THE ZONE LAST?

Exemptions are available for up to 12 years beginning January 2004.



-40
APPROX 20

WHY BIOSCIENCE IN MINNESOTA?

Minnesota is home to two of the world's leaders in bioscience research—the University of Minnesota and the Mayo Clinic. Early in 2003, these institutions forged a historic partnership that will harness their collective energy in biotechnology and genomics to create opportunities for new discoveries, new patents, new businesses and new jobs in Minnesota.

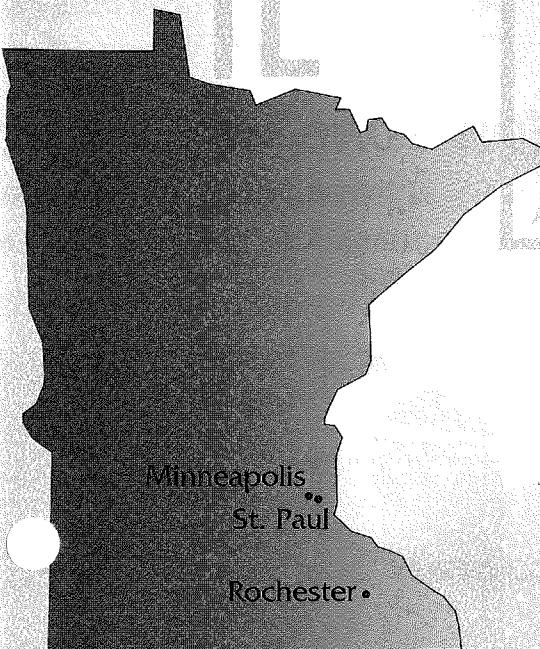
This partnership is just one part of Minnesota's burgeoning bioscience industry, which boasts strengths and competitive advantages in apparel, biologics, agricultural, food, and industrial biotechnology. Minnesota has the intellectual, corporate and public leadership, as well as the financial capital to ensure its pre-eminent position in the bioscience revolution.

- ❖ Minnesota is home to the world's leading health sciences and medical technology cluster, anchored by such home-grown industry giants as 3M, Medtronic, St. Jude Medical, and major facilities of Guidant and Boston Scientific.
- ❖ Cargill Dow — hailed by many as the “green Microsoft” — is emerging in Minnesota as a global leader in industrial biosciences, using fermentation of agricultural products to manufacture polymers that can be made into plastics, biosynthetic fabrics, packaging materials and can replace many existing petroleum-based polymers.
- ❖ In value-added food, nutrition and health industries, Minnesota's world leadership is long established through companies Cargill, General Mills, Land O'Lakes, Syngenta and others — all of which are leaders in food innovation.



WHERE IS THE ZONE LOCATED?

The Bioscience Zone is made up of three separate sub-zones near world-class research institutions: the University of Minnesota (Minneapolis campus and St. Paul campus) and the Mayo Clinic (Rochester). For information on communities and eligible properties, go to positivelyminnesota.com.



HOW DOES IT SAVE YOU MONEY?

The Bioscience Zone has many different tax incentives available to help companies grow and expand in Minnesota:

Tax Exemptions:

- ❖ Corporate Taxes (income tax, alternative minimum tax, minimum fee)
- ❖ Sales and Use Taxes

Tax Credits:

- ❖ Job Creation Credit
- ❖ Research and Development Credit

For 2004 and 2005, incentives for the zone are capped at \$1 million total. Incentives may be available in future years with legislative approval. A company's final incentive package is developed among several partners, including the company, the Department of Employment and Economic Development (DEED) and the cities of Minneapolis, St. Paul and Rochester.

HOW MUCH CAN IT SAVE YOU?

Example: Bioscience Manufacturer

- ❖ An existing company decides to take advantage of the opportunity presented by the Bioscience Zone. The company expands into an existing building, and begins operations in April 2004. The company has 40 percent of Minnesota operations in the zone in 2004, increasing to 50 percent in 2005.
- ❖ The company has net income of \$3 million in 2004 (from zone and non-zone operations) and \$3.3 million in 2005.
- ❖ In 2004, the company employs 15 people in the zone, growing to 25 people in 2005. The average salary of \$60,000 in 2004 increases 3% in 2005.
- ❖ Taxable purchases are \$500,000 in 2004 and \$550,000 in 2005.
- ❖ Research and development expenses in the zone total \$200,000 in 2004, and \$225,000 in 2005.

Example Tax Savings and Credits:

	2004*	2005
Corporate Income Tax	\$35,280	\$ 48,510
Sales and Use Tax	\$32,500	\$ 35,750
Job Creation Credit	\$23,625	\$ 54,700
R&D Credit	\$ 5,000	\$ 5,625
Total Annual Benefit	\$96,405	\$144,585
Total Long-term Benefit**		\$3,893,000

* Based on Three Quarters of Operation.

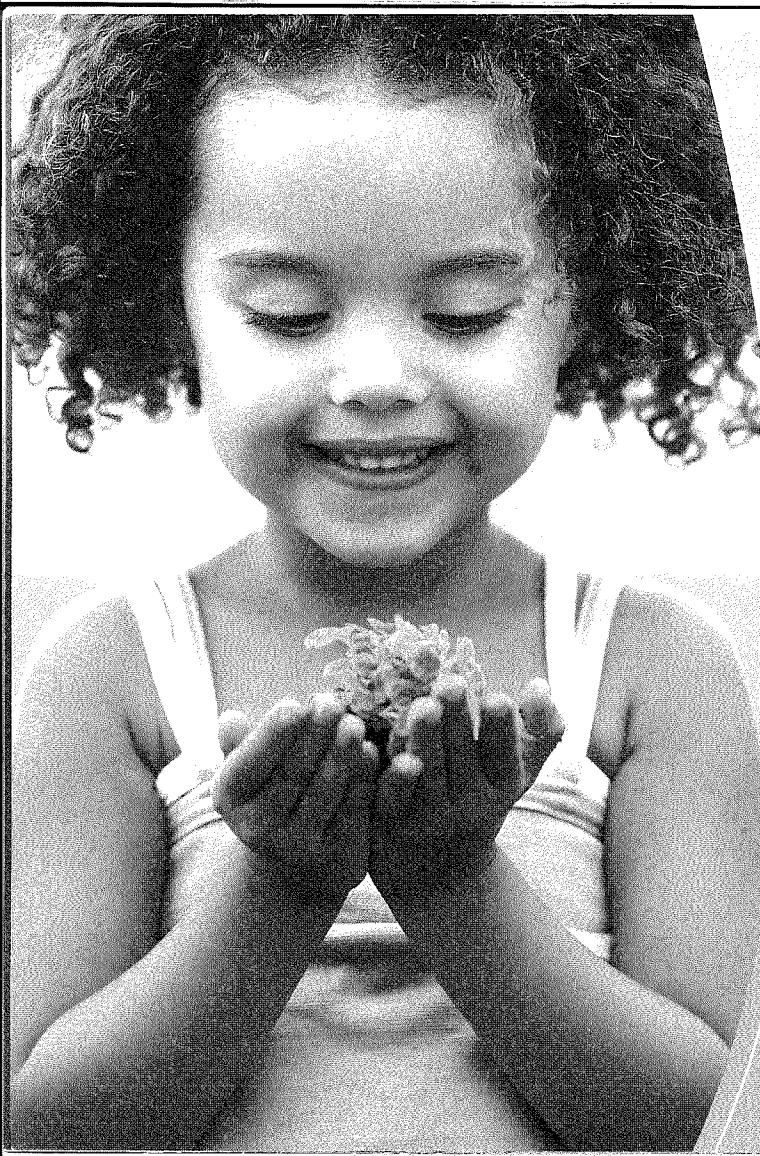
** Projected savings if full 12-year exemptions are provided. Funding for first two years of the zone is currently capped at \$1 million, pending future funding increases by the Minnesota Legislature.

"Attachment B"



good ideas are growing

PLANT BIOTECHNOLOGY



Plant biotechnology is helping today to provide people with more and better food and holds even greater promise for the future.

Whether cotton farmers in China, India and South Africa, canola farmers in Canada, soybean farmers in Argentina or corn farmers in Spain and the United States, millions of farmers around the world are using biotech seeds to boost yields, improve their livelihoods and preserve the environment.

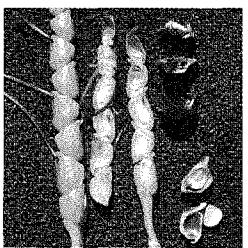
That's why organizations including the United Nations, American Medical Association, International Society of African Scientists and the Organization for Economic Cooperation and Development,¹ have voiced their support for plant biotechnology.

Yes, there are questions and concerns — just as there are with any new technology. But for nearly 300 years, plant breeders have worked to create better crops — a process that actually began thousands of years ago with the domestication of wild plants. Plant biotechnology is the next stage in the evolution of our continuing efforts to improve the food we eat.

What is plant biotechnology?

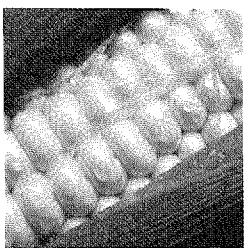
Plant biotechnology is a process in which genetic information and techniques are used to develop useful and beneficial plants.

"It is important to recognize that we have been genetically modifying the food supply for thousands of years," wrote food scientist Susan Harlander.²



TEOSINTE⁵

Modern corn, for example, bears little resemblance to its early ancestor, teosinte. Those early cobs were just one to two inches long with a few tiny kernels.³ Ancient varieties of potatoes and tomatoes were also vastly different from their modern relatives — and barely edible, if at all.⁴ It was only after centuries of careful breeding that corn, potatoes and tomatoes were developed into the tasty, nutritious foods we know and enjoy today.



MODERN CORN

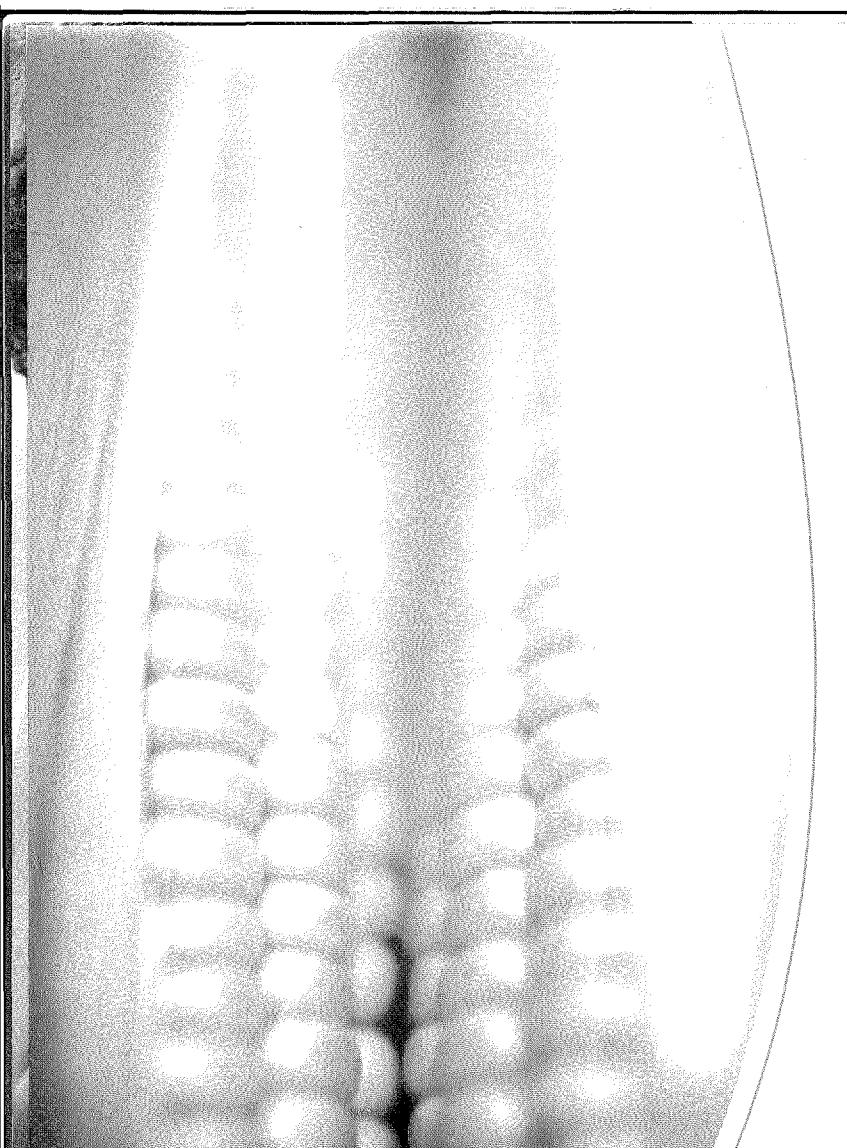
Austrian monk Gregor Mendel was the first to begin understanding genetics, as he said, "just what it is that gives the colors and the shapes to the different trees and fruits and flowers."

In 1866 Mendel speculated that certain unseen particles passed traits from one generation to the next. It wasn't until nearly 100 years later that researchers discovered that these unseen particles are genes. Genes carry the code that tell a plant what color it will be or how it will taste.⁶

In 1973, researchers Stanley Cohen and Herbert Boyer actually took a gene from one organism and inserted it into another, launching the modern biotechnology era.⁷ Their work led to the very first commercial biotech product — human insulin.

Modern plant biotechnology is a much more precise tool than traditional plant breeding. It allows researchers to select a gene with a specific trait — such as taste or hardiness — in one plant and move it to another. With traditional plant breeding, many genes are transferred to create a new plant variety. Some of these genes carry desired traits, others carry unwanted traits that must be removed with still more breeding. Getting it right is often difficult.

But with organisms modified with advanced biotechnology, "We are in a better, if not perfect, position to predict the [resulting traits]," said the National Research Council in a 1989 report.⁸ The NRC advises the U.S. government on science issues.



Products approved for market

To date, more than 50 biotech crops have been approved for sale in the United States and Canada, and three have been approved in Mexico. The list includes enhanced soybeans, cotton, corn, canola, cantaloupe, papaya, potato, squash, sugar beets and tomatoes.

Most of these crops have been enhanced in one or more of the following ways:

- **Herbicide tolerant** crops are immune to certain herbicides that are effective against harmful weeds but have no effect on the crop. Globally, about three-fourths of the biotech crops planted in 2002 were herbicide tolerant.⁹
- **Pest resistant** crops usually contain a protein from *Bacillus thuringiensis* or *Bt*, a naturally occurring soil bacterium that wards off the European corn borer.
- **Virus resistant** crops are shielded from plant viruses in a similar way that humans are protected from disease with vaccines: by being “inoculated” and thus building a natural defense.
- **Stacked trait** crops combine these and other traits.

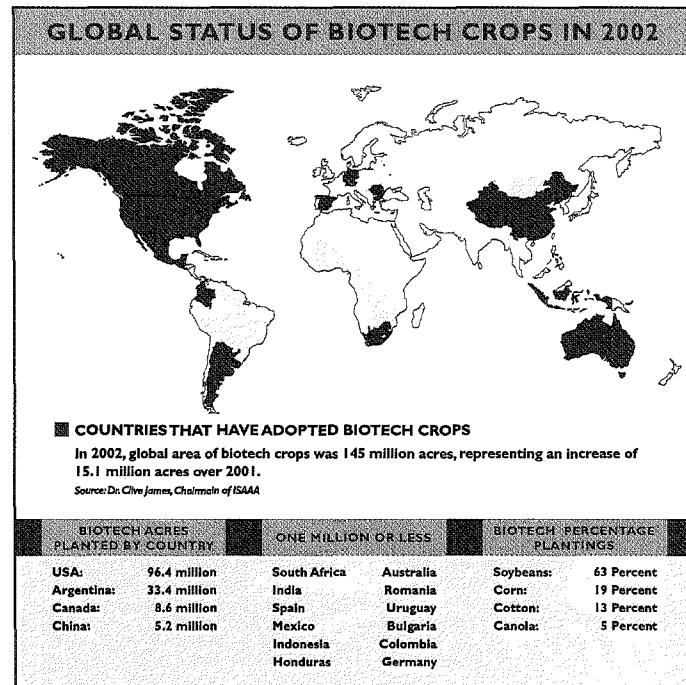
While four countries — the United States, Argentina, Canada and China — accounted for 99 percent of the global biotech acreage in 2002,¹⁰ the adoption of biotech crops has actually been faster in developing countries than in developed countries.¹¹ Between 5.5 million and 6 million farmers in 16 countries planted biotech seeds in 2002, according to the International Service for the Acquisition

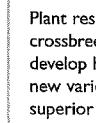
of Agri-biotech Applications (ISAAA). More than three-quarters were farmers in developing countries — primarily in China and South Africa.¹²

"Normally, at the end of the year, I would ask my wife how we are going to pay our bills," says South African cotton farmer T.J. Buthelezi, who now plants *Bt* cotton. "Now I ask her, how are we going to spend this money?"

Farmers have embraced the technology so quickly for very simple reasons: Biotech crops improve yields, cut costs, reduce spraying and save time.¹³

"Biotechnology continues to be the most rapidly adopted technology in agricultural history due to the social and economic benefits the crops offer farmers and society, particularly the 5 million resource-poor farmers in developing countries," says Clive James of ISAAA. "Biotech crops can significantly alter the lives of these farmers, limiting the time they must spend in the field and helping alleviate poverty."



4000 BC – 1600 AD	1700 – 1720	1866	1870 – 1890
 Early farmers — like those in Egypt and the Americas — saved seeds from plants that produced the best crops and planted them the next year to grow even better crops.	 Thomas Fairchild, the forgotten father of the flower garden, creates Europe's first hybrid plant. ¹	 Austrian monk Gregor Johann Mendel publishes a study on heredity that describes how plant characteristics are passed from generation to generation. ²	 Plant researchers crossbreed cotton to develop hundreds of new varieties with superior qualities. ³



MONARCH BUTTERFLY

While a 1999 Cornell University study suggested that large amounts of Bt corn pollen — when fed to monarch larvae in the laboratory — could pose a threat, several studies have since concluded that biotech corn does not harm monarchs.

In a comprehensive study that has been described as a model for assessing the risks of biotech crops, a team of federal, university and industry scientists concluded that the impact of Bt corn — enhanced with a naturally occurring soil bacterium that wards off insect pests — on monarch populations is "negligible."¹¹ Other groups concur. "The weather seems to be by far the largest influence on monarch butterfly populations," said a report on the butterfly issue by the nonprofit Pew Initiative on Food and Biotechnology.¹²

As wilderness, including monarch habitat, shrinks from agricultural expansion, biodiversity is lost. Biotech crops can make existing farmland more productive, reducing pressure to put wilderness areas under the plow.

Because Bt corn is not considered a threat, the U.S. Environmental Protection Agency (EPA) in October 2001 approved the planting of Bt corn for another seven years and one year later the European Congress of Entomology issued a statement supporting the use of Bt corn.¹³

Benefits of biotechnology

More and more studies are documenting the economic and environmental benefits of biotech crops.

A 2002 study of biotech crops by the National Center for Food and Agricultural Policy (NCFAP) found that six biotech crops planted in the United States — soybeans, corn, cotton, papaya, squash and canola — produced an additional 4 billion pounds of food and fiber on the same acreage, improved farm income by \$1.5 billion and reduced pesticide use by 46 million pounds.¹⁷

Other global studies have confirmed the economic benefits of biotech crops:

- Yield increases for *Bt* cotton ranged from 5 to 10 percent in China, 10 percent or more in the United States and Mexico, and 25 percent in South Africa — reaping global cotton farmers an additional \$1.7 billion in income between 1998 and 2001, according to ISAAA.¹⁸
- *Bt* corn in Spain produced yield increases of between 10 and 15 percent — and an average income gain of 12.9 percent — in areas with high levels of insect infestations in 2001-02, according to a study funded by Agricultural Biotechnology in Europe.¹⁹

- Biotech canola in Canada produced 10 percent yield increases in 2000, generating an average earnings increase of \$5.80 per acre compared with conventional canola, according to a Canola Council of Canada study.²⁰

- Biotech soybean yields in Argentina were 10 percent higher than yields for conventional soybeans, according to ISAAA.²¹

While biotech cotton has led the way in developing countries like China and South Africa, there's even more excitement about the benefits this new technology can bring to staple food crops grown in developing regions of the world. The reason is very simple: The developing world, home to 800 million hungry people, has the most at stake and potentially the most to gain through plant biotechnology.

1871 – Early 1900s



Researcher Luther Burbank developed the Russet Burbank Potato, and later went on to develop several new hybrid fruits, including plums, berries, prunes and peaches.⁴

1908

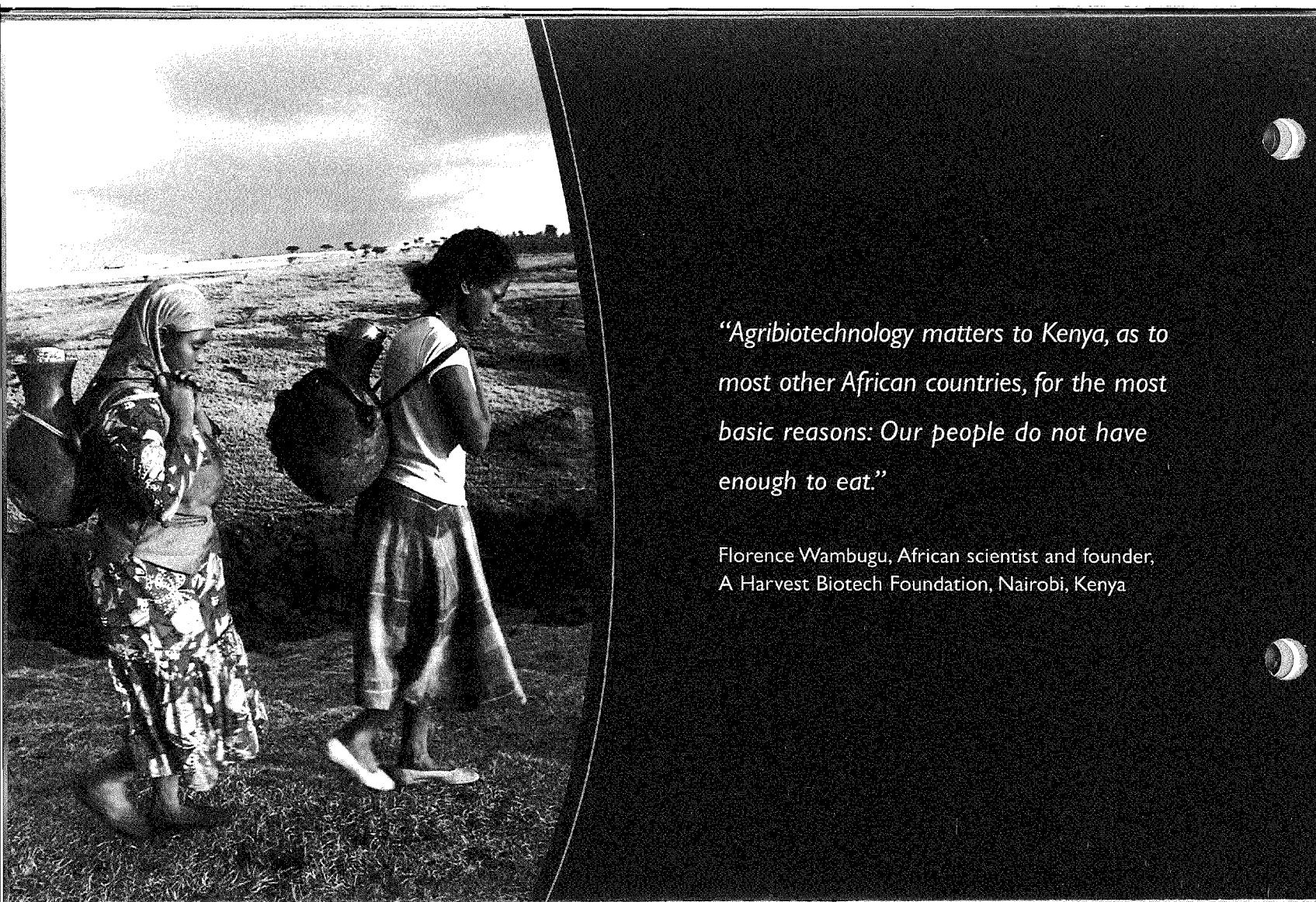
First U.S. hybrid corn produced by G.H. Shull of Carnegie Institute through self-pollination.⁵

1919

Word "biotechnology" coined by Hungarian immigrant Karl Ereky.⁶

1930

Inspired by writings of Luther Burbank, U.S. Congress passes the Plant Patent Act, enabling the products of plant breeding to be patented.⁷



"Agribiotechnology matters to Kenya, as to most other African countries, for the most basic reasons: Our people do not have enough to eat."

Florence Wambugu, African scientist and founder,
A Harvest Biotech Foundation, Nairobi, Kenya

More food

With the world population projected to top 8 billion by 2030, there will be another 2 billion mouths to feed — most of them in developing regions.²² With income growth also fueling demand for better diets, farmers will need to at least double their production over the next 25 years to satisfy these appetites, according to the United Nations.²³ But annual increases in agricultural yields in recent years are holding at just 1.3 percent a year — less than half of the gains of 30 years ago.²⁴

C.S. Prakash, founder of the AgBioWorld Foundation, says an additional 4 billion acres will need to come under the plow by 2050 to feed all of these people if there are no increases in farm productivity.²⁵ That's more than twice the size of the continental United States.

Getting the most production from existing land is important because more than a fourth of the world's 21.5 billion acres of agricultural land, pastures and woodlands have already been degraded from overuse or misuse, such as over-irrigation or erosion.²⁶ Biologists fear that up to half of the world's remaining 6 billion acres of tropical forests will be lost to agricultural expansion, and some are warning

that as many as 20 percent of all tropical forest species could be extinct within 30 years if forests continue to disappear at the current rate.²⁷

Biotechnology is not the single solution for feeding a growing population. But it is a tool that can help grow more food in a sustainable way that does not deplete existing farmland or force more remaining wilderness areas to go under the plow.

Researchers are busy developing hardier crops that can produce greater yields on existing land, or even thrive on marginal land:

- A biotech rice that can better withstand droughts and thrive in marginal soil is being developed by Cornell University researchers.
- A biotech sweet potato that can produce twice the yields of conventional varieties is midway through field trials in Kenya.²⁸ Sweet potatoes are a staple crop for millions in the developing world.
- A biotech papaya — credited with saving the papaya industry in Hawaii — is now being brought to farmers in Southeast Asia, the Caribbean and several other developing areas where papaya is a staple food.

1933	1953	1960s	1973
 Hybrid corn becomes available commercially ⁸ in the United States, causing corn yields to triple over the next 50 years. ⁹	 Watson and Crick describe the double helix structure of DNA, providing more insight into how DNA carries genetic information. ¹⁰	 After decades of work, Norman Borlaug creates dwarf wheat that increases yields by 70 percent, launching the Green Revolution that helped save millions of lives. ¹¹	 Cohen and Boyer successfully splice a gene from one organism and move it into another, launching the modern biotechnology era. ¹²



*"We face many other fascinating possibilities.
How about genetically modifying foods to
contain higher levels of cancer-fighting
compounds... Or developing fresh fruits
and vegetables with improved shelf lives?"*

Joe Schwarcz, Office for Science and Society,
McGill University, Montreal, Canada

Better food

Not only is biotechnology being used to produce more food, it is also developing better food — food that is healthier, more nutritious and better tasting.

For the developing world, researchers are working to create:

- Golden rice, which is fortified with beta carotene that stimulates the production of vitamin A in the human body. Every year, between 250,000 and 500,000 children go blind because of vitamin A deficiency, according to the World Health Organization. And about half of these children die within a year of losing their sight.²⁹
- Cassava, a staple food in many poorer parts of the world, enhanced so it contains 35 to 45 percent more protein and essential amino acids.³⁰
- Plant-based vaccines — made from crops such as banana or potato — which are then pulverized and administered in pill form. Researchers have developed a vaccine for hepatitis B that is similar to a traditional vaccine but can be produced by a banana for a fraction of the cost.

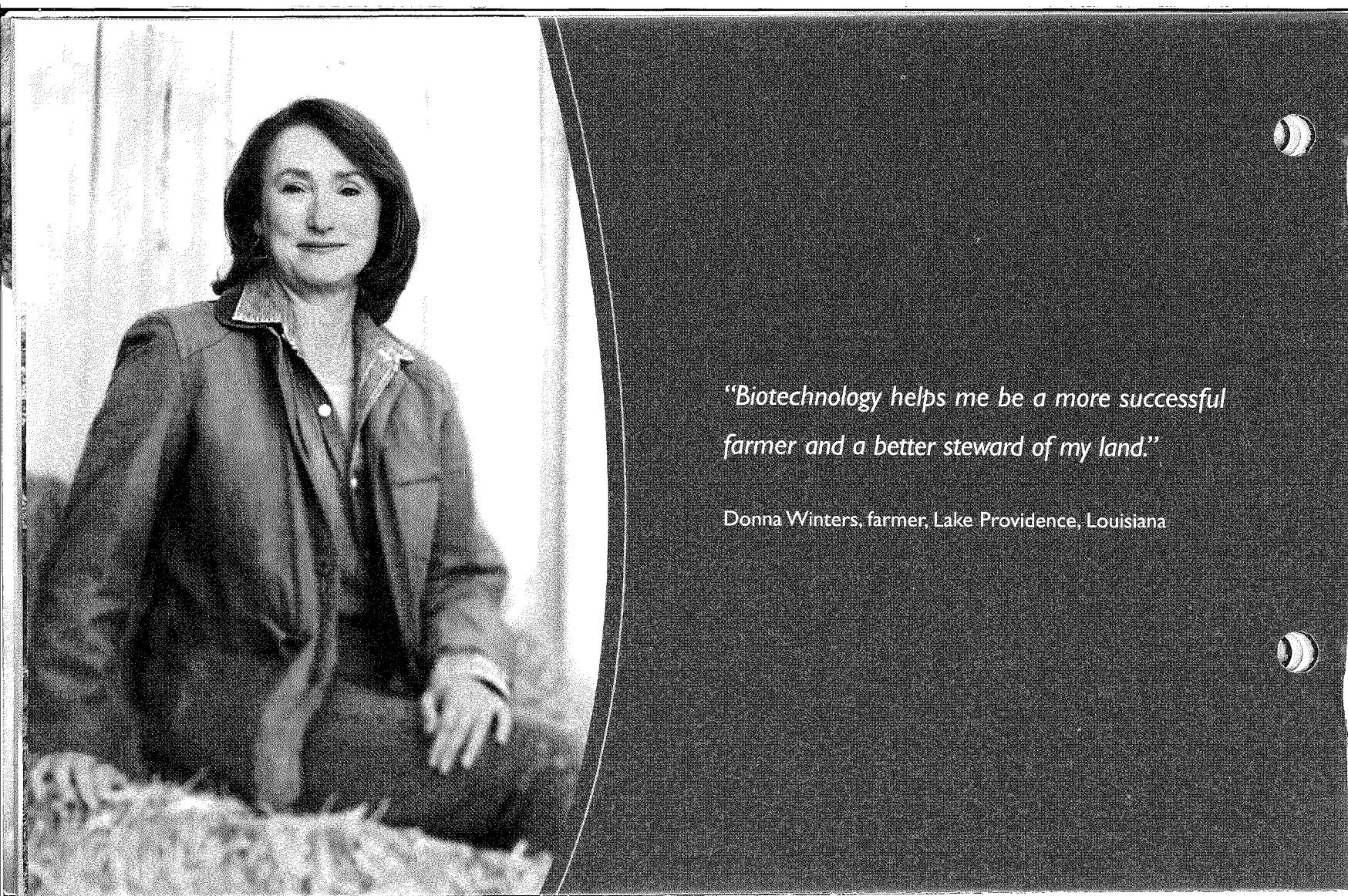
It's reasons like these that have led organizations like the United Nations to call biotechnology a "breakthrough technology for

developing countries"³¹ and the International Society of African Scientists to say that "Africa and the Caribbean cannot afford to be left further behind in acquiring the uses and benefits of this new agricultural revolution."³²

Biotechnology is also being used to develop better food for people in the industrialized world. Researchers are working to develop:

- A cancer-fighting tomato with three times more beneficial lycopene than conventional varieties. Lycopene protects human tissue and could help prevent breast and prostate cancers as well as heart disease.
- New cooking oils made from canola, corn and soybeans that contain up to 10 times more healthful vitamin E. Researchers believe vitamin E can lower the risk of cardiovascular disease and some cancers.
- Food with fewer allergens. Researchers are working to reduce the allergens in rice, wheat, peanuts and other crops so more of the estimated 50 million people who suffer from allergies worldwide can enjoy the food most people eat everyday.

1978	1982	1985	1986
Boyer's lab created a synthetic version of the human insulin gene. ¹³	The first biotech plant is produced — a tobacco plant resistant to an antibiotic. The breakthrough paved the way for beneficial traits, such as insect resistance, to be transferred to plants. ¹⁴	Field trials for biotech plants that are resistant to insects, viruses and bacteria are held in the United States. ¹⁵	The EPA approves the release of the first crop produced through biotechnology — tobacco plants. ¹⁶ A coordinated framework for the regulation of products derived from biotechnology is established. ¹⁷



*"Biotechnology helps me be a more successful
farmer and a better steward of my land."*

Donna Winters, farmer, Lake Providence, Louisiana

Better for the environment

Biotech crops are also helping protect the environment. A recent report confirmed their benefits.

"The results clearly show that soil, air and water quality are enhanced through the responsible use of current biotechnology-derived soybean, corn and other crops," said Teresa Gruber, executive director of the Council for Agricultural Science and Technology.³³

Biotech crops also make it easier for farmers to use environmentally friendly conservation tillage practices, where more residue from the previous crop is left on the field rather than plowed under.

No-till conservation practices — the best for the environment because soil is left virtually undisturbed from harvest to planting — have increased 35 percent since biotech crops came on the market in 1996, according to a study by the Conservation Technology Information Center in Indiana.³⁴

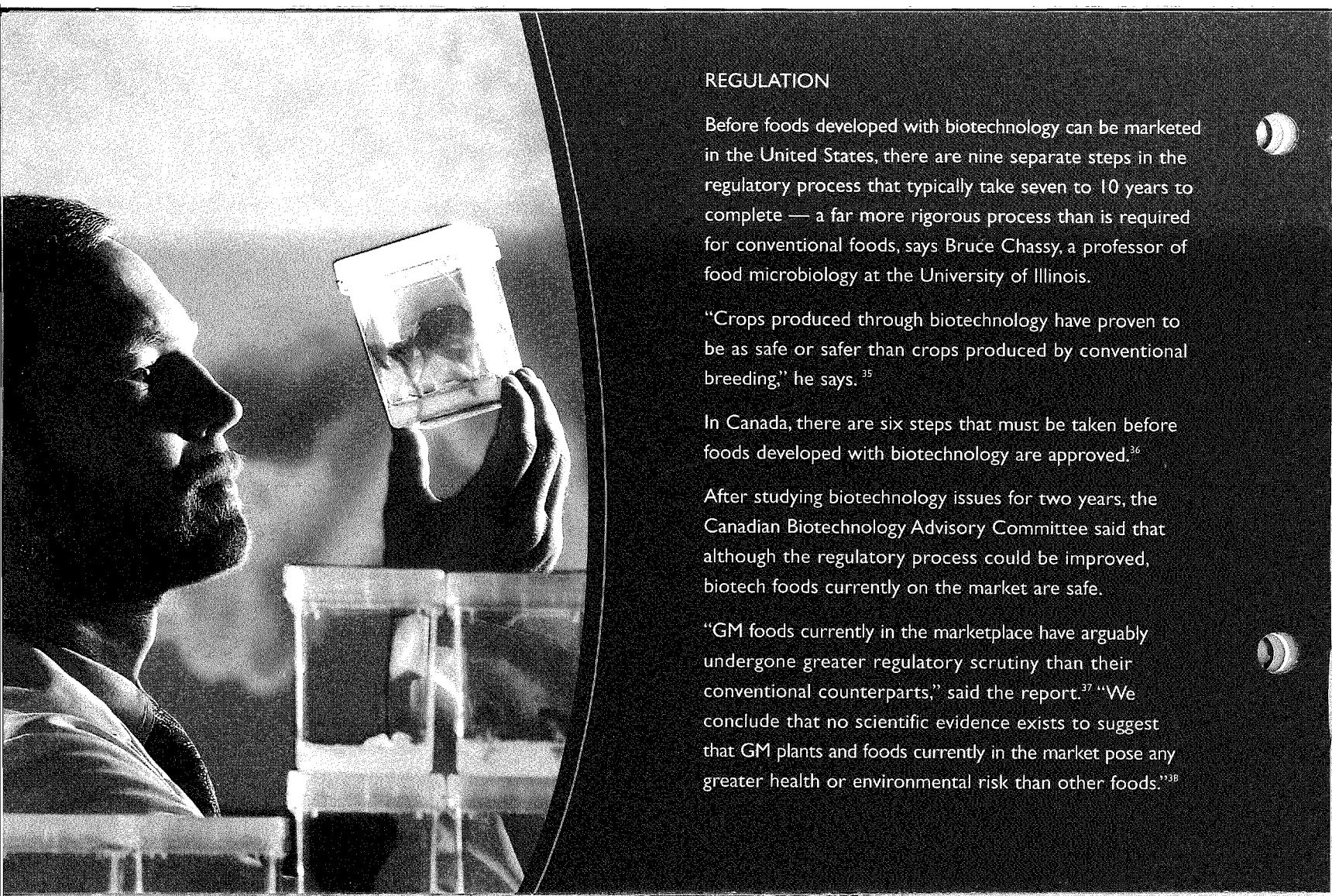
"There is a clear association between sustainable tillage practices and biotech crops," said the study, noting that nearly three-fourths of no-till soybean acres — and 86 percent of no-till cotton acres — were planted with biotech varieties.

Conservation tillage in the United States has:

- Saved nearly 1 billion tons of soil per year.
- Resulted in a projected \$3.5 billion savings by lowering maintenance costs for activities such as dredging rivers, cleaning road ditches and treating drinking water.
- Created better habitat for birds and mammals, which thrive in the protective residue of no-till fields.
- Reduced levels of phosphorous and nitrogen in lakes, streams and the Gulf of Mexico.
- Saved 306 million gallons of fuel in 2002 by reducing the number of tractor passes needed to control weeds. On average, no-till saves about 3.9 gallons of fuel per acre, according to the study.

In Canada, studies by George Morris Centre and the Canola Council of Canada have reached similar conclusions about the environmental benefits of biotech crops.

1991	1994	1995-1996	1996
The USDA's Animal and Plant Health Inspection Service publishes guidelines for field trials of biotech crops.	The biotech FlavSavr® tomato is approved by the FDA for U.S. grocery stores. It was developed to have more flavor and to have a longer shelf-life than conventionally grown tomatoes.	Biotech soybeans and corn are approved for sale, and biotech cotton is commercialized in the United States. ¹⁸ Biotech crops become the most rapidly adopted technology in the history of agriculture.	In total, farmers in six countries plant biotech crops on 4.2 million acres. ¹⁹



REGULATION

Before foods developed with biotechnology can be marketed in the United States, there are nine separate steps in the regulatory process that typically take seven to 10 years to complete — a far more rigorous process than is required for conventional foods, says Bruce Chassy, a professor of food microbiology at the University of Illinois.

"Crops produced through biotechnology have proven to be as safe or safer than crops produced by conventional breeding," he says.³⁵

In Canada, there are six steps that must be taken before foods developed with biotechnology are approved.³⁶

After studying biotechnology issues for two years, the Canadian Biotechnology Advisory Committee said that although the regulatory process could be improved, biotech foods currently on the market are safe.

"GM foods currently in the marketplace have arguably undergone greater regulatory scrutiny than their conventional counterparts," said the report.^{37, 44} "We conclude that no scientific evidence exists to suggest that GM plants and foods currently in the market pose any greater health or environmental risk than other foods."³⁸

Safety

Perhaps the most telling fact about the safety of plant biotechnology is that there isn't a single documented case of an illness caused by foods developed with biotechnology since they first came on the market in the mid-1990s.³⁹

Even a report from the European Commission, whose member states are more skeptical about biotech products, concluded that "the use of more precise technology and the greater regulatory scrutiny [over biotech foods] probably make them even safer than conventional plants and foods."⁴⁰

That report, validating the safety of biotech crops, summarized more than 15 years of research by 400 research teams funded by European governments. A host of other organizations have also attested to the safety of foods developed with biotechnology.

- The American College of Nutrition "supports the use of biotechnology to develop food crops that contribute to global food security and enhance the safety and nutritional value of the food supply."
- The American Medical Association recognized the "many potential benefits offered by genetically modified crops and

foods... and encourages ongoing research developments in food biotechnology."⁴¹

- The International Society of Toxicology says "there is no reason to suppose that the process of food production through biotechnology leads to risks of a different nature than those... created by conventional breeding."
- The General Accounting Office — the investigative arm of the U.S. Congress — says "biotechnology experts believe that the current regimen of tests has been adequate for ensuring that GM foods marketed to consumers are as safe as conventional foods."
- And the World Health Organization said, "The benefits of biotechnology are many," including improved production and reduced pesticide use, and promise "major improvements in both food quality and nutrition."⁴²

Regulatory agencies in the United States:

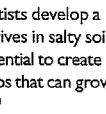
Food and Drug Administration, Department of Agriculture, Environmental Protection Agency

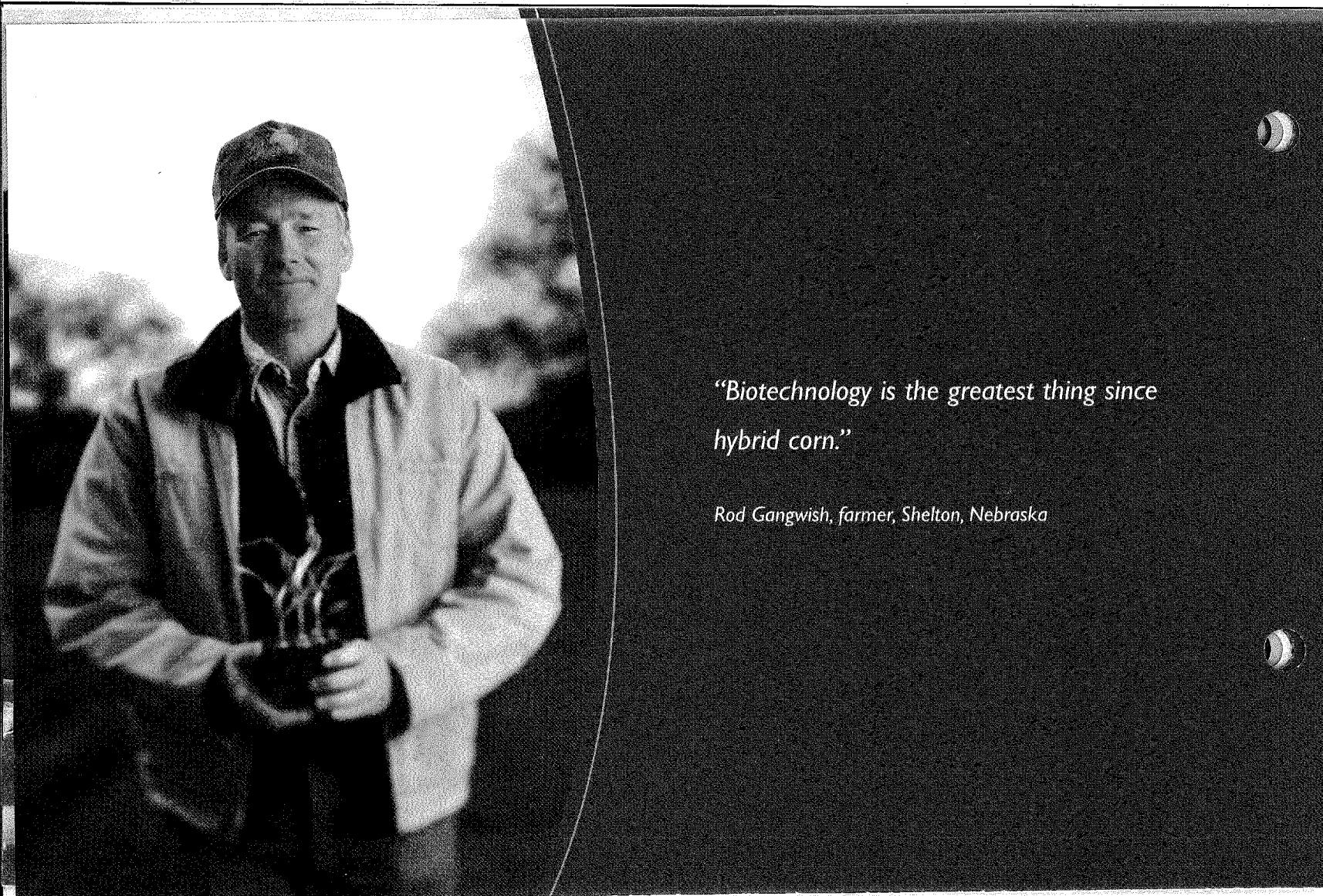
Regulatory agencies in Canada:

Canadian Food Inspection Agency, Health Canada, Environment Canada

Regulatory agencies in Mexico:

CIBIOGEM, which includes six ministries (Agricultura, Salud, Medio Ambiente, Educacion, Economia, Hacienda y Credito Publico) and the National Council of Science and Technology (CONACYT)

1999	2000	2000	2001
 German and Swiss scientists develop golden rice, fortified with beta carotene, which stimulates production of vitamin A that can prevent some forms of blindness. ²⁰	 The first entire plant genome is sequenced, <i>Arabidopsis thaliana</i> , which provides researchers with greater insight into the genes that control specific traits in many other agricultural plants. ²¹	 Farmers in 13 countries plant biotech crops on 109.2 million acres, a 25-fold increase over 1996. ²²	 U.S. and Canadian scientists develop a biotech tomato that thrives in salty soil, a discovery with the potential to create tomatoes and other crops that can grow in marginal conditions. ²³



"Biotechnology is the greatest thing since hybrid corn."

Rod Gangwish, farmer, Shelton, Nebraska

Support grows

More organizations and leaders are voicing their support for the many benefits of biotechnology.

"We are increasingly encouraged that the advantages of genetic engineering of plants and animals are greater than the risks," said Catholic Bishop Elio Sgreccia. "We cannot agree with the position of some groups that say it is against the will of God to meddle with the genetic make-up of plants and animals."⁴³

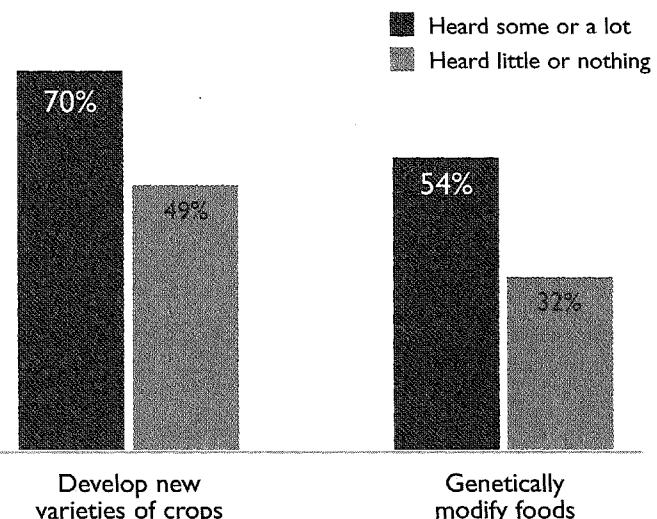
Opinion polls show that a majority of people believe plant biotechnology will be good for society in the long term. Julia Child, the master chef and cookbook author, says she's fascinated by the potential benefits of biotechnology.

"If they can give us a better tomato, I'm for it," she once said.

Biotechnology is just beginning to deliver the benefits that can improve lives all over the world. Yes, there are questions. But they are being answered by studies that are documenting the benefits these crops have delivered over the past few years. And that is just the beginning of the potential for biotechnology to provide more and better food in years ahead.

SUPPORT GROWS WITH KNOWLEDGE

Percent who support biotech to...



Council for Biotechnology Information, November 2002

2001

The European Commission releases a 15-year, \$64 million study that involved more than 400 research teams on 81 projects. It found that biotech products pose no more risk to human health or the environment than conventional crops.²⁴

2001

EPA renews registration for Bt corn²⁵ and cotton²⁶, citing that they do not pose health or environmental risks.

2002



A National Center for Food and Agricultural Policy study found that six biotech crops planted in the United States — soybeans, corn, cotton, papaya, squash and canola — produced an additional 4 billion pounds of food and fiber on the same acreage, improved farm income by \$1.5 billion and reduced pesticide use by 46 million pounds.²⁷

Sources

- ¹ "Communiqué of the G8 Heads of Government meeting at Genova," Organization for Economic Cooperation and Development, July 2001, Communiqué of the G8 Heads of Government meeting at Genova, July 2001, www.oecd.org/EN/document/0,,EN-document-528-14-no-21-9800-528,00.html.
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2004

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June, 2004

Greetings,

Welcome to the readers of MNBIO's new biotechnology publication! I cannot overemphasize how important biotechnology initiatives are to the future of our country and to the state of Minnesota.

Minnesota is a place where the expansive horizons of the great plains meet the snowy treetops of the north woods, where the trickle of a small stream becomes the source of the mighty Mississippi River, and where our heroes have always taken on tasks that are larger than life (just ask Paul Bunyan). These symbols of growth and strength set us apart and contribute to the spirit that makes our state great.

Our business expertise, skilled workforce and renowned research infrastructure are tremendous competitive advantages. These strengths are supported by a vibrant and well-established biosciences sector in areas as diverse as applied biologics, agricultural and industrial biotechnology, and the life sciences. Minnesota's heritage of innovation fuels this entrepreneurial energy – our potential to excel in this industry is limitless.

As we continue to fully explore the possibilities that are waiting for us just around the riverbend, I encourage you to learn more about the *Land of 10,000 Lakes*, its wealth of opportunities, and the entrepreneurial spirit and ingenuity that has been the source of our many successes.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Pawlenty".

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Governor

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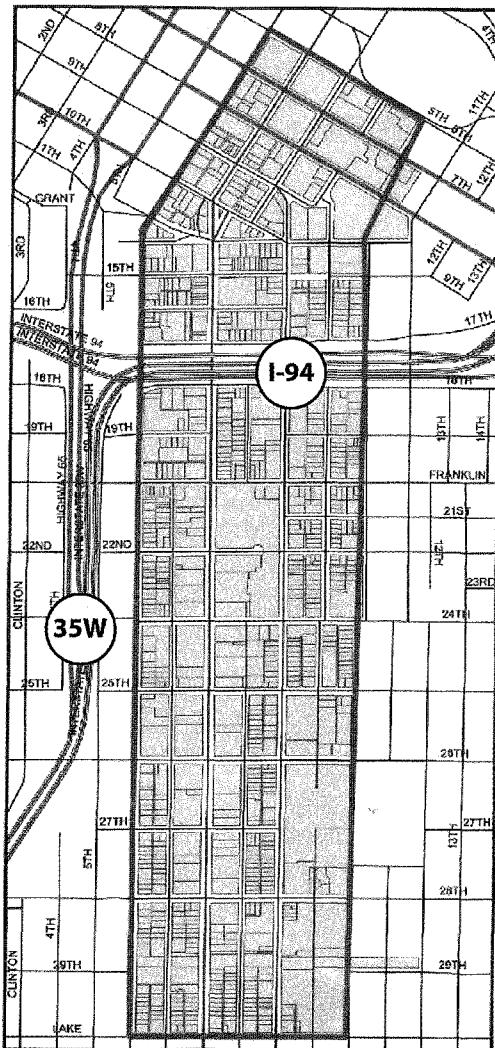
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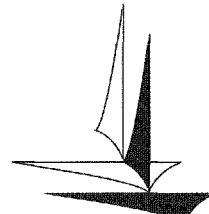
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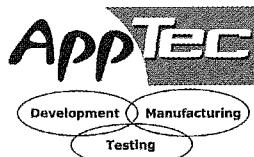
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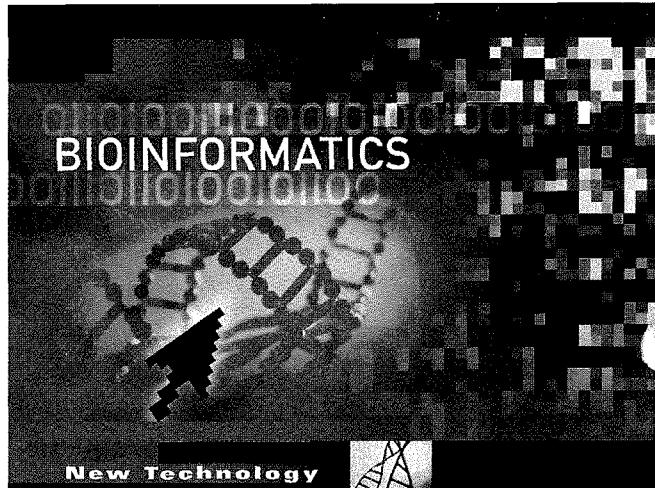
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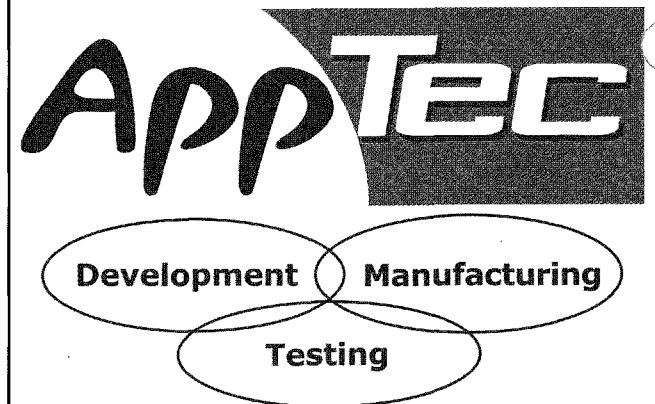
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Among the many individuals involved in MNBIO are (left to right) Doug Astry of SurModics as the 2004 president, former presidents Julie Kiriha, ATG Laboratories, and Bonnie Baskin, AppTec, and Executive Director Ray Frost.



The Biotechnology Era

It's here. MNBIO has helped usher its arrival, and it intends to help Minnesota's biotechnology industry grow.

By Vicki Stavig

The past year has brought a sharpened focus on biotechnology among Minnesota's business leaders, lawmakers, and educators, who began in large numbers to recognize the industry's potential to create jobs, spawn new companies, and enhance the economic vitality of their state.

Members of MNBIO—the statewide organization that has become synonymous with the industry it represents—could hardly be more pleased. For more than a decade, they have been hard at work within the industry and in support of it—lobbying,

informing, and educating in an effort to help ensure its continued vitality and future growth.

Their efforts were rewarded last year when Minnesota Governor Tim Pawlenty and other state officials made support for the industry an economic priority for the state. A breakthrough came in February 2003 after MNBIO helped to organize "Biosciences 101"—a seminar that addressed subjects ranging from the basics of bioscience to specific business opportunities. The day-long seminar attracted some 90 Minnesota legislators eager to learn more about the industry and the potential it holds

for their state.

"My strong belief is that we are just entering The Biotechnology Era," says Doug Astry, the 2004 president of MNBIO and also general manager of the Diagnostics and Drug Discovery Business Unit for SurModics, Inc., an Eden Prairie-based company. "Minnesota can participate in this emerging industry," he says. "Our ability to compete is based on the integration of several components. The first component involves research and technology—where ideas originate. We strongly support the University of Minnesota and Mayo Clinic research; we are fortunate to have these world-class

"Biotechnology is the future—the future of health care, the future of agriculture, the future of industrial processes."

research institutions in the state. Another component is government leadership and support. We have benefited by the leadership of the governor, the mayors of the Twin Cities, and key state legislators. The third component is the business community. At day's end, the private sector must drive this industry. We need



Attending the May 2003 dedication of the Cargill Building for Microbial and Plant Genomics were (left to right) U of M Dean Robert Elde, Cargill CEO Warren Staley, Minnesota Governor Tim Pawlenty, and U of M President Robert Bruininks.

entrepreneurs, leadership from established Minnesota companies, and investment capital. Our job at MNBIO is to support these three components," principally through education.

"Education is a critical element in driving the industry," agrees Matt Kramer, commissioner of the Minnesota Department of Employment and Economic Development and chair of the Minnesota Bioscience Council. "Our task is in educating our citizens, businesses, and schools."

The message, Kramer says, is this: "Here is the potential. Start thinking about how [the state's biotechnology

effort] is going to change your life and how you want to attack it."

MNBIO has been tackling it on a variety of fronts for many years. Its leaders meet often with business executives and government officials to ensure that biotechnology remains a focus for the state. Their persuasiveness has paid off both in elevating the awareness of the promises of biotechnology and in attracting members to MNBIO itself. Today, the association represents 125 institutions and companies, including such industrial giants as Medtronic, Boston Scientific, 3M, Cargill, and Guidant.

MNBIO also counts among its membership dozens of small to mid-sized companies throughout the state, as well as representatives of state and local

governments and academia. Ray Frost, executive director of the association, notes that from the end of 2002 to the end of 2003, "we had a 45 percent growth in membership."

Based in St. Paul, MNBIO is governed by an active board of volunteer directors that provides strong leadership and represents an impressive cross section of the industry. What those members have in common is a dedication to using biotechnology to ensure the health and safety of the world's population, and to growing the industry in Minnesota.

"Biotechnology is the future—the future of health care, the future of

agriculture, the future of industrial processes," says Julie Kirihara, past president of MNBIO and president of ATG Laboratories, an Eden Prairie-based company that provides custom molecular cloning, gene expression, and recombinant protein services used for research. "If we don't get in the game, we're going to lose out on a great opportunity. Some say we're too late. But I believe that we're just starting to see the potential of the industry. The wave has not crested in those three areas."

Statistics indicate that the biotechnology industry is growing in Minnesota and throughout the United States. Some 1,457 U.S. companies—342 of them publicly held with a total market value of \$206 billion as of April 2003—are focused on biotechnology. Those companies employ 191,000, and in 2001 alone spent \$15.7 billion on research and development.

The Biotechnology Industry Organization, a national trade association based in Washington, D.C., indicates that 70 percent of the more than 155 biotechnology drugs and vaccines approved by the U.S. Food and Drug Administration were approved during the past six years. More than 370 biotech drug products and vaccines, targeted at more than 200 diseases, are still in clinical trials.

In Minnesota, more than 60,000 people work for companies involved in bioscience research and production. Between 1997 and 2001, those companies registered more than 3,700 patents in biotechnology and related fields. The work they are doing has attracted funding from venture capitalists—almost \$134 million in 2002, which represents 41 percent of the total venture capital investments in the state.

Along with growth comes competition, and competition among major

U.S. cities hoping to become industry leaders is heating up, says Bonnie Baskin, a former MNBIO president. She serves as chief executive officer of AppTec, a St. Paul-based firm that provides testing, research and development, and manufacturing services for the bioscience and medical device industries. "Every city is looking to create a biotech community," Baskin says. "We have a unique opportunity to be one of the successful cities due to the strong academic institutions in our state coupled with our strong venture financing community. We need to support the growth of these new ventures by providing them with an incubator to grow in, a financial incentive to stay in the state, and access to available capital. It takes leadership with a vision and patience to see this through."

As individuals gain familiarity with the industry, they are invariably impressed with the work of MNBIO members. Mayo Clinic and the

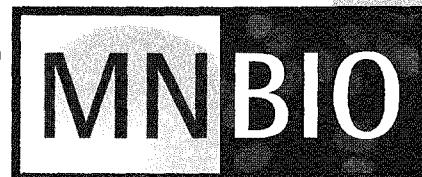
University of Minnesota are two of the world's leading research institutions and have formed a partnership to conduct genomics research. Cargill Dow is using cornstarch to manufacture biodegradable packaging and fibers. Renewable energy is being made with Minnesota corn and soybean oil. Advances in medicine are arriving at an ever-accelerating pace—although not at the rate MNBIO members hope to see in years to come. "This is about jobs, growth, the future," says MNBIO President Astray. "This is really a long-term process. We all want growth immediately, but we're at the front end of the age of biology. It is profound and attainable, but it won't happen overnight."

As it does happen, much of it is likely to be driven by MNBIO members who devote considerable time meeting with legislators and others to ensure that growing the industry remains a priority for the state.

"MNBIO is trying to bring the industry forward in the eyes of the public and the state," Kiriha says. "We were very encouraged when Governor Pawlenty began his term and adopted the biotechnology industry as his chief economic focus. MNBIO is here to provide whatever help is necessary."

Ray Frost couldn't agree more. "Our biggest issue right now is to advance some of the initiatives coming from the governor's Bioscience Council and to get them through the legislature," he says. "Until Governor Pawlenty was elected, there wasn't a lot of promotion or a plan on how to position Minnesota as a biotechnology leader. He has clearly taken the time to learn about biotechnology and the opportunities it represents. We believe the sky is the limit." ■

Vicki Stavig of Bloomington is a freelance writer and frequent contributor to Twin Cities Business Monthly.



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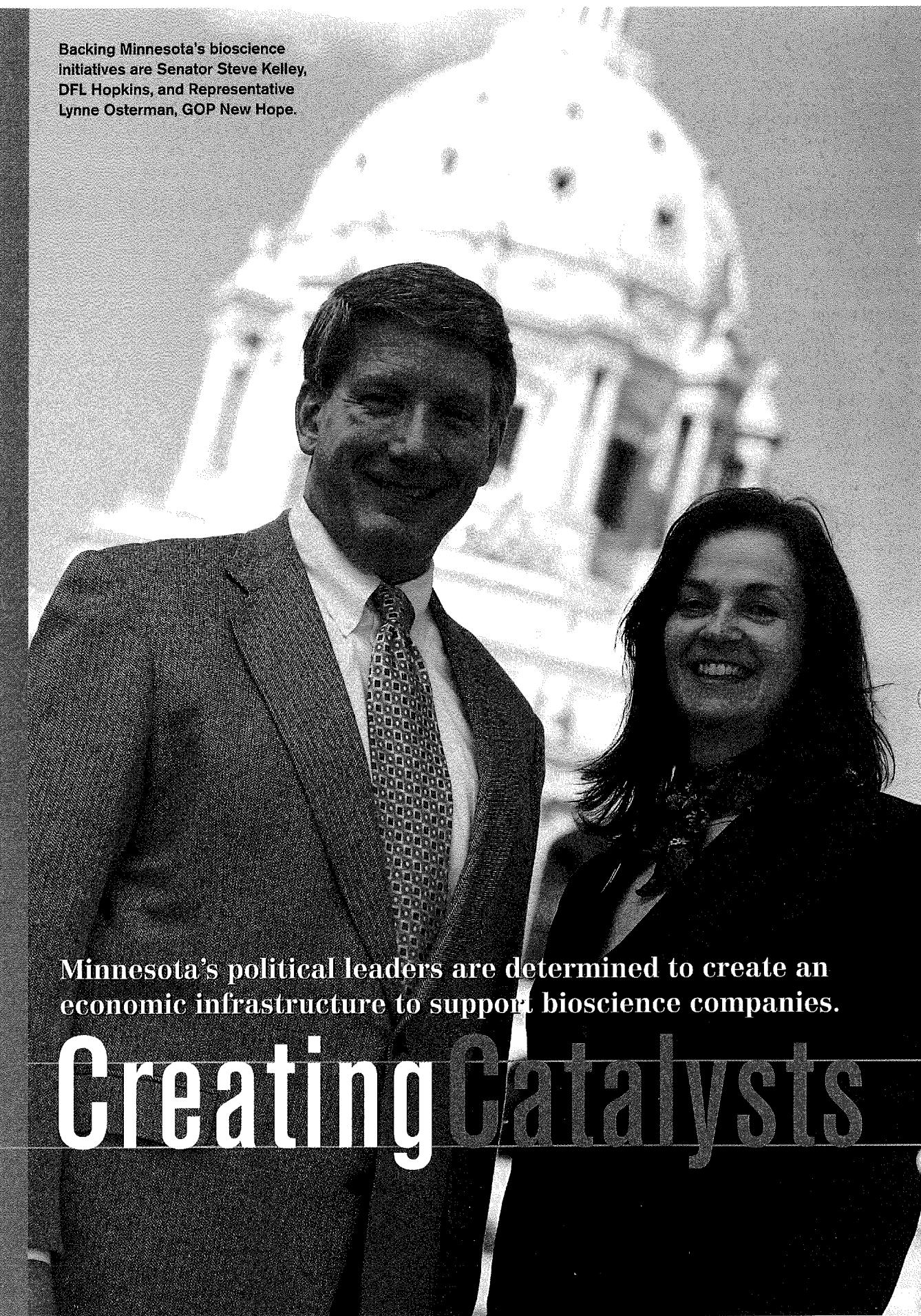
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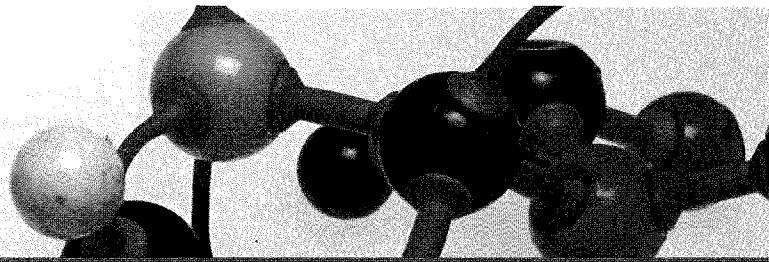
Backing Minnesota's bioscience initiatives are Senator Steve Kelley, DFL Hopkins, and Representative Lynne Osterman, GOP New Hope.



Minnesota's political leaders are determined to create an economic infrastructure to support bioscience companies.

Creating Catalysts

"The kinds of things we're doing in Minnesota are leading the nation in some areas."



Minnesota's planned "bio-science revolution" is off to a fast start, thanks in large part to Governor Tim Pawlenty's Bioscience Initiative, a strategic plan to establish the state as a hotbed of biotechnology companies. From tax incentives to state funding, the governor's initiative consists of a variety of tools intended to drive growth for the industry.

"I think the governor has provided wonderful leadership in this area," says St. Paul Mayor Randy Kelly, who served with Pawlenty—but in the opposing political party—in the Minnesota Legislature. "He understands that this is an area that will see blistering growth. I think it's in the right direction and that it will pay significant benefits in the long run. It will require hard work and determination, but it is an area in which we can create thousands of jobs."

Minnesota has long been a state in which product innovations are commonplace, especially in agricultural and medical technology. That attribute—combined with the state's history of entrepreneurial vitality, the presence of ample expertise in business-building, strong access to technical education, and an ambitious workforce—has helped create a strong foundation on which to build a vibrant biotechnology industry.

One of the first steps the governor took was to establish a Bioscience Council, made up of business and academic leaders, members of Minnesota's investment community, and government officials. The council is charged with advising the governor's office and the Minnesota Legislature on matters of policy regarding bioscience, and to recommend strategies to support the state's biotechnology industry. The council is chaired by Matt Kramer, commissioner of the Minnesota Department of Employment and Economic Development,

a Pawlenty appointee. (Interest in the council was so high that more than 80 people applied to serve as members.)

The Bioscience Council was conceived to be a catalyst in the development and retention of bioscience businesses in Minnesota, and it has performed that function effectively. In 2003, the Minnesota Legislature followed two of its key recommendations by approving the creation of three Bioscience Zones, and supporting a strategic partnership between the University of Minnesota and Mayo Clinic.

The state-established Bioscience Zones consist of three areas—one near the University of Minnesota's Minneapolis campus, one near the University's St. Paul campus, and one near Mayo Clinic in Rochester—in which biological science companies can receive tax incentives.

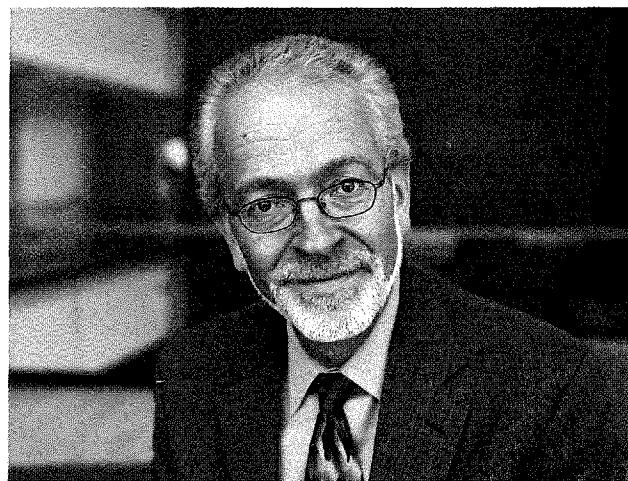
The zones, totaling 1,508 acres—515 in St. Paul, 497 in Minneapolis, and 496 in Rochester—are designed to stimulate a synergistic clustering of biotechnology and health sciences businesses.

Those locating within the zones will be eligible for exemptions on corporate franchise taxes, sales taxes on business purchases, and property taxes. They can also receive research and development tax credits, as well as employment tax credits for engendering high-paying jobs. The goal is to facilitate the growth of existing and start-up bioscience companies by lowering their overall operating costs. The state has begun a marketing campaign to promote the zones at bioscience industry trade shows and

through business-to-business contacts.

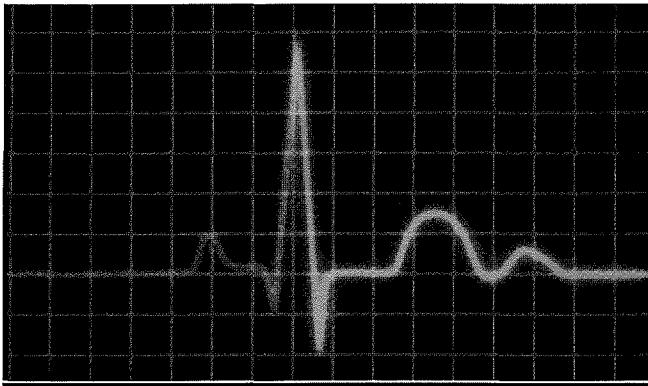
In Minneapolis, the state-established zone occupies a portion of what city officials refer to as the Minneapolis Lifesciences Corridor, an area bounded by Lake and Sixth Streets and Eleventh and Portland Avenues. Dave Durenberger, Jr., describes the tract as "the most densely populated research and health care area in an urban setting" in the country. "It has 61 research and clinical labs, 19 health care organizations, 2,400 physicians, 250 researchers, and more than one million patient visits annually," he says.

Durenberger is director of operations for the Midwest Orthopedic Research Foundation and orthopedic administrator of Hennepin Faculty Associates, two of the entities that are located in



U of M Dean Robert Elde serves as chair of the University Enterprise Laboratories—an incubator for biotech companies.

the corridor. He is also a member of the board for the Minneapolis Lifesciences Consortium, which is promoting the zone to bioscience businesses and research organizations. Members include Children's Hospital, the Hennepin County Medical Center, Abbott Northwestern Hospital, the Minnesota Cardiovascular Research Institute, the



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Minneapolis Neuroscience Institute, the Phillips Eye Institute, the Sister Kenny Institute, and a host of other life-sciences organizations.

The consortium hopes to attract and grow businesses within the corridor through several programs, including an incubator in the former Allina medical building at 915 South Seventh Street that will provide “cash and coaching” to start-up companies in the medical device and life-sciences fields. Based on estimates by Genesis Business Centers, a business incubator management services organization located in Columbia Heights, the incubator could generate 127 jobs within five years, and 912 jobs within 10 years. The estimated annual payroll impact at the end of 10 years of operation is estimated at \$27 million, while the estimated aggregated economic impact of those jobs to the neighborhood could reach as high as \$50 million annually.

Consortium members recognize that promoting the bioscience industry on several levels is key to growing the industry in Minneapolis and have developed several initiatives to do so. They hope to attract investors through a variety of programs, including New Market Tax Credits, which will provide a 39 percent federal income tax credit spread out over seven years for investors in companies located along the corridor, and the Minneapolis Lifesciences Capital Fund, a multi-investor community development corporation that will be funded by commercial banks and utility companies that serve businesses within the corridor.

St. Paul's Mayor Kelly is helping to drive the biotechnology industry in that city,

where health care companies already account for more than 17,000 jobs. Meeting with representatives of several Twin Cities' companies—including Xcel Energy, 3M, Medtronic, Guidant, and the Dorsey & Whitney law firm—Kelly was instrumental in raising \$8 million to purchase and renovate a former Target Direct facility in the neighborhood near Highway 280 and University Avenue in St. Paul in August, and convert it into the University Enterprise Laboratories (UEL).

The UEL will be an incubator for biotechnology companies. The facility will have 50,000 square feet of lab-based incubator space, and 75,000 square feet of office and laboratory space for bioscience companies and related businesses. It is expected to add about 400 jobs in the city over the next five years. “We have 14 companies that have agreed to move into that facility, including a Swiss company that is relocating its North American marketing division there,” Kelly says. “We think it will serve as a real beacon for bioscience and biotechnology innovation and creativity. It holds tremendous possibilities for expanding St. Paul’s economy.” The mayor has been promoting the incubator as he meets with officials from throughout the world, including representatives of the United Kingdom, Australia, and Israel.

Robert Elde, dean of the University of Minnesota’s College of Biological Sciences, serves as chairman of the board of the UEL, which he regards as a key component of the economic infrastructure needed to foster the creation of biotechnology companies. Even though many of Minnesota’s entrepreneurs of the past have

started their companies in kitchens and basements, "you can't do molecular biology in a garage," Elde says.

The governor's initiative also focuses on research. It established the Rochester-based Minnesota Partnership for Biotechnology and Medical Genomics, an alliance bringing together the University of Minnesota and Mayo Clinic in a mission to fuel new discoveries that will create jobs and give rise to new companies. That partnership, says Department of Employment and Economic Development Commissioner Matt Kramer, is a critical element in the state's drive to grow the biotechnology industry. State officials backed up that partnership with \$2 million in seed capital. The Bioscience Council and the governor have asked state lawmakers to allocate an additional \$70 million for research during a five-year period beginning in 2005.

"The University of Minnesota has built strong basic research programs in molecular and cellular biology, and is continuing to invest its own resources to build on its distinctive strengths in the life sciences," says University President Robert Bruininks. "Collaboration with other institutions—both public and private—will be critical to taking the University's and Minnesota's bioscience industry to the next level. But these are capital- and technology-intensive areas that require significant new investments. The Governor's Bioscience Initiative sets the stage for future success, but Minnesota's future as a biotech state will depend on a continued commitment to education and basic research in bioscience."

Pawlenty's funding priorities for 2004 include \$20 million in bonding for a

bioscience research facility to be developed jointly by the U and Mayo Clinic, and \$15 million in bonding for development grants to be used in the Bioscience Zones. The Bioscience Council also has recommended earmarking more than \$1.3 million in custom workforce training funds in bioscience technologies during the next two fiscal years.

Senator Steve Kelley, a Democrat from Hopkins, is a member of the Bioscience Council and has been a strong supporter of the governor's initiative. He also was chief sponsor of a bill to authorize \$75 million for the University of Minnesota/Mayo Clinic partnership, money that would support research projects likely to lead to the creation of Minnesota biotechnology jobs. If the state can provide money for that type of research, Kelley says, federal dollars will likely follow. "The kinds of things we're doing in Minnesota are leading the nation in some areas," he says. "We won't overtake New Jersey or California in pharmaceuticals, but in the niches we have in the fields of regenerative cells, the blending of cells, and in medical devices, I don't think any state is ahead of Minnesota."

Representative Lynne Osterman, a Republican whose district includes the Minneapolis suburb of New Hope, introduced the original bill to establish the Bioscience Zones.

She, too, is enthusiastic about the direction Minnesota is heading: "Other states will have to do a lot just to catch up with us. Naysayers were saying that Minnesota was late to the table, but we're fortunate in the way the table was set." ■

— Vicki Stavig

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Minnesota's strength as a medical-device manufacturer could put the state on the leading edge of the next wave of development in biotechnology.

ith globally renowned companies famous for such lifesaving devices as heart valves, stents, and pacemakers, Minnesota is a world leader in medical technology, which is not news.

And although the state is not—not yet—a world leader in biotechnology, its strength in developing, manufacturing, and marketing medical devices could put Minnesota at the heart of a highly promising new field: "convergent" devices that meld traditional medical technology and biotechnology. The convergence is only beginning, "but we're clearly moving in that direction," says Dr. Mark Paller, the University of Minnesota's assistant vice president for research and a professor of medicine.

So what might this biotech/med-tech convergence look like? Paller and other experts in life science technologies suggest that there will be many applications "of our understanding of how cells, DNA, proteins, and so on work in order to come up with therapeutic solutions." Perhaps the most immediate possibility is creating specialized devices that deliver biotech-engineered materials to the parts of the body that need them.

Robert Elde, dean of the University of Minnesota's College of Biological Sciences, cites the emerging devel-

opment in the pharmaceutical industry of "biologics"—chemicals found in the body that can be processed into pharmaceuticals to treat disease. These substances typically consist of large strings of amino acids, a category of chemicals that includes hormones and antibodies. A familiar example is insulin, a human hormone that is processed artificially in order to treat diabetes.

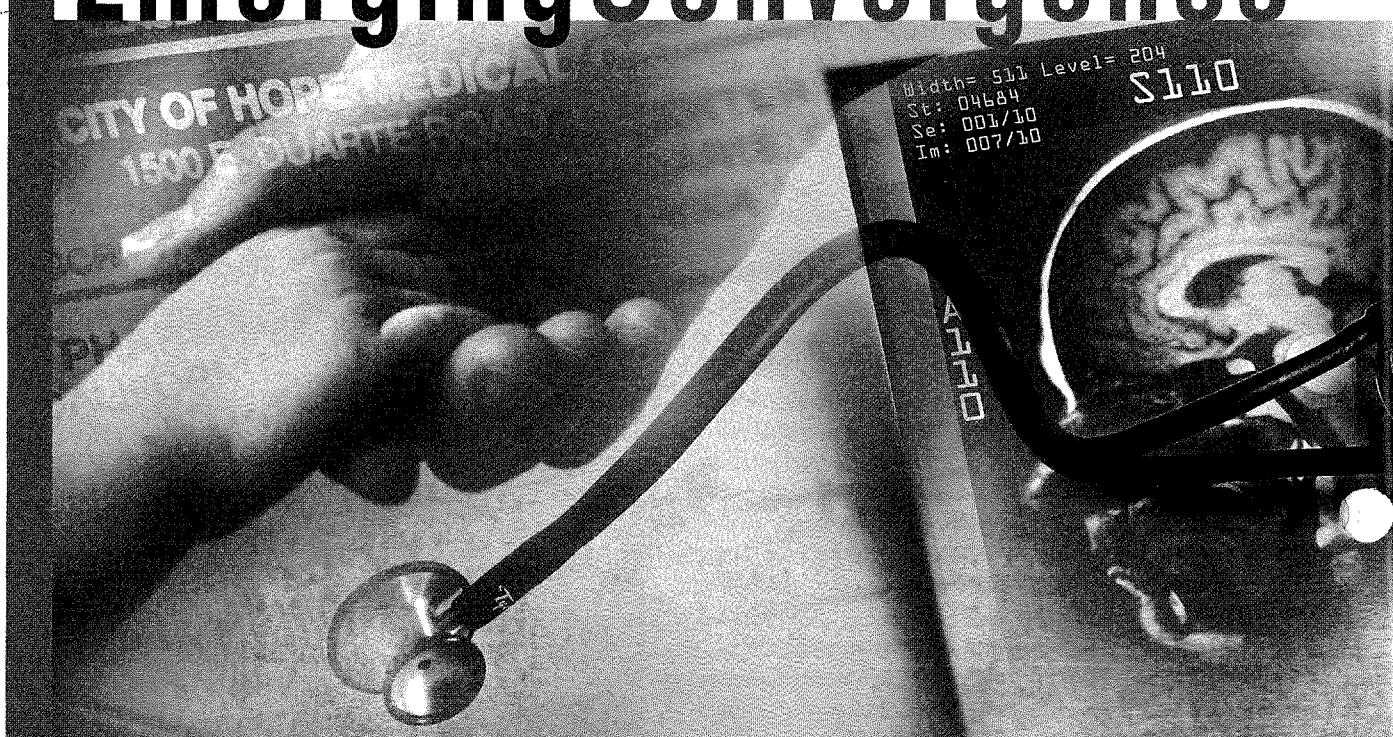
The newer breakthroughs in pharmaceutical biologics include products from such California-based companies as Genentech and Amgen. Case in point: Amgen's Enbrel, which treats rheumatoid arthritis by simulating the actions of a protein that the body produces naturally to counteract a superabundance of tumor necrosis factor, which causes painful inflammation.

But for all of their potential and current capabilities, biologics have one big drawback: Their molecules are so large that they can't be formulated into pills. Enbrel, for instance, has to be injected. (This is why biotech could be so disruptive to traditional pharmaceutical firms: they're set up to create and market "small-molecule" medications that can be easily swallowed.) Biologics, as Elde notes, have to be delivered "to the right part of the body at the right time, in the right amount."

"And that's what the device industry is good at," he

By Gene Rebeck

Emerging Convergence

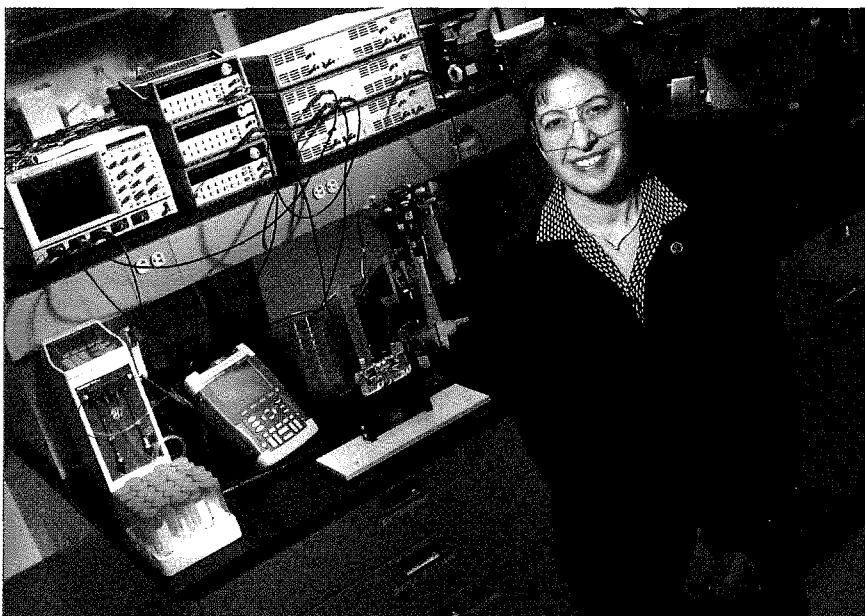


adds. "They can put a catheter anywhere in the body. And now they can make catheters and stents where they can kind of control the release of the stuff from the device."

Rebecca Bergman, vice president of science and technology at Fridley-based Medtronic, Inc., notes that her firm "knows how to get to precise locations, and then we know how to do something once we're there. And we look at that competency and say, 'Well, aha! Biotech is going to need this.'"

Medtronic and other medical-device companies are keeping close tabs on developments in biotechnology to see where they might fit into the industry—and discovering multiple potential entry points. Medtronic already has a convergent device on the market: The firm's Sofamor Danek division has developed a product called Infuse, which suffuses a bone-expanding protein into a cage-like structure to generate bone growth in damaged spines.

Meanwhile, Massachusetts-based Boston Scientific is producing a drug-



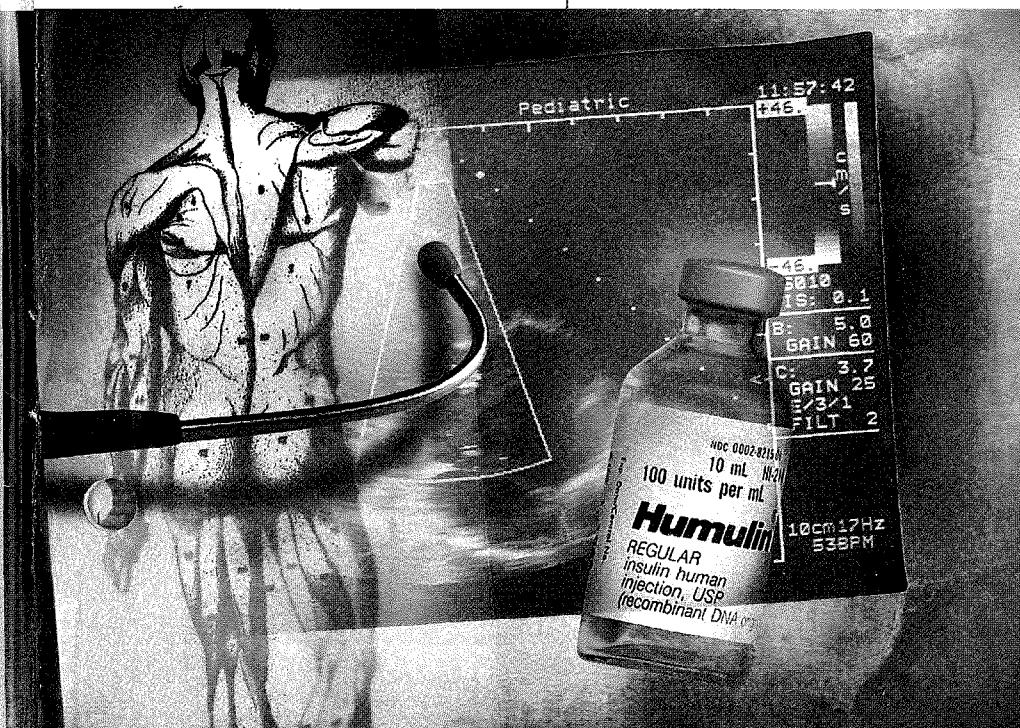
"The whole biotech industry is powered by information technology and the databases that are growing on the human genome," says Rebecca Bergman, vice president of science and technology at Medtronic.

eluting stent that was largely developed at the company's Minnesota facility in Maple Grove. A similar product from Johnson & Johnson incorporates surface-modification technology developed by SurModics, Inc., headquartered in the Minneapolis suburb of Eden Prairie. The stents point to new ways that devices can be modified to accommodate the particularities of an individual's body chemistry, especially to release large-molecule medications.

"The next step might be stents that actually have cells attached to them," Paller speculates. "So that when you put this stent in, it looks more like a natural blood vessel. The stent might not be titanium. It may be of a different material that might dissolve after you heal the structure as the new cells grow."

Artificial organs offer another potential meeting place for mechanical devices and biomaterials. Artificial livers and pancreases already under development could combine a device-like support structure made from artificial materials with "coatings" of actual human cells. Don Gerhardt, president of Medical Alley, a nonprofit organization representing Minnesota's health care industry, notes that University of Minnesota researchers are working on an array of creations where "it's difficult to tell the difference between tissue and device." One such product is an artificial cornea in which a collagen sponge is "seeded" with cells that develop into corneal connective tissue.

Industry leaders speak of yet another form of convergence: the intersection of medical technology, biotechnology, and information technology. Convergent devices could be used not only to direct or stimulate engineered biomaterials in the body, but also to gather data (via implanted sensors) for physicians' use. "The whole biotech industry is powered by



information technology and the databases that are growing on the human genome," says Medtronic's Bergman.

The most promising—and controversial—of medical therapies might well involve stem cells. As academic and corporate entities around the world work to harness the potential reconstructive capabilities of these cells, Minnesota device firms are considering what roles their products could play if and when stem cell therapies become marketable. Device systems may be needed to deliver these cells to the right part of the body.

"If we're talking about someone who's had a major heart attack, and we want to repair the heart muscle, [stem cells could] be injected into the area of the damaged heart," Paller explains. "How do we do that? Devices." The configurations of those devices might be very different from current conceptions. One possibility, offered by Fred McCoy, president of Guidant Corporation's Cardiac Rhythm Management unit in Arden Hills, is that "cell growth

and regeneration could be modulated by an electrical means."

Although such major Minnesota firms as Medtronic, Boston Scientific, and Guidant are likely to take the lead in bringing convergent devices to market, smaller, emerging firms are also certain to be involved.

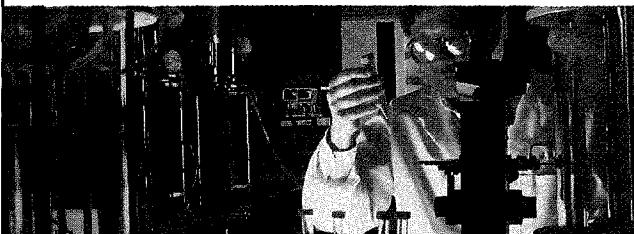
One such company is St. Paul-based Islet Technology, Inc., which is preparing to commercialize pancreatic islet cells (used to create insulin) that are encapsulated in a highly engineered plastic that "protects" them from attack by the body's immune system. The FDA "treats this material as a device," notes Bill Drake, an Islet Technology director and cofounder. In nearby Columbia Heights, another Minnesota-based start-up, MicroSurfaces, is marketing surface coatings for microarrays—silicon or glass slides containing hundreds of DNA or protein sections. The coatings are designed to make it easier for researchers to isolate and study human proteins that are the causes or symptoms of disease.

McCoy believes that biotech and med-tech "complement one another, as opposed to being a substitute for one another"—that biotechnology will create some intriguing new opportunities for device manufacturers. Minnesota's device capabilities could also spur new biotech products.

At the University of Minnesota, Robert Elde notes that Minnesota wasn't "part of that first wave of biotechnology and industry; that happened in a neighborhood of research universities that were academic leaders in molecular biology." But he dismisses skepticism that it's too late to surge ahead. "This convergence," Elde says, "brings around a new generation of opportunities, and I think the kind of industry that we have here—and the expertise here at the University—can help fuel that. I think that this is really an area where if we do it right, we can be a pretty big player." ■

Gene Rebeck is senior editor of Twin Cities Business Monthly.

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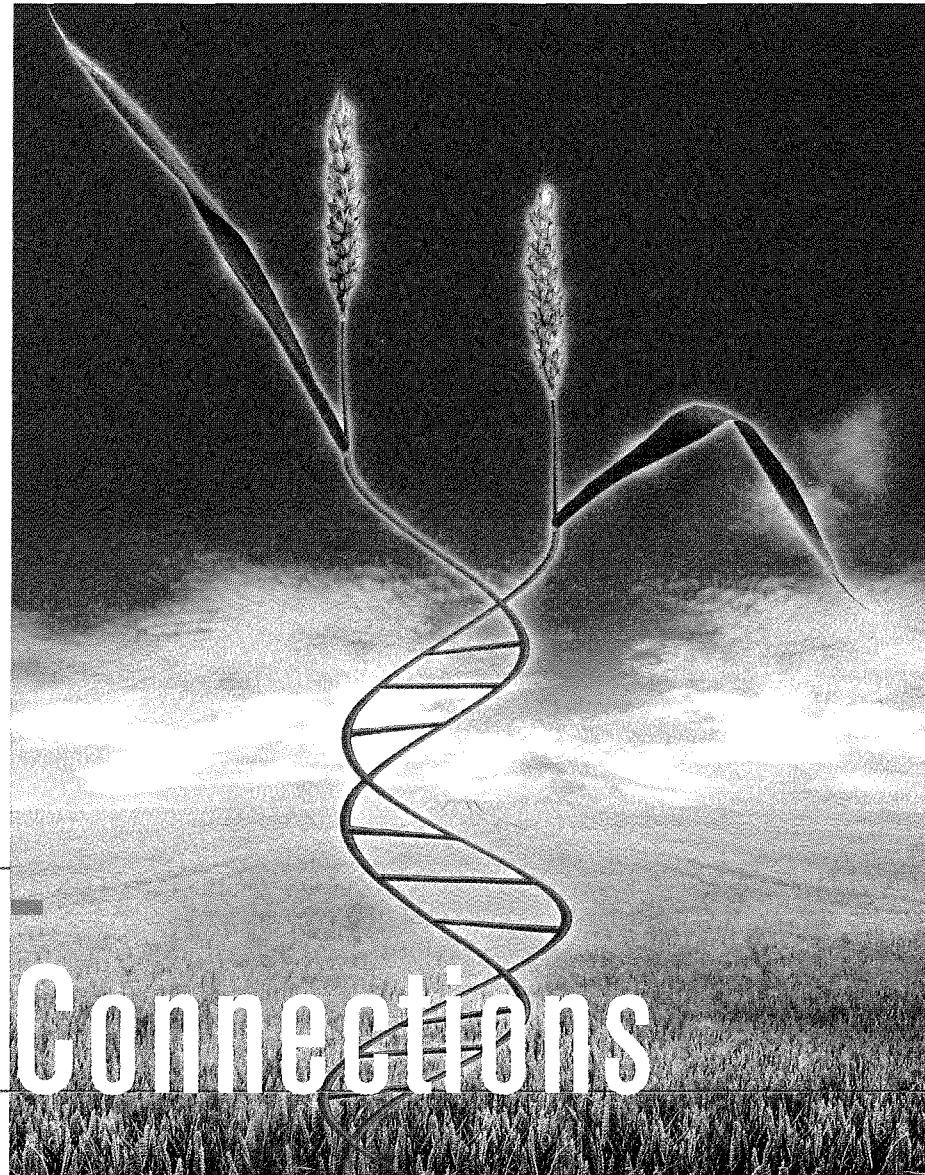
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Bioscience companies extend far beyond the metropolitan area, as is being demonstrated in Worthington, Minnesota.

Country Side Connections



Although Minnesota's biotechnology companies have tended to cluster in the metropolitan area, greater Minnesota is attracting its share of life science businesses as well; many of them, not surprisingly, involved in plant or animal biotechnology.

Community leaders throughout the state, having recognized the importance of the industry to local economies, are working hard to recruit and grow those life science businesses. Consider, for example, the southwest Minnesota community of Worthington where Glenn Thuringer, manager of the Worthington Regional Economic Development Corporation, is spending much of his time in recruiting and supporting the growth of biotechnology companies. "Biotech is growing here in southwest Minnesota," he says. "It's a large industry, but we think we're only scratching the surface in being a major player. In the metro area, the industry is more focused on health care; in rural Minnesota, it is more agriculture and animal health."

That certainly makes sense. The Worthington area is a

large producer of corn and soybeans, and it soon will be home to a biodiesel plant. The region's economic dependence on the production of livestock and feed made it a natural fit for Newport Laboratories, a firm that provides diagnostic services and customized vaccines to veterinarians and the livestock industry. Founded in 1997, the company employs 47 people and operates two USDA-licensed biologic production facilities, one in Worthington and the other in Iowa.

"Livestock is our major focus," says Randy Simonson, Ph.D., Newport's general manager and chief operating officer. "The company applies technology that can help these producers do a better job of producing healthy animals." It does so by applying genetic analysis gene sequencing, which allows Newport to identify the genetic makeup of viruses or bacteria and then develop vaccines to treat the diseases. The company has received national recognition for its work, which it often does in cooperation with companies in other parts of the world, such as in South Korea, Spain, Mexico, and Canada.

"We receive diagnostic specimens from livestock

producers all over the nation," Simonson says. "For example, a cattle producer in Texas was losing adult cattle to sudden death and had worked with a variety of consultants, but wasn't able to identify what was going on. We got involved with Texas A&M University and identified a bacterium that looked like it was responsible. We then provided a custom-made vaccine that was applied to the livestock."

Late this summer, Newport Laboratories will move into a former Worthington tourist museum that will provide much-needed space for its growing operations. The building is located on 31 acres of land, which includes space for a future campus where a 2,000-square-foot laboratory/training center, funded in part by the Blandin Foundation in Grand Rapids, Minnesota, will be built.

Worthington's population is only 11,300, and there are no larger cities within 50 miles. But it is home to more than 130 biotechnology professionals who work for bioscience firms there.

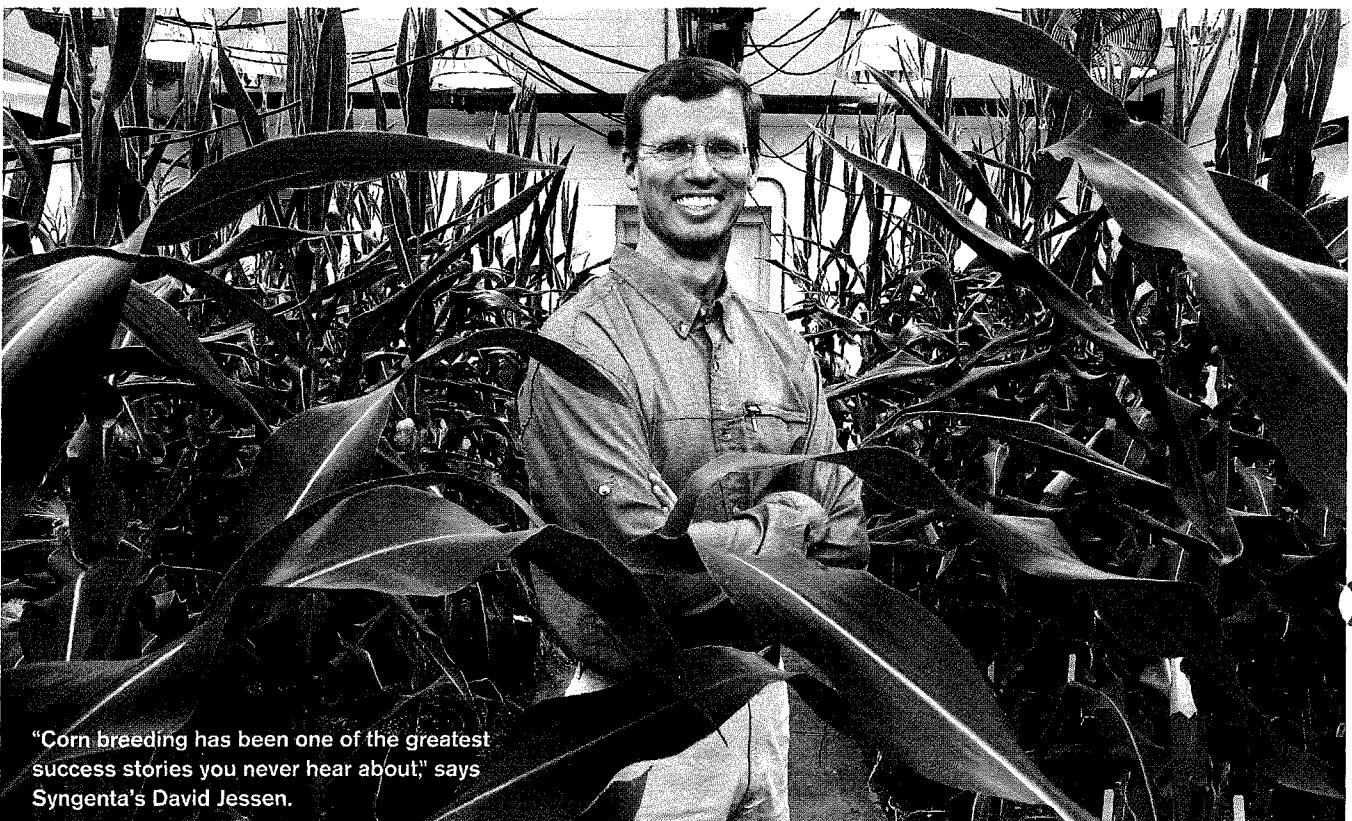
Many of them are with Prairie Holdings Group, an entity of eight diversified agricultural technology companies. The Worthington area is also home to Intervet, a division of Intervet International of the Netherlands, the second largest animal health company in the world, Swift & Company, which processes more than 16,000 hogs a day, and Nutripro BioSystems, which manufactures microbial waste management products.

Other biotechnology companies located in and near Worthington include Minnesota Soybean Processors, which will soon begin construction of a biodiesel plant, Propig.com Production Management Systems, which specializes in swine production and technologies, Precision Nutrition Incorporated, a company that specializes in swine and beef nutrition, Prairie Livestock Supply, which offers a number of services including animal health care, and the Veterinary Medical Center, nationally known for its excellence in swine production medicine.

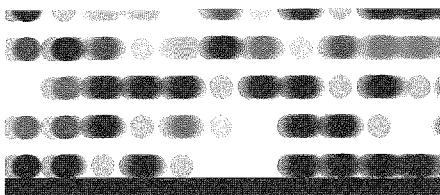
"Bioscience is a natural fit for this area," Thuringer says. "We understand that the University of Minnesota is a real driver for this, but there is research that can be done on specific projects that are more country oriented, and these companies in Worthington can specialize in them. We hope that, as the U develops new products and as companies buy those products, they will look at Worthington to produce them."

Worthington is taking an aggressive role in promoting the area as a biotechnology hub, not only to Minnesota companies but to companies throughout the country. In June, the city sent a contingent to BIO 2004, the national biotechnology conference in San Francisco. "We went to promote the community and its businesses," Thuringer says. "We wanted to heighten the awareness of Worthington and the area."

Meanwhile, the region is also supporting—and seeking support for—existing companies. Thanks, for example, to a \$190,000 grant from the Min-



"Corn breeding has been one of the greatest success stories you never hear about," says Syngenta's David Jessen.



nesota Job Skills Partnership, which helps fund custom-training programs for Minnesota companies. Many Prairie Holdings employees will receive such training in biology, microbiology, immunology, pharmacology, sales, and marketing through Minnesota West Community and Technical College. Matt Kramer, commissioner of the Minnesota Department of Employment and Economic Development and chair of the Job Skills Partnership, says that the courses are expected to lead to the creation of at least 30 more jobs over a three-year period.

Southwest Minnesota is hardly the only location of growth in biotechnology; nearly all regions of the state are seeing some activity. In the southeastern section of the state, Syngenta Seeds is breeding plants on a 450-acre farm in Stanton. The company, which is based in Switzerland and has operations in more than 90 countries as well as a regional headquarters in Golden Valley, Minnesota, invests nearly \$2 million a day in research and development to produce high-yield seeds and crop protection products to farmers around the world. Using biotechnology to genetically modify plants to increase their nutritional and industrial value, as well as their ability to resist disease, some of the company's work in developing new corn hybrids takes place in Minnesota. "Corn breeding has been one of the great success stories you never hear about," says David Jessen, one of the individuals in charge of new trait development for Syngenta. "We've been increasing the yield 1 percent to 1.5 percent a year due to genetics. The corn hybrid we sell today is, on average, 10 percent better than the one we sold five to seven years ago."

Using technology much like DNA fingerprinting, the company identifies the genetic fingerprints of plants. "We can zero in on the chromosome that resists a disease and choose from the progeny the ones that have the good genes," Jessen says. "We're using molecular markers and transferring a



Biotechnology is growing in the Worthington area, says Glenn Thuringer (right). It's home to such biotech firms as Newport Laboratories, which helps producers breed healthier livestock, according to COO Randy Simonson (left).

gene from one species to another to improve the yields."

In a sense, what Syngenta is doing is selective breeding, using practices not entirely unlike those used in breeding livestock. Taken a step further, however, researchers now are able to take a gene from a soy plant and insert it into a corn plant. "We're reaching farther into the genetic blueprint of plants," Jessen says. "If there is great disease resistance in a soy plant, in the past you couldn't cross it with corn. Now, we can find the gene, excise it, and insert it into corn."

Throughout Greater Minnesota, Syngenta Seeds and other firms have found the workforce they need to drive their businesses. They are receiving strong support

from local leaders who are well aware of the impact those companies are having, not only on the local economy, but on the world. ■

—Vicki Stavig

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The University of Minnesota and Mayo Clinic join in search of discoveries in biotechnology and genomics.

A Powerful Partnership

It was a natural fit. If any two entities could lift the biotechnology industry in Minnesota to greater heights, they would be the University of Minnesota and Rochester-based Mayo Clinic. In 2003, the University and Mayo announced what could well be the most powerful collaborative effort in Minnesota—the Minnesota Partnership for Biotechnology and Medical Genomics—one whose aim is to fuel discoveries that will bring new products to market, create more

jobs, and give birth to a number of businesses.

It's an aggressive set of goals, but one that industry experts and government officials fully expect the partnership to achieve. And why not, given the strengths each entity brings to the table? Ranked as two of the top research institutions in the country, the University and Mayo together manage more than \$700 million in major research projects and have invested almost \$500 million in their biotechnology and medical genomics programs.

"The Minnesota Partnership for Biotechnology and Medical Genomics is an important model for Minnesota's biotech future," says U of M President Robert Bruininks. "The partnership will leverage the distinctive research strengths of the University and Mayo Clinic to create knowledge that will promote human health. The collaboration, which is still in its early phases, holds great potential for harnessing new cures and treatments, and for bolstering Minnesota's leadership in the global, knowledge-based economy."



The University of Minnesota's Mark Paller (left) and Frank Cerra say that many of the research projects the University of Minnesota will be conducting in partnership with Mayo Clinic will focus on genomics.

its medical research capacity, large patient base, and more than 4 million electronic patient medical records. Combining those capabilities with a complementary set of University resources, including the U's strong and varied research programs and ability to interpret data, is expected to result in greater precision in diagnostics and more effective treatments for a host of diseases.

"Many of the research projects will focus on genomics because that is where we all see much of the potential," says Mark Paller, assistant vice president for research at the University's Academic Health Center. "The partnership focuses on developing new diagnoses and cures for health problems. Much of the new science—the big science—involves genomics, so there is a heavy emphasis on that."

Genomics is the study of how a person's genes—25,000 to 30,000 in each of us—interact with each other and with the environment. By studying those genes, researchers will be able to

drug therapies.

"Most of our genomics research at Mayo is directed at trying to corroborate changes in gene structure and function," says Dr. Eric Wieben, director of Mayo's Genomics Research Center and project director of the partnership. Mayo Clinic, which has a staff of 26,000, including almost 1,600 physicians and scientists, has invested more than \$150 million in genomics research and has made important discoveries that have led to life-saving changes for patients.

The University of Minnesota Academic Health Center's seven schools and colleges are home to more than 1,400 researchers who account for more than \$260 million in annual investments in research.

During 2002, the University generated 43 U.S. patents and engendered six start-up companies. It also collected \$26.5 million in gross revenues, much of it from patent-licensing agreements. In addition, the U is home to the Stem Cell Institute, which

"The Minnesota Partnership is an important model for Minnesota's biotech future."

personalize medical care by basing treatment for diseases on a person's specific genetic makeup.

Using depression as an example, rather than trying several different drugs in an effort to find the one that is most effective for a particular patient, physicians will be able to predict the success of a treatment in advance and avoid the trial and error phase of

under the direction of Dr. Catherine Verfaillie is conducting pioneering work in adult stem cell research in an attempt to teach stem cells to "differentiate" themselves into heart, liver, pancreas, brain, and other cells that make up the body's organs. The work being done there already is beginning to advance treatments and cures for such diseases as diabetes, Alzheimer's,

Dr. Frank Cerra, the University's senior vice president for health sciences and professor of surgery, says that the partnership demonstrates "the commitment of these two research institutions to develop new health technology and move it into commercialization." That process, he says, "Represents part of the core mission of these two institutions, leverages their complementary strengths, and provides leadership to the health cluster while supporting the economic development of the state."

Mayo will bring to the partnership

and Parkinson's, as well as for strokes.

Phase one of the partnership involved a legislative allocation of \$2 million from the state, which was matched with \$1 million from Mayo and an additional \$1 million from the University to fund four collaborative research projects that will focus on cardiovascular disease, prostate cancer, Alzheimer's, and obesity.

Research ideas clearly outnumber available funds, however. The partnership received 34 initial requests for funding for proposed projects that would collectively have involved 121 Mayo researchers and 128 University researchers representing 12 colleges.

"The University of Minnesota and Mayo Clinic will be doing all they can to identify other sources of dollars," says GOP State Representative Lynne Osterman of New Hope. Osterman is optimistic that the research generated through the new partnership will attract additional funding; two poten-

tial sources are the National Institutes of Health and the National Science Foundation.

The anticipated return on the partnership's funding is substantial. A recent study conducted by Pittsburgh-based Tripp Umbach Healthcare Consulting concluded that the partnership—if it receives a proposed \$70 million in funding from the state over a five-year period—could result in 6,600 net new direct and indirect jobs in Minnesota and have an annual economic impact of \$511 million by 2015. By 2020 and beyond, those figures could reach 11,400 new jobs and an economic impact of \$885 million, the study indicates.

These projections represent a strong incentive for supporting the new partnership. They have lead Governor Tim Pawlenty and a large and enthusiastic confederation of government officials, venture capitalists, researchers, academicians, and

business and community leaders to a determination to do whatever it takes to ensure that the state nurtures the research that will drive the biotechnology industry within the state.

"It's gratifying to have a governor who appreciates the potential value of this type of science, to see him embrace biosciences as one of his major initiatives," Wieben says. "The key to success in biotechnology and genomics is to pick a focus area and put your efforts into being the best in that area, such as genetic structure and function, disease, and response to treatment. That race is just beginning. Because of the complementary strengths [of Mayo and the U] and our previous investments, we're very competitive already, and with support from the state, we can become a leader. There is tremendous potential going forward." ■

—Vicki Stavig

MN BIO

Access current biotechnology industry information and expertise

Network with business, scientific and community leaders

Shape public opinion and influence policy

Your Link to Minnesota Biotechnology

Educational Programs

Learn about the possibilities and implications of our industry: from technology transfer to transgenic crops, from venture funding to biopharmaceuticals, from government policy to business development.

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Get the latest word on industry activities.

Cost Savings

Purchasing programs through the national Biotechnology Industry Organization (BIO) save our members money on business expenses.

Events

Network and interact with the best that Minnesota biotechnology academia, finance, government and industry has to offer.

Partnerships

We've joined forces with BIO and other Midwest state biotech organizations to organize a venture capital conference to showcase our member companies.

Government Policy

Stimulate industry growth with a unified legislative agenda.

MNBIO, 26 E Exchange Street, Suite 500, St Paul, MN 55441

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Biotechnology combines biology and technology to develop products that improve human and animal health, increase agricultural yields, and use renewable resources in the production of products ranging from fabrics to fuels.

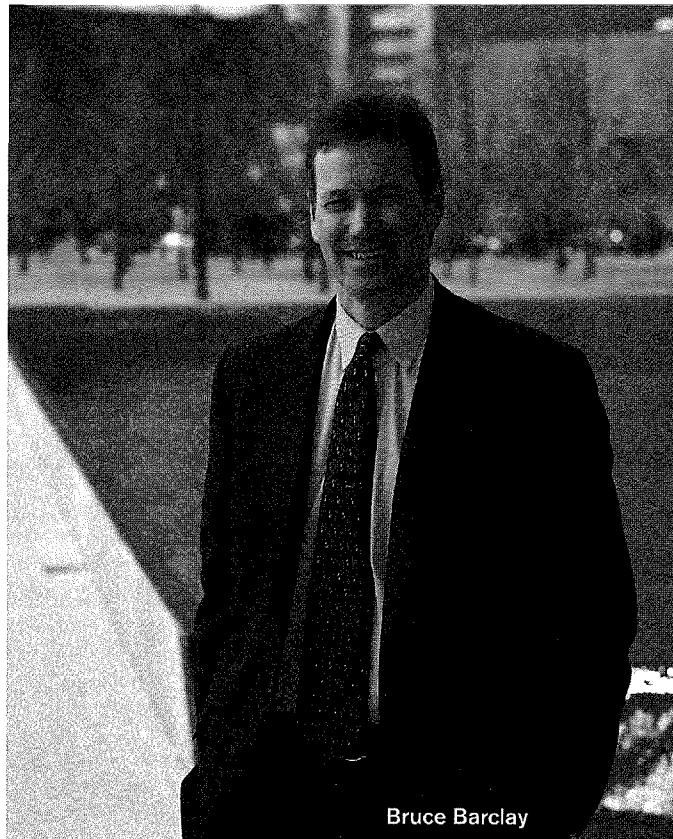
The science of biotechnology is often fascinating—and so are many of the individuals behind the impressive strides being made in the biotech industry today. They include people working quietly to help biotech start-up companies succeed, to improve educational programs, and to expand well-established companies. Working together, they are helping to drive the biotechnology industry in Minnesota.

SUSAN STAFFORD New Uses for the Oldest Resource

In the fall of 2002, Susan Stafford was named dean of the University of Minnesota's College of Natural Resources, which operates one of the premier natural resources educational programs in the country. More recently, she sought and obtained approval from the University's Board of Regents to change the name of one of the college's departments from Wood and Paper Science



Susan Stafford



Bruce Barclay

to Bio-Based Products. "We felt the name was too narrow for the scope of work the department and college needs to do to meet the needs of the future," Stafford says. "We're the first such department in the nation, and we're changing the world of wood and forest products."

Minnesota, she adds, has the potential to be a leader in using those resources to create new, environmentally friendly products, such as biodegradable plastics and wood products made from corn and wheat stalks. "We've been successful in using some agricultural fiber to augment the wood supply in the production of paper," Stafford says. "We can also use it in fuel, energy, and plastics. This is very important in Minnesota, particularly because the University has had a legacy of a very strong wood products industry. We will continue that, but we realize the wood fiber supply might not be as plentiful in the future."

The state's diverse woodlands and land used for agricultural purposes make Minnesota a natural place for developing and producing bio-based products. "If you're going to just focus on more traditional things like pharmaceuticals, that can be done anywhere," Stafford says. "But, if you

want to use natural resources in the way we're looking at using them—coupling agriculture and wood fibers—it's sort of the ultimate recycling. You can't go to California or the East Coast and do that. This is a new area that, we think, complements the state's strong contributions in medical devices and pharmaceuticals. We're in the infancy stage. We don't want to be chasing after people.

We want to be leaders."

BRUCE BARCLAY

Products that Heal

Bruce Barclay recently moved from California to Minnesota to become president and chief operating officer of SurModics, Inc., an Eden Prairie company that provides surface modification and drug delivery capabilities for medical device and health care products.

What does that mean? Here's an example: Working with Cordis Corporation, a subsidiary of Johnson & Johnson, SurModics developed the Cypher Sirolimus-eluting Coronary Stent, which resembles a wire mesh tube that is inserted into heart patients who have had angioplasties. The stent is coated with polymer, which in turn is coated with a drug that keeps the coronary artery open. "Clinical trials have shown it is two to three times more effective [than a traditional stent] in preventing the reclosure of blocked coronary arteries," Barclay says. "It has had a wonderful reception. More than 750,000 patients have been treated with this product. We're taking a similar technology in terms of the polymer and working with another

company to treat diseases of the eye."

That product, a drug-coated coil placed in the back of the eye, would treat diseases such as age-related macular degeneration and diabetic retinopathy. Current treatment for those diseases often includes injections into the eye, a painful procedure that many patients dread.

SurModics, which has 60 licensed customers for its technologies, is a Minnesota success story that many hope will be repeated—and repeated often—during the coming years. Its story was exciting enough to entice Barclay to leave a medical device firm in California and take over the company's reins. "The more I learned about the opportunity at SurModics, the more interested I became," says Barclay, who has worked in the health care industry for more than 20 years and is a registered patent attorney as well. "I am very happy to be here."

DORIS TAYLOR

Seeking "Major Impact"

Doris Taylor, Ph.D., has also found a home in Minnesota. Heavily recruited by other universities, she accepted the University of Minnesota's appointment to the Medtronic Bakken Chair in Cardiovascular Repair. She left a position at the Duke University Medical Center to move to Minnesota in mid-December.

Taylor, who currently co-chairs the International Society for Heart and Lung Transplantation Cell Therapy Tissue Engineering Council, is a leader in the field of cell and gene therapies, where she focuses on using stem cells to treat cardiovascular disease. "What I'm trying to do is repair the damage that occurs in the heart after a heart attack by using cells from your own body and transplanting them to a region of the heart so they can actually begin to repair the damage," she says. "Stem cells are simple cells that know how to keep making more of themselves, and they know how to become other kinds of cells as well. A

"We're in the business of changing lives, making a difference, and helping people realize the American dream."

stem cell from your bone marrow might also know how to become bone or muscle. If it gets the right signal, it can become like the cells around it."

Taylor sees great potential in some processes at the University of Minnesota that will allow researchers and clinicians to find and test treatments and to move them toward clinical applications. "The University of Minnesota has all the pieces in place to really let us move from ideas to treating patients," Taylor says. "It is clear there is a commitment at a high level to treating cardiovascular disease, to taking care of patients, and to developing the best new therapies."

The research Taylor is conducting has the potential to drastically change the lives of many of the 62 million people in the United States who suffer from cardiovascular disease. "It's the leading cause of death in the Western

World," she says. "If we can prevent and treat this, it will have a major impact on the quality of life for those people. I've been focused on this since 1991. We're getting close."

PAT DILLON Finding Capital, Growing Companies

Although Pat Dillon works behind the scenes, she is a critical link in the success of many of the biotechnology start-ups in Minnesota. As executive director of Minneapolis-based Minnesota Project

Innovation, she helps technology-based companies get access to capital through contracts and grants. "It's another source of funding research and development and for them to take their ideas from the lab to the marketplace," Dillon says.

Minnesota Project Innovation is part of a national network of 27 organizations that compete for funding from a variety of federal sources, including the National Institutes of Health, the Department of Agriculture, and NASA. That money comes through the Small Business Innovative Resource Program (SBIR), a federal program that supports small businesses by providing \$100 million in annual funding.

"Minnesota ranks fifteenth or sixteenth in the nation for SBIR funding," Dillon says. "In 2003, \$22 million went to Minnesota companies for research and development. Since 1982, when we started, more than \$250 million has come to the state and that has

created several public and numerous private companies, plus 1,000 to 1,500 jobs."

Getting access to SBIR money can be more than a little daunting. That's where Dillon and her staff come in. They mentor small-business owners and provide a strong network of professionals who help them navigate through the application process to successfully get the money they need to move forward. "We're in the business of changing lives, making a difference, and helping people realize the American dream," says Dillon, who in 1999 received the Small Business Administration's Tibbetts Award for her work with the SBIR program. "As a nation, we have to look at how we are planting the seeds for tomorrow. Where are the companies that will provide the jobs for tomorrow?" Dillon is working to ensure that many of those companies will be in Minnesota. ■

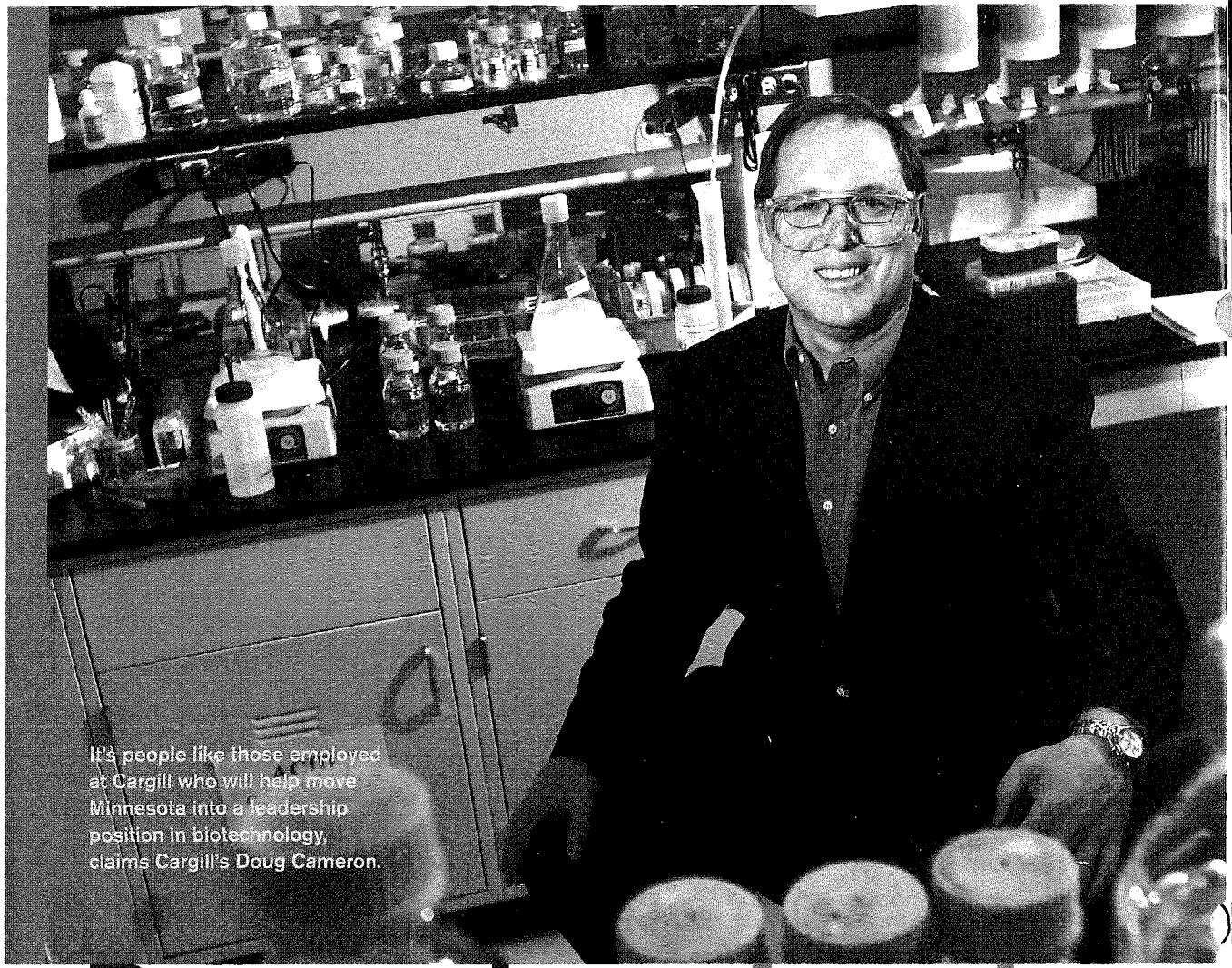
Doris Taylor



Pat Dillon



—Vicki Stavig



It's people like those employed at Cargill who will help move Minnesota into a leadership position in biotechnology, claims Cargill's Doug Cameron.

Becoming a Leader

A consensus emerges: Minnesota is a state where biotechnology can prosper.

Does Minnesota have what it takes to be a leading state in biotechnology? There is agreement—no, not unanimity, but consensus—among business operators, investors, government officials, and educators that the question can be answered with one word: Yes.

Biotechnology companies benefit from many of the conditions that have

helped companies in an array of other industries to prosper in Minnesota—including access to capital, access to education, easy access to markets, a superior workforce, and a wealth of business expertise.

Consider the capital markets. Minnesota companies, through Minnesota financial institutions, have access to equity financing as great as anyone in the world. The state's commercial banks are active lenders, and its investment banks have brought more

than 100 companies into public markets in the past 10 years. Moreover, Minnesota routinely ranks among the top 10 states in venture capital investment and the formation of venture capital pools.

Education? More than 90 percent of all Minnesotans can attain at least two years of public, post-secondary education within a reasonable commute from their homes. And Minnesota's schools, especially its technical colleges, are eager to provide custom

"The medical device industry will change. There will be hybrid devices that will include cells."

courses addressing the specific needs of employers in their communities.

Highways, waterways, railways, and air-travel routes provide companies with outstanding access to customers and suppliers throughout North America and overseas. The high school graduation rate routinely is higher than anywhere else in the United States, and the percentage of Minnesotans with college degrees is the highest in the Midwest. The state is home to thousands of companies that support other businesses, including advertising agencies, marketing firms, and law firms and accounting companies with practices aimed at helping companies grow faster.

Findings of a study conducted by the Milken Institute in Santa Monica, California, and released in early April, support the view that Minnesota can indeed be a leader in biotechnology. Researchers ranked Minnesota eighth among the 50 states in the strength of its science and technology and second in technology education and training. Are there areas that need to be strengthened? Yes, but the essential ingredients are in place.

A key strength is Minnesota's medical devices industry, which has produced such giants as St. Jude Medical and Medtronic—and literally hundreds of smaller companies. As that industry evolves, it will bring with it new devices that will involve biotechnology. "The medical device industry will change," says Mark Paller, assistant vice president for research at the University of Minnesota's Academic Health Center and a professor of medicine at the U. "There will be hybrid devices that will include cells. It will be a different world. We have the ability to be a world leader in those new

types of products."

The recently formed partnership between the University and Mayo Clinic, both of which are among the top institutions in the country in research funding, is likely to be a magnet that is drawing researchers and biotechnology companies to Minnesota. "That partnership puts us up there with Harvard, Stanford, and MIT," Paller says. "For academicians thinking about locating, relocating, or starting new companies, Minnesota will be hard to ignore."

If anything speaks to the strength of Minnesota, it is the success of biotech companies such as MGI Pharma, a 230-employee biopharmaceutical company based in Bloomington. The company, which went public in 1983, acquires technology and developmental stage products, gets them through the FDA approval process, and brings them to

market, working with other biotechnology companies and academic institutions, including the University of Minnesota and Mayo Clinic. MGI Pharma also fully develops some products on its own, including Salagen, a drug that treats dry mouth symptoms

Lonnie Moulder, CEO of MGI Pharma, expects his biopharmaceutical company to become profitable later this year.



in cancer patients undergoing chemotherapy.

MGI Pharma recently launched a new product—Aloxi—that prevents vomiting and nausea in chemotherapy patients. "This product will allow us to become profitable later this year," says CEO Lonnie Moulder. "There are more than 1,500 biotech companies in the United States. About 350 are publicly traded, and only about a dozen are actually profitable. We will become one of them."

MGI Pharma is a role model for other biotechnology companies that are hoping to grow in Minnesota—and they are plentiful. "In 2000 and 2001, Minnesota ranked number one nationally in the number of start-ups," says Tony Strauss, acting assistant vice president of the University of Minnesota Office of Patents and Technology Marketing. "We're down since then, but I wouldn't read too much into that. It might reflect the overall economy. These things go in cycles,

and I expect those numbers to be up somewhat this year."

An important ingredient in the mix is the roster of well-established companies that have either started in Minnesota or expanded into the state. Cargill, the food, agriculture, and industrial giant with operations in 60 countries, is increasingly turning to biotechnology to drive its business. The company is focusing on three specific areas—animal, plant, and microbial and enzyme biotechnology—in its attempts to improve food products and reduce reliance on non-renewable resources.

In 1997, Cargill joined forces with Dow to create Cargill Dow, a joint venture based in Minnetonka that uses carbon found in simple plant sugars to make a fiber now being used in comforters, packaging, and other products. "We have not had any trouble recruiting good people—and we are very selective," says Doug Cameron, director of biotechnology

for Cargill's Biotechnology Development Center. It is people like those at Cargill, he adds, who will help move Minnesota into a leadership position in biotechnology. "What I see as a real strength is the fusion of a lot of different fields," he says. "We have a very strong food and nutrition center, medical devices, computer and information technology, and medical biotechnology. I think there's a real opportunity for Minnesota to carve a niche where fusion of those disciplines can take place. The boundaries between these fields are getting fuzzier and fuzzier."

Protein Design Labs is a company with headquarters in California that recently expanded its operations into Minnesota—something industry leaders in Minnesota would like to see develop as a trend. Protein Design Labs develops humanized antibodies to prevent or treat a variety of diseases, including cancer, ulcerative colitis, asthma, rheumatoid arthritis,



Aventis (NYSE: AVE) is dedicated to improving life by treating and preventing human disease through the discovery and development of innovative pharmaceutical products.

Aventis focuses on prescription drugs for important therapeutic areas such as oncology, cardiology, diabetes, respiratory/allergy, anti-infectives as well as on human vaccines. Aventis corporate headquarters is in Strasbourg, France. The company's prescription drugs business is conducted in the U.S. by Aventis Pharmaceuticals Inc., which is headquartered in Bridgewater, New Jersey.

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Healthy Foods

Stem Cells

Biomedical Science

Renewable Energy

Biocatalysis

UNIVERSITY OF MINNESOTA
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and Crohn's disease. The company opened a manufacturing facility in the Minneapolis suburb of Plymouth in 1992, and it is now constructing a new \$190 million facility in Brooklyn Park.

"We could have gone anywhere, but we made a very conscious decision to stay in Minnesota," says Brett Schmidli, senior vice president of technical operations for the company. "The primary reason was the quality of the workforce. We were able to attract and retain the right people and had built a very strong workforce here. We are growing at 50 to 100 people per year, and I would expect that rate to continue for the next couple of years."

Johnson & Johnson, the global manufacturer of health care products, also has found a home in Minnesota for some of its operations. The company has nearly 300 employees in Minnesota, including Sharon D'Agostino. As region director of state government affairs for Johnson

& Johnson—and an active MNBIO member—D'Agostino is optimistic about the direction Minnesota is taking in support of biotechnology. "It's wonderful to see the momentum," she says. "Minnesota has a great core education system and employee network. The key now is getting venture capitalists to see it as attractive."

Fortunately, Minnesota is home to several venture capital firms that focus on biotechnology, including Piper Jaffray Ventures in Minneapolis, a wholly-owned subsidiary of Piper Jaffray, which manages four health care funds with approximately \$275 million in total capital. "In the early '90s, we were primarily focused—about 79 percent—on medical devices and medical technology," says Buzz Benson, managing director of Piper Jaffray Ventures. "When looking at what has happened in the whole industry, there has been a convergence between biotechnology and medical devices: bioscience. It's a huge oppor-

tunity. Bioscience can be a very powerful growth engine for the state and, as investors, we are putting money in to help to grow it."

Peter Mc너ney is a managing partner at the Minneapolis-based Thomas Mc너ney & Partners, a venture-capital firm that focuses heavily on medical technology. He agrees that biotechnology represents substantial opportunities for investors. "Minnesota is a very key area for us," Mc너ney says. "We've been very active here."

Mc너ney adds that while the University and Mayo both have good, strong science, "A successful investment, however, involves more than just the science; you also need capital and people. We clearly have people here who understand the industry, which is a big advantage. We also have a culture of supporting early-stage companies. There are several reasons to be optimistic." ■

—Vicki Stavig

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MN BIO

Dedicated to growing and promoting
Minnesota's biotechnology industry.

Dear Readers:

We are pleased to introduce the first edition of MINNESOTA BIOSCIENCES. Twin Cities Business Monthly, MN BIO's partner in this magazine, has assembled a unique mix of information to showcase Minnesota's bioscience strengths not only locally but globally. You'll be amazed at the talent of Minnesota's industry leaders and university professionals. You'll be stunned by Minnesota's developing technology affecting virtually every other Minnesota industry. You'll be compelled to support bioscience friendly legislation. You'll begin to understand the implications of bioscience as an economic development strategy.

In one respect, this magazine is the culmination of years of hard work and dedication of Minnesota's best in bioscience. Our thanks go out to MN BIO's Board of Directors, the University of Minnesota and anchor companies like Cargill and Medtronic. They have worked diligently to see this industry out of sleepy times to positioning Minnesota as a bioscience powerhouse. Also noteworthy is the leadership of Governor Tim Pawlenty and the State Legislature. Their recent tenacity has helped propel industry growth and lay the ground work for a long, bright, economically rewarding future.

Additionally, this publication will begin to document Minnesota's bioscience story. From Crookston to Worthington, from Rochester to St. Paul, Minnesota's opportunities in biosciences are endless. Whether we're improving human health through pharmaceutical and medical breakthroughs, finding alternative energy sources to improve our environment or meeting society's demands for increased crop yields, Minnesota is well positioned to lead the way.

While we've seen legislators and other public officials embrace initiatives that support biosciences, it's imperative that our understanding continue to deepen and our policies reflect our interest in making the growth of this industry a key economic development strategy.

Having said all this, we hope you find this magazine useful, enlightening and incredibly informative. We look forward to subsequent issues that continue to tell perhaps the most amazing story of the century.

We've come a long way. But indeed, we believe the best is yet to come.

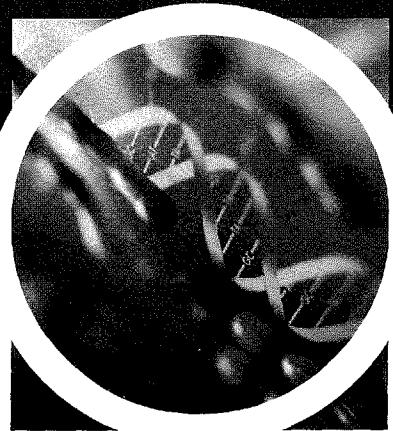
Sincerely,

Douglas Astry
President
MN BIO
General Manager
Diagnostics and Drug Discovery
SurModics, Inc.

Raymond Frost
Executive Director
MN BIO

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Minnesota's

Bioscience Industry

A FACT SHEET FOR BUSINESSES

Agricultural and Industrial Biotechnology:

- Minnesota's Agricultural and Industrial Biotechnology industries supply a diverse range of products that include:
 - Agricultural chemicals (**Cargill Inc.**, **Cenex Harvest States**)
 - Specialty cleaning and sanitation preparations (**Ecolab**)
 - Sanitary products (**H.B. Fuller**)
 - Prepared feed and feed ingredients (**Land O'Lakes Agricultural Services**, **Archer Daniels Midland**, **Cargill Inc.**)
 - Crop services (**Land O'Lakes Agricultural Services**, **Syngenta Seeds**, **Cenex Harvest States**)
 - Biofuels (**Cargill Dow LLC**, **Minnesota Corn Producers – ADM**)
 - Biopesticides (**Syngenta**)
 - Soybean processing (**ADM**, **Cenex Harvest States**, **Ag Processing Inc.**)
 - Plant biopolymers/fibers (**Cargill Dow**)
 - Industrial lubricants (**Cargill Inc.**)

Top Agricultural and Industrial Biotechnology Companies in Minnesota

Company	Annual Sales*
	(millions)
Cargill	\$59,894
Cenex Harvest States Oilseed Processing	4,500
Ecolab	3,404
Land O'Lakes Agricultural Services	2,853
H. B. Fuller	1,256

* Sales for Minnesota headquarters or Minnesota-based operations

Source: Corporate Report Factbook 2003
Dun & Bradstreet, company annual reports.

Minnesota is well positioned with abundant agricultural resources and top industrial biotechnology firms.

- **Cargill Dow LLC** manufactures biodegradable packaging and fibers using corn starch and a special fermentation process that requires 20 to 50 percent less fossil resources. CEO Randy Howard was named to the 2002 *Scientific American* 50, a list of visionary contributors to science and technology.
- **Minnesota Corn Processors** is the second largest domestic producer of ethanol, and merged with Archer Daniels Midland in 2002.
- **Land O'Lakes** provides farmers with:
 - Genetically engineered seeds through its seed company **Croplan Genetics** that produce higher yields through crop inputs and agricultural services.
 - Specialty corn products for animal feeds and consumer food markets developed in conjunction with **Novartis Seeds**.
- Using a solvent process, **Cenex Harvest States** manufactures soy products including edible refined oil, ink, flour, soy meal, fatty acids and lecithin. In 2003, Cenex Harvest States opened its second soybean crushing facility in Fairmont, Minnesota.
- **Ecolab** operates in 40 countries worldwide and manufactures products such as cleaners and hand sanitizers.
- **H.B. Fuller** has developed water-based adhesives and non-woven hygienic technology used in the fabrication of diapers, adult incontinence devices, feminine and disposable medical products.
- In 2003, **Minnesota Soybean Processors** built a new soybean processing plant in Brewster, Minnesota and announced the addition of a biodiesel refinery.
- A project of Positively Minnesota, the Department of Agriculture and the University of Minnesota's Department of Wood and Paper Science, the **Minnesota Biofiber Consortium** brings together leaders of industry, research and agriculture to promote agricultural crops and residues as industrial feedstocks.

In Minnesota there are:

- About 1,700 agricultural and food scientists and technicians, and 2,300 chemist and chemical technicians.
- About 350 chemistry and more than 130 chemical engineering degrees were awarded in Minnesota in 2002.
- Minneapolis-St. Paul is among the top ten most knowledge competitive regions in the world, according Robert Huggins Associates, a British research firm. Rankings take into account indicators such as the number of IT, biotechnology and engineering employees per 1,000 inhabitants, and the number of patents registered per million people.
- According to research done at the University of Minnesota in 2003, Minnesota farmers are producing **engineered seed crops** valued at \$2.2 billion annually.
- Examples of **seed research** include wheat and potato fungal resistance at the University of Minnesota and sugar beet herbicide tolerance at BetaSeed of Shakopee, Minnesota.

<i>University of Minnesota: Exceptional Chemistry, Agricultural and Veterinary Studies</i>	<ul style="list-style-type: none"> ➤ The University's College of Agricultural, Food and Environmental Science, one of the top five colleges of agriculture in the world, enhances agricultural systems through plant genetics and biocontrol of weeds. ➤ Studies at the University's Colleges of Veterinary Medicine and Molecular Veterinary Bioscience, include genomics, molecular biology, and comparative medicine. ➤ The Chemical Engineering program is ranked second by the National Research Council and each year confers about 210 graduate and undergraduate degrees. ➤ The \$20 million Cargill Building for Microbial and Plant Genomics provides a hub for 175 researchers in the genomics of microbes and crop plants. The building opened in 2003.
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Medical Technology:

Biotechnology advances use applications developed by the medical technology industry, and Minnesota's medical technology industry is recognized worldwide for being at the forefront of innovation.

- Minnesota's medical technology industries supply a diverse range of products that include:
 - Cardiovascular technologies such as heart valves, pacemakers, defibrillators and stents (**Medtronic; St. Jude Medical; Guidant Corp; Boston Scientific, Inc.**).
 - Catheter technologies (**Medtronic; St. Jude Medical; Boston Scientific, Inc.; Deltec, Inc.**).
 - Drug delivery systems (**3M; Cima Labs, Inc.; Medtronic; Deltec, Inc.**).
 - Dialysis products (**Minntech**).
 - Impotence products (**American Medical Systems**).
 - Electrotherapy (**Medtronic; St. Jude Medical; Compex Technologies, Inc.; Empi Inc.**).
 - Spinal implants (**Sulzer Spine-Tech**).
 - Warming products for hypothermia (**Arizant, Inc.**).
 - Hearing aids (**Starkey Laboratories; Miracle Ear**).
 - Eyewear lenses (**BMC Industries; Soderberg Ophthalmic Services**).
 - Medical device contract manufacturing (**ev3, Inc.; Lake Region Manufacturing; Medsource Technologies; Surgical Technologies**).
 - Drug-eluting coating process for medical devices (**SurModics**).
 - Drug-coated stents (**Boston Scientific, Inc.; Guidant Corp; Medtronic (under development)**).

Top Medical Technology Manufacturers Operating in Minnesota

Annual Sales*

Company	Annual Sales* (millions)
Medtronic, Inc.	\$7,665
Guidant Corp.	3,240
3M – Health Care	2,560
Boston Scientific, Inc.	1,709
St. Jude Medical, Inc.	1,589

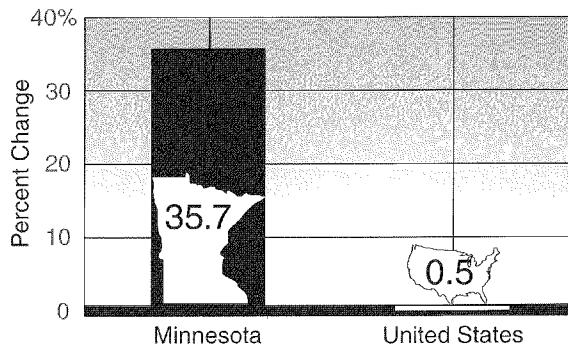
* Sales for Minnesota headquarters or Minnesota-based operations
Source: Corporate Report Factbook 2003
Dun & Bradstreet, company annual reports.

- There are 545 FDA approved medical device establishments currently in Minnesota.
- About 2,700 medical device related patents were registered to Minnesota companies between 1999 and 2003.
- According to the Milken Institute, Minnesota has the nation's highest number of investigational medical devices and FDA pre-market approvals of medical devices per 100,000 residents .

Outstanding opportunities for collaboration

- **Mayo Clinic:** world's best known health care facility also collaborates with health care and medical technology companies.
- **Industrial Partnership for Research in Interfacial and Materials Engineering (IPRIME):** Facilitates the use of University of Minnesota equipment and staff for its members, which include businesses such as Medtronic, SurModics, and 3M (www.iprime.umn.edu).
- **The University of Minnesota's Biomedical Engineering Institute** combines engineering and health sciences to create new medical devices.

Employment Growth in Medical Technology Industries*, 1993-2003



* NAICS 334510, 334517 and 339111-339115.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages (ES-202).

- Minnesota's medical technology industry employment:
 - Increased 36 percent between 1993 and 2003 to over 22,700 people.
 - Had a concentration of employment over three times the nation's.
 - Ranks second only to California in the medical device industry.
- A number of medical technology companies appeared on the prestigious 2004 Fast 500 prepared by Deloitte and Touche.
 - **Optical Sensors, Inc.** revenues grew more than 1,400 percent and **Vascular Solutions, Inc.** more than 700 percent over five years.
 - **Possis Medical** revenues grew over 330 percent over five years.
- **Synovis Life Technologies, ASV, and Possis Medical** were among *Fortune* magazine's 100 Fastest-Growing Companies for 2004.
- Minnesota companies and research institutions have been first in developing many important medical devices:
 - Implantable cardiac pacemaker.
 - Artificial heart valves.
 - Implantable drug transfusion pump.
 - Anesthesia monitor.
 - Blood pumps.
 - Artificial urinary sphincter.
 - In-the-ear hearing aid.
 - Wireless cardiac monitoring system.
- Minnesota medical technology companies have been involved in numerous mergers and acquisitions.
 - **Medtronic, Inc.** announced the acquisition of four companies in 2002, including California-based MiniMed and Medical Research Group, Inc. (MRG). Medtronic made acquisitions totaling nearly \$13.9 billion between 1996 and 2002.
 - Since 2002, **ev3, Inc.** has acquired Appriva Medical, Inc. of California and Minnesota's Intra Therapeutics.
 - **Medsource Technologies** acquired Cycam, Inc. of Pennsylvania, while **American Medical Systems** acquired California-based CryoGen, Inc. in 2002.

Pharmaceuticals:

Minnesota's pharmaceutical industry is vibrant and fast growing.

- Minnesota's pharmaceutical industry supplies a diverse range of products that include:
 - Cardiology (**Upsher-Smith, 3M, Solvay Pharmaceuticals**)
 - Oncology-related pharmaceuticals (**MGI Pharma**)
 - Dermatology (**Upsher-Smith, 3M**)
 - Gastroenterology, mental health (**Solvay Pharmaceuticals**)
 - Immune system enhancing compounds (**Biopolymer Engineering Inc**)
 - Women's health (**3M, Solvay Pharmaceuticals**)
 - Orally disintegrating dosage forms and contract pharmaceutical manufacturing (**CIMA LABS**)
 - Bioequivalent generic pharmaceuticals (**Paddock Laboratories, Upsher-Smith**)
 - Animal health drugs (**Intervet, Newport Laboratories**)

Top Pharmaceutical Manufacturers Operating in Minnesota

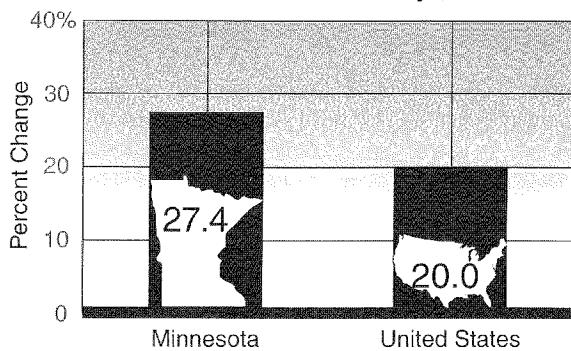
Company	Annual Sales* (millions)
3M Pharmaceuticals Inc.	\$1,000
Biopolymer Engineering Inc.	650
Solvay Pharmaceuticals Inc.	450
Upsher-Smith Laboratories	177
CIMA LABS Inc.	77

* Sales for Minnesota headquarters or Minnesota-based operations

Source: Corporate Report Factbook 2003
Dun & Bradstreet, company annual reports.

- Minnesota is home to about 10,700 pharmacists and pharmacy technicians, as well as 2,300 chemists and chemical technicians.
- Twenty-nine Minnesota establishments have prescription and over-the-counter drugs currently listed with the FDA.
- Between 1997 and 2001, Minnesota companies registered more than 300 drug patents.

Employment Growth in the Pharmaceuticals Industry*, 1993-2003



* NAICS 3254

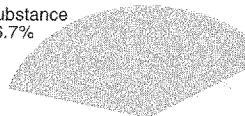
Source: U.S. Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages (ES-202).

- Minnesota enjoys an excellent quality of life:

- Minnesota has been rated among the top two "Most Livable" states by Morgan Quitno Press for the past eight years.
- Minnesota was first in the nation for children's well-being according to the 2004 Kids Count Databook.
- Home ownership rate was first in the country in 2003.

Minnesota Employment in the Pharmaceuticals Industry*, 2003

In-Vitro Diagnostic Substance Manufacturing 36.7%



Medicinal and Botanical, and Other Biological Product Manufacturing 9.1%

Pharmaceutical Preparation Manufacturing 54.2%

* NAICS 3254

Source: U.S. Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages (ES-202).

- Pharmaceutical companies operating in Minnesota are among the best in the nation.

- In 2003, **3M** was listed among the top 50 pharmaceutical companies by *Pharmaceutical Executive*, while **Upsher-Smith** was named one of the top 100 largest pharmaceutical companies in 2001. **Solvay Pharmaceuticals**, another top 50 pharmaceutical company, has a significant manufacturing facility in Baudette, MN.
- **CIMA LABS, Inc.** appeared on the prestigious 2004 Fast 500 prepared by Deloitte and Touche with growth of more than 460 percent over five years, and was listed as one of *Fortune* magazine's 100 Fastest-Growing companies in 2003.
- **Biopolymer Engineering, Inc.** engineers natural carbohydrates to enhance immune health. The company has acquired more than 200 U.S. and international patents.
- Scientists at **3M Pharmaceuticals** research laboratories in St. Paul developed synthetic molecules called Immune Response Modifiers (IRMs) that have potential applications for treating viruses and tumors.

Excellent research and educational institutions	<ul style="list-style-type: none"> ➤ The University of Minnesota's College of Pharmacy has programs in the Twin Cities and Duluth, and confers degrees on more than 100 students each year in its professional program, while about 375 chemistry degrees and almost 1,400 biological and life sciences degrees were awarded in Minnesota in 2000.
Vanguard in Research	<ul style="list-style-type: none"> ➤ Nanopeapia, Inc., a startup company utilizing research developed by U of M professor David Pui and his colleagues, creates nanotechnology devices for drug formulation, gene therapy and tissue regeneration. ➤ One of <i>U.S. News and World Report's</i> 10 leading innovators for 2001, Dr. Catherine Verfaillie is the director of the Stem Cell Institute at the University of Minnesota.
Educated and motivated workforce:	<ul style="list-style-type: none"> ➤ Minnesota's labor force participation rate of 72.1 percent was second highest in the country in 2003. ➤ Ninth highest percent of population holding bachelors degrees among the states in 2003. ➤ Second in the percentage of residents who are high school graduates or higher in 2003.

Human Health Microbiology:

Minnesota companies shine in the diverse human health microbiology field.

- Minnesota's human health microbiology industry supplies a diverse range of products that include:

- Contract R&D laboratories (**ATG Laboratories, ViroMed, Apptec Laboratory Services**)
- Cell culture products (**ViroMed, Apptec Laboratory Services**)
- Immunoassay testing (**Beckman Coulter**)
- Cytokine-related reagents (**R&D Systems**)
- Hematology controls and calibrators (**R&D Systems**)
- Immunoassay and conjugate stabilizers (**SurModics**)
- cGMP manufacturing services (**Apptec Laboratory Services**)
- Occupational health testing (**Medtox Scientific Inc.**)

- **Minnesota Partnership for Biotechnology and Medical Genomics:**

A Minnesota initiative leveraging the scientific leadership of the University of Minnesota and the Mayo Clinic into a powerful research collaboration to position Minnesota as a world leader in biotechnology and medical genomics. (www.mayouminnesotapartnership.org)

- About 1,600 biological and life sciences degrees were awarded in Minnesota in 2002.
- Minnesota is home to about 1,300 biological scientists and technicians, as well as more than 2,800 life scientists and other science technicians.
- Firms in Minnesota are exploring new advances in microbiology
 - **R&D Systems-Techne Corp.** manufactures purified cytokines (proteins), antibodies, and assay kits as well as whole-blood hematology controls and calibrators. The company has been listed among the Top 25 Medical Technology Companies as of 2003 by *The Business Journal*.
 - **Beckman Coulter Inc.** manufactures in vitro immunodiagnostic systems for allergies, infectious diseases, immunology, hormones, and serum proteins.
 - **Protein Design Labs, Inc.** has antibodies in clinical development for autoimmune and inflammatory conditions, asthma and cancer.

Top Human Health Microbiology Companies in Minnesota

Company	Annual Sales*
R&D Systems – Techne Corp.	\$145
Protein Design Labs, Inc.	80
Medtox Scientific Inc.	52
Viromed Laboratories – LabCorp	25
Apptec Laboratory Services	16

* Sales for Minnesota headquarters or Minnesota-based operations
Source: Corporate Report Factbook 2003
Dun & Bradstreet, company annual reports.

Exceptional Biological Research Facilities

- The University of Minnesota provides state-of-the-art imaging and advanced genetic analysis facilities to companies through the "Biotech Mall" known as "Biodale".
- Between 1998 and 2002, more than \$300 million was invested in genomics and biotechnology at the University of Minnesota.
- The University of Minnesota has the Biotechnology Institute, Developmental Biology Center, Biomedical Engineering Institute, and the Biomedical Genomic Center. The Mayo Clinic has the Genomics Research Center.

Bioscience Industry Assistance:

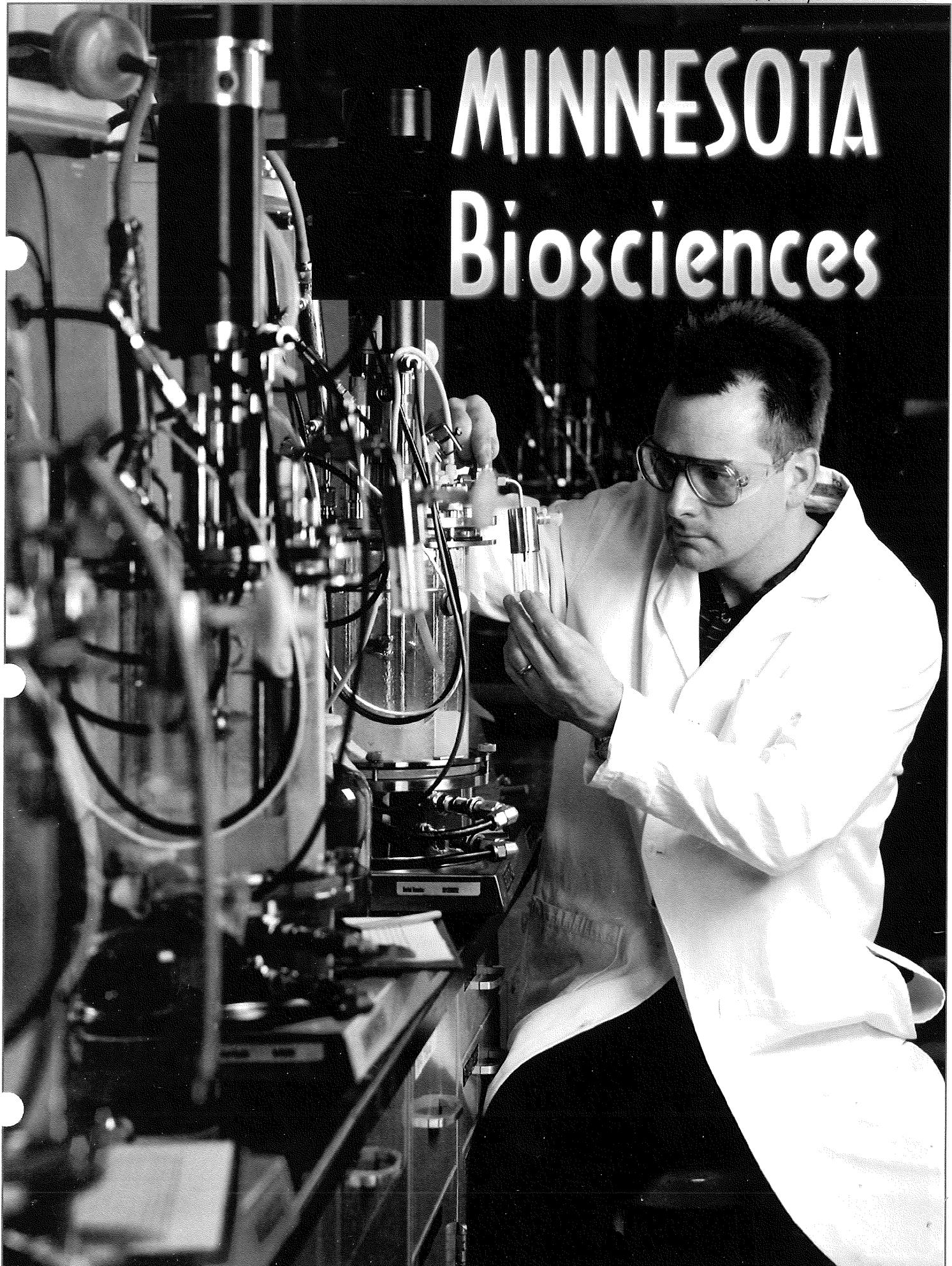
- Minnesota's 2003 Legislature created the **Bioscience Zone**. The zone, which will have two sub-zones located near the University of Minnesota and the Mayo Clinic, will provide tax incentives to existing and start-up bioscience companies (www.mnpro.com).

- The **Minnesota Bioscience Council** makes recommendations to the Governor and Legislature on economic development initiatives aimed at supporting the growth of Minnesota's bioscience industry. The Bioscience Council is made up of bioscience industry leaders, University of Minnesota and Mayo Clinic officials, venture capitalists, and legislators, and is staffed by the Department of Employment and Economic Development (www.positivelyminnesota.com).

- **Bioscience associations** include MNBIO (www.minnesotabiotech.org), the Society for Biomaterials (www.biomaterials.org), Medical Alley (www.medicalalley.org), and Minnesota Technology (www.minnstateotechnology.org).

"Attachment E"

MINNESOTA Biosciences



M

Minnesota stands poised to become a world leader in the bioscience industries. We are already on the leading edge with our rich heritage of agricultural, industrial, medical and technological innovation, as well as our entrepreneurial energy, business expertise skilled workforce and robust economic infrastructure. Today, we are in the early stages of a Minnesota bioscience revolution that will propel us into a position of national and global prominence in one of the most dynamic growth-oriented sectors of the economy.



Why Minnesota?

With a long tradition of creative research and business innovation, Minnesota already is a leader in several broad areas of the emerging bioscience sector: applied biologics, agricultural and industrial biotechnology, and the life sciences. We have the intellectual leadership, the corporate leadership, the public leadership, the financial capital, and the raw materials to ensure our pre-eminent position in the biosciences revolution. The pieces are in place and our vision is clear as we build Minnesota's biosciences future — a future that in many important ways is already here.

- Minnesota is home to the world's leading medical technology cluster, anchored by such home grown industry giants as Medtronic, Guidant and St. Jude Medical.
- The Mayo Clinic, the University of Minnesota and 3M are world leaders in health sciences, genomics, biotechnology and bioscience. Minnesota research has spun out new firms like Blizzard Genomics, Discovery Genomics, R & D Systems, Islet Technology and others.
- Minnesota's top two research institutions, the University of Minnesota and the Mayo Clinic, have announced their intention to form a new Minnesota Biotechnology and Genomics Center, and to unite their biomedical research efforts to create new treatments for disease and help launch biosciences startup companies.
- Cargill Dow — hailed by many as the "green Microsoft" — is emerging in Minnesota as a global leader in the bio-industry, using agricultural products to manufacture plastics, biosynthetic fabrics, packaging materials and other extremely useful products.
- Cutting-edge research is being conducted by Dr. Catherine Verfaillie at the University of Minnesota on adult stem cell technology — the basic building block for a new generation of regenerative medicine.

• In value-added food, nutrition and health industries, Minnesota's world leadership is long established through companies like Cargill, General Mills, Land O'Lakes and others — all of which are now applying new biological knowledge and processes to their enterprises.

- The Twin Cities rank first in the "World Knowledge Competitiveness Index" devised by Robert Huggins Associates, a consultancy in the United Kingdom that evaluated 300 regions around the globe on their ability to create new goods and services and turn them into economic value and wealth.
- With \$325.3 million in 2002, Minnesota ranked 14th in the country in venture capital investments by capital amount, and first among the 12 Midwest states. We also had by far the highest VC per capita ratio (\$65) in the Midwest region, more than double that of second place Missouri (\$30).
- Minnesota ranks fifth in the nation as home to *Fortune* 500 company headquarters.



Minnesota's Bioscience Initiative

Clearly the biosciences sector has the potential to become a large, fast growing and diverse component of Minnesota's economy. It can offer a dazzling array of exciting new business opportunities and a host of well-paying occupations over the entire range of education and experience levels. To encourage the continued development and growth of our emerging bioscience industries, Governor Tim Pawlenty has challenged the state's business, financial, academic and government leaders to collaborate in a bold and visionary initiative that places Minnesota firmly at the forefront of the global bioscience revolution. The initiative includes:

- Developing Minnesota Bioscience Parks, in close collaboration with public and private partners.
- Leveraging existing strengths and building on our competitive advantages, including the recently announced partnership between the University of Minnesota and the Mayo Clinic to form a new Minnesota Biotechnology and Genomics Center.
- Encouraging and stimulating investment in Minnesota bioscience entrepreneurs and enterprises.
- Investigating the creation of tax incentives for bioscience development.
- Seeking funding for a planned University of Minnesota Translational Research Facility.
- Protecting funding streams for basic research in the biosciences.

Contact Information

**Minnesota Department
of Trade and Economic Development**
Office of Marketing and Business Development
500 Metro Square
121 Seventh Place East
St. Paul, MN 55101-2146

1-800-657-3858
Fax: 651-296-5287
www.positivelyminnesota.com

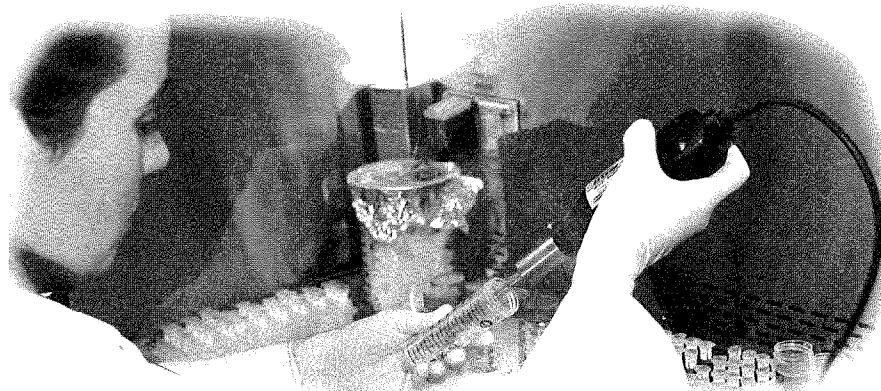
Mark Lofthus, Director
651-297-4567
mark.lofthus@state.mn.us

Gene Goddard, Bioscience Industry Specialist
651-296-7102
gene.goddard@state.mn.us

Patti Neuman, Medical Device Industry Specialist
651-297-1303
patricia.neuman@state.mn.us

Elaine Bliss, Director
Minnesota Trade Office
651-297-4222
elaine.bliss@state.mn.us

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CEO

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Office: 952.948.0303
Fax: 952.948.0305

email: mvanerdwyk@bioverse.com

1 Senator Vickerman from the Committee on Agriculture,
2 Veterans and Gaming, to which was referred

3 S.F. No. 515: A bill for an act relating to gambling;
4 providing for certain raffles; amending Minnesota Statutes 2004,
5 section 349.166, subdivision 1.

6 Reports the same back with the recommendation that the bill
7 be amended as follows:

8 Page 2, line 20, delete "\$500" and insert "\$1,500"

9 And when so amended the bill do pass. Amendments adopted.
10 Report adopted.

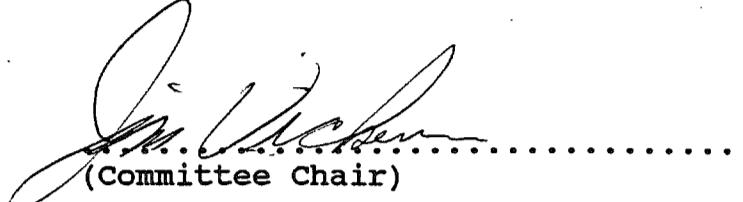
11
12 (Committee Chair)

13 February 21, 2005.....
14 (Date of Committee recommendation)
15

1 Senator Vickerman from the Committee on Agriculture,
2 Veterans and Gaming, to which was referred

3 S.F. No. 930: A bill for an act relating to gambling;
4 appropriating money for compulsive gambling prevention and
5 education.

6 Reports the same back with the recommendation that the bill
7 do pass and be re-referred to the Committee on Finance. Report
8 adopted.

9
10
11 
12 (Committee Chair)
13
14
15

February 21, 2005.....
(Date of Committee recommendation)

Senators Kubly; Vickerman; Neuville; Johnson, D.E. and Marty introduced--
S.F. No. 930: Referred to the Committee on Agriculture, Veterans and Gaming.

1 A bill for an act
2 relating to gambling; appropriating money for
3 compulsive gambling prevention and education.
4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:
5 Section 1. [APPROPRIATION.]
6 \$150,000 in fiscal year 2006 and \$150,000 in fiscal year
7 2007 are appropriated from the lottery prize fund to the
8 commissioner of human services for a grant to the Northstar
9 Problem Gambling Alliance, located in Arlington, Minnesota. The
10 Northstar Problem Gambling Alliance must provide services to
11 increase public awareness of problem gambling, education and
12 training for individuals and organizations providing effective
13 treatment services to problem gamblers and their families, and
14 research relating to problem gambling. Of this appropriation,
15 \$75,000 in each year of the biennium is contingent on the
16 demonstration of nonstate matching funds. Matching funds may be
17 either cash or qualifying in kind. The commissioner of finance
18 may disburse the state portion of the matching funds in
19 increments of \$37,500 upon receipt of a commitment for an equal
20 amount of matching nonstate funds.

Senators Tomassoni, Bakk and Lourey introduced--

S.F. No. 515: Referred to the Committee on Agriculture, Veterans and Gaming.

A bill for an act

relating to gambling; providing for certain raffles; amending Minnesota Statutes 2004, section 349.166, subdivision 1.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. Minnesota Statutes 2004, section 349.166, subdivision 1, is amended to read:

Subdivision 1. [EXCLUSIONS.] (a) Bingo, with the exception of linked bingo games, may be conducted without a license and without complying with sections 349.168, subdivisions 1 and 2; 349.17, subdivisions 1, 4, and 5; 349.18, subdivision 1; and 349.19, if it is conducted:

(1) by an organization in connection with a county fair, the state fair, or a civic celebration and is not conducted for more than 12 consecutive days and is limited to no more than four separate applications for activities applied for and approved in a calendar year; or

(2) by an organization that conducts four or fewer bingo occasions in a calendar year.

An organization that holds a license to conduct lawful gambling under this chapter may not conduct bingo under this subdivision.

(b) Bingo may be conducted within a nursing home or a senior citizen housing project or by a senior citizen organization if the prizes for a single bingo game do not exceed

1 \$10, total prizes awarded at a single bingo occasion do not
2 exceed \$200, no more than two bingo occasions are held by the
3 organization or at the facility each week, only members of the
4 organization or residents of the nursing home or housing project
5 are allowed to play in a bingo game, no compensation is paid for
6 any persons who conduct the bingo, and a manager is appointed to
7 supervise the bingo. Bingo conducted under this paragraph is
8 exempt from sections 349.11 to 349.23, and the board may not
9 require an organization that conducts bingo under this
10 paragraph, or the manager who supervises the bingo, to register
11 or file a report with the board. The gross receipts from bingo
12 conducted under the limitations of this subdivision are exempt
13 from taxation under chapter 297A.

14 (c) Raffles may be conducted by an organization without a
15 license and without complying with sections 349.154 to 349.165
16 and 349.167 to 349.213 if the value of all raffle prizes awarded
17 by the organization in a calendar year does not exceed \$1,500.
18 Raffles may be conducted without registering with the board as
19 provided in Minnesota Rules, part 7861.0130, if the value of all
20 raffle prizes awarded in the raffle does not exceed \$500 in a
21 calendar year.

22 (d) Except as provided in paragraph (b), the organization
23 must maintain all required records of excluded gambling activity
24 for 3-1/2 years.

"Attachment F"

"It Starts with HOPE: Diagnosing and Treating Problem Gamblers"

No
judgment.
Only
hope.

A CONFERENCE GIVING TREATMENT PROVIDERS AND OTHER PROFESSIONALS AN
OPPORTUNITY TO DISCUSS THE DIAGNOSIS AND TREATMENT OF PROBLEM GAMBLING.



The Northstar Alliance thanks the Minnesota Indian Gaming Association for helping to make this conference possible in conjunction with the National Council on Problem Gambling Awareness Week.

Join us for a day that could IMPACT your profession - and the LIVES of countless others.

According to a recent survey, 87% of Minnesotans were unaware of the treatment options available for problem gamblers. And 41% still believed that problem gambling could be controlled by willpower alone.

In the face of such awareness problems, this conference brings nationally and internationally known speakers to Minnesota for a fresh perspective. They will address a wide range of topics including pharmacology, youth gambling and treatment issues specific to rural areas.

And it all starts with hope. Please join us.

Keynote Speakers:

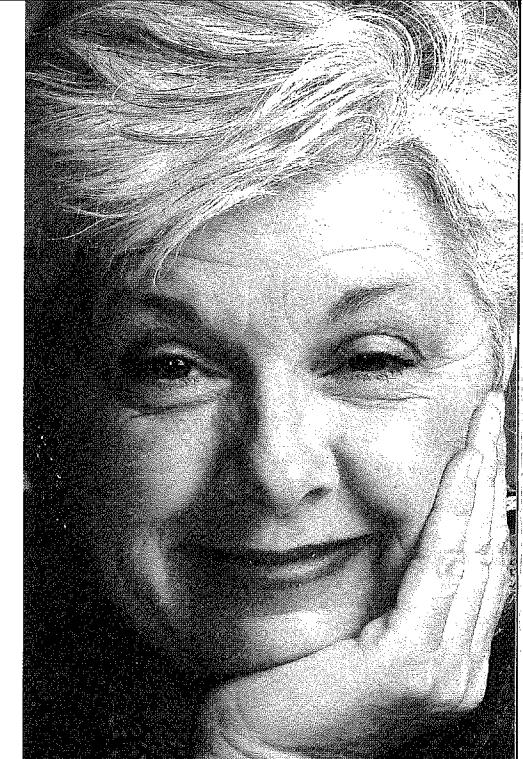
Jeffrey L. Derevensky, Ph.D.

Dr. Jeffrey Derevensky is a professor of school/applied child psychology in the department of educational and counseling psychology at McGill University. Dr. Derevensky is an associate editor of the *Journal of Gambling Studies* and sits on the editorial board of several journals. He is co-director of the McGill University Youth Gambling Research and Treatment Clinic as well as the International Centre for Youth Gambling Problems and High-Risk Behaviors. Throughout his career, Dr. Derevensky has been actively involved in identifying successful coping strategies employed by children in stressful situations, and has focused his attention on youth gambling issues and problems.

Keith S. Whyte

Keith Whyte has been the executive director of the National Council on Problem Gambling (NCPG) since October 1998. Previously, Whyte served as director of research for the American Gaming Association where he was responsible for research and public policy issues, including problem gambling. Known to national and international audiences, Whyte has testified before the United States Congress on gambling-related legislation. He is a member of the Editorial Board of *Gaming Law Review*, the Advisory Board of the *Weekly Addiction Gambling Education Report*, and the Editorial Advisory Board of *Responsible Gaming Quarterly*. Whyte also serves as a reviewer for *The Electronic Journal of Gambling Issues* and the Alberta Gaming Research Institute, and sits on the Advisory Board of the International Centre for Youth Gambling Problems and High-Risk Behaviors at McGill University.

Speakers (Continued Inside)



"It Starts with HOPE: Diagnosing and Treating Problem Gamblers"

Friday, March 14, 2003

Gloria Dei Lutheran Church
700 South Snelling Avenue
St. Paul, MN 55116

Continuing Education Units (CEUs)

Continuing Education Units (CEUs) have been applied for through the:

Minnesota Board of Social Work
Minnesota Board of Psychology
Minnesota Board of Marriage and Family Therapy
Minnesota Board of Pharmacy

Registration Fee and Deadline

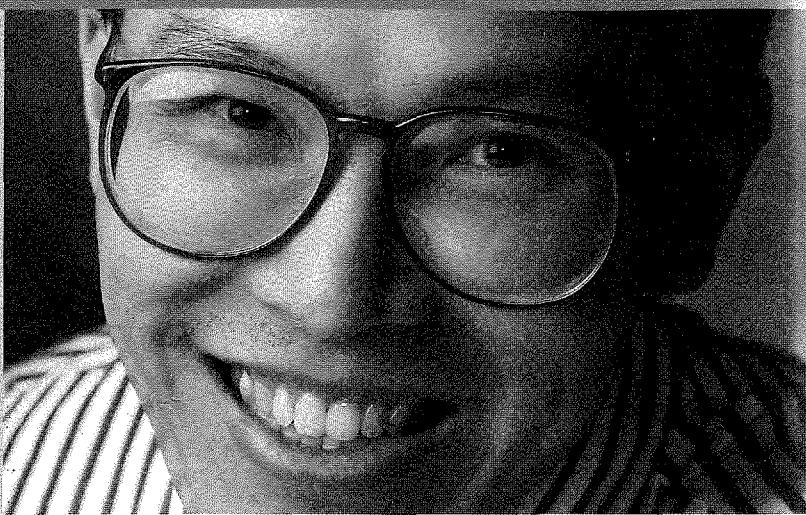
The conference fee is \$75, which includes lunch and conference materials.

Scholarships and student discounts are available. Registration deadline is March 5, 2003.

For more information about the conference, please call Miranda Anderson at (218) 829-3055.



"It Starts with HOPE: Diagnosing and Treating Problem Gamblers"



Conference Schedule

7:45 – 8:30	Registration/Continental Breakfast
8:30 – 8:40	Opening Comments/Welcome Roger Svendsen Vice President Northstar Problem Gambling Alliance Senior Program Officer Minnesota Institute of Public Health
	Audrey Kohnen President Prairie Island Indian Community Tribal Council Vice Chairman Minnesota Indian Gaming Association
8:40 – 8:50	Drum Ceremony The Prairie Island Drum Group
8:50 – 9:00	Video Presentation
9:00 – 10:15	Treating Special Populations: Males, Women, Teens and the Elderly Keith Whyte Executive Director National Council on Problem Gambling
10:15 – 10:30	Break
10:30 – 11:30	Keynote: Working with Youth and Problem Gambling: The McGill Model Jeffrey Derevensky, Ph.D. Professor of School/Applied Child Psychology McGill University
11:30 – 12:00	The Classification Accuracy of D.S.M. IV Randy Stinchfield, Ph.D., L.P. Associate Director Center For Adolescent Substance Abuse Research University of Minnesota Medical School
12:00 – 1:00	Lunch
1:00 – 2:00	Breakout Session I A. Psychopharmacological Treatments of Problem Gambling Jon Grant, M.D. University of Minnesota Department of Psychiatry B. Understanding the Unique Characteristics of Gamblers Lynn Rambeck, Psy.D. Doctor of Clinical Psychology and Licensed Psychologist

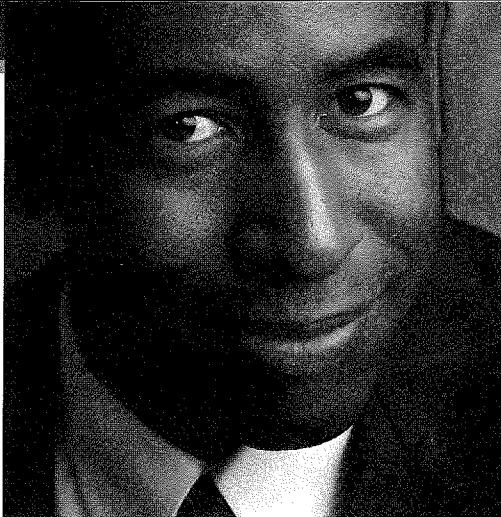
2:00 – 3:00	C. Treatment Provider Roundtable Breakout Session II A. Psychopharmacological Treatments of Problem Gambling Jon Grant, M.D. University of Minnesota Department of Psychiatry B. Understanding the Unique Characteristics of Gamblers Lynn Rambeck, Psy.D. Doctor of Clinical Psychology and Licensed Psychologist C. Becoming a Local Resource Jennifer Norberg Senior Account Executive Russell & Herder
3:00 – 3:15	Afternoon Break
3:15 – 4:15	It Starts with Hope: A Panel Discussion on Recovery Moderator: Elizabeth George Chief Executive Officer North American Training Institute
	Participants: Jeffrey Derevensky, Ph.D. Professor of School/Applied Child Psychology McGill University Mary Stream Recovering Gambler Keith Whyte Executive Director National Council on Problem Gambling Sandi Brustuen CCDC/R, NCGC Program Coordinator Vanguard Compulsive Gambling Treatment Program Lynn Rambeck, Psy.D. Doctor of Clinical Psychology and Licensed Psychologist Evaluation and Certificates Closing Remarks
4:15 – 4:30	
4:30	

Speakers (Continued From Page 1)

Randy Stinchfield, Ph.D., L.P.

Dr. Randy Stinchfield, a licensed clinical psychologist, is the associate director of the Center for Adolescent Substance Abuse Research at the University of Minnesota Medical School. As a consulting psychologist to treatment and research agencies, he has conducted studies and research in the area of problem gambling with adults and youth.

Dr. Stinchfield provided testimony to the National Gambling Impact Study Commission and was a contributor to the Committee on the Social and Economic Impact of Pathological Gambling, National Research Council, National Academy of Sciences. Dr. Stinchfield also serves on the editorial board for the *Journal of Gambling Studies*.



Jon Grant, M.D.

As a Minnesota Medical Foundation Endowed Research Fellow and a resident physician at the University of Minnesota Department of Psychiatry, Dr. Jon Grant has participated in a wide range of research studies. From testing the safety and efficacy of paroxetine to an examination of naltrexone's ability to reduce the urges and pleasures associated with gambling.

Lynn John Rambeck, Psy.D.

Dr. Rambeck is a licensed clinical psychologist. He uses wit, insight and practical clinical application to address the variety of psychodynamics at play in the gambler. He explores their motivational and defensive characteristics with a unique perspective that is as rare as it is useful.



Elizabeth M. George

As chief executive officer of the North American Training Institute, Elizabeth George was the architect of the highly regarded course "Counseling the Pathological Gambler." George is also the associate editor for program features for the *Journal of Gambling Studies* and sits on several other national and international panels. She is the co-editor of a book on underage gambling, *Futures at Stake: Youth, Gambling, and Society*, which will be released in early 2003.

REGISTRATION DEADLINE IS MARCH 5, 2003

Name: _____

Organization: _____

Address: _____

City/State/ZIP: _____

Phone: _____

Fax: _____

E-mail: _____



Mail form and payment to:
Russell & Herder
315 East River Road
Brainerd, Minnesota 56401
Attn: Miranda Anderson

Mary Stream

Mary Stream is from Red Wing, Minn. and has been working a recovery program for more than nine years. Mary shares her past emotional and spiritual pain, the bottom that brought her into recovery, and what her life is like today as she helps others recover from this baffling disease/addiction. She is a board member for the Northstar

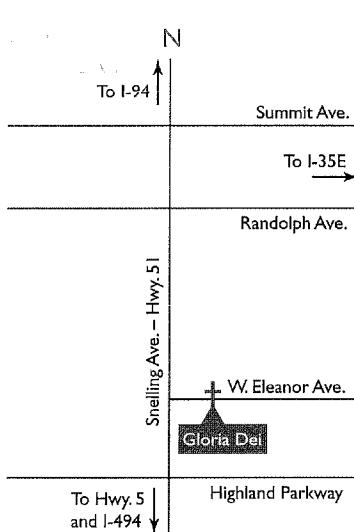
Problem Gambling Alliance and has done television and newspaper interviews, panels, workshops and training. Mary spent four years serving on the Department of Human Services Compulsive Gambling Advisory Committee and five years in gambling public relations.

Sandi Brustuen

Sandi Brustuen is the program coordinator for the Vanguard Compulsive Gambling Treatment Program in Granite Falls, Minn. As a nationally certified gambling counselor and a licensed alcohol and drug counselor, Brustuen has been involved with the treatment process of more than 1,000 compulsive gamblers since 1991. She has also co-authored *Pathological Gambling & Chemical Dependency – Similarities and Unique Characteristics*.

Directions

Gloria Dei Lutheran Church
700 South Snelling Avenue
St. Paul, MN 55116



Enclosed is a check for the \$75 registration fee made out to the Northstar Problem Gambling Alliance.

ADA needs: _____

Breakout Session Preferences:

Breakout Session I

- A. Psychopharmacology
- B. Unique Characteristics of Gamblers
- C. Treatment Provider Roundtable

Breakout Session II

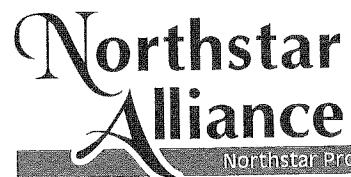
- A. Psychopharmacology
- B. Unique Characteristics of Gamblers
- C. Becoming a Local Resource

A CONFERENCE FOR TREATMENT PROVIDERS
AND OTHER PROFESSIONALS.



Northstar Problem Gambling Alliance, Inc.

c/o Russell & Herder • 315 East River Road • Brainerd, MN 56401



P.O. Box 555, Arlington, MN 55307

Phone: 507-964-5184

Fax: 507-964-2950

nppga@frontiernet.net

Northstar Problem Gambling Alliance, Inc.

"Our mission is to increase public awareness, promote the widespread availability of treatment for problem gamblers and their families, and to encourage education, research and prevention"

SYMPTOMS OF PROBLEM GAMBLING

TEN QUESTIONS TO ASK ABOUT PROBLEM GAMBLING

Are you a compulsive gambler? The National Council on Problem Gambling has ten questions for you to ask yourself:

1. Have you often gambled longer than you had planned?
2. Have you often gambled until your last dollar was gone?
3. Have thoughts of gambling caused you to lose sleep?
4. Have you used your income or savings to gamble while letting bills go unpaid?
5. Have you made repeated, unsuccessful attempts to stop gambling?
6. Have you broken the law or considered breaking the law to finance your gambling?
7. Have you borrowed money to finance your gambling?
8. Have you felt depressed or suicidal because of your gambling losses?
9. Have you been remorseful after gambling?
10. Have you gambled to get money to meet your financial obligations?

If you or someone you know answers "Yes" to any of these questions, consider seeking assistance from the Minnesota Problem Gambling Hotline by calling 1-800-333-HOPE or visiting www.miph.org/gambling.

SYMPTOMS OF PROBLEM GAMBLING

2-Question Screening Tool

1. Have you ever felt the need to bet more and more money?
2. Have you ever had to lie to people important to you about how much you gamble?

For more information on resources for problem gambling, please contact the Minnesota Problem Gambling Helpline.

**1-800-333-HOPE.
No Judgment, Only Hope.**

Northstar Alliance

The Northstar Problem Gambling Alliance, invites your membership, gift and participation.

Name _____

Organization _____

Address _____

City _____

State _____ Zip _____

Phone: _____

Fax _____

E-Mail _____

Members and Donors

Individual \$ 35 _____

Clinic/Agency \$100 _____

Corporate/Institution \$500 _____

(Above members receive copies of all newsletters, special announcements and mailings, a Northstar Alliance membership certificate, program discounts, access to resource center and invitation to the Northstar Alliance Annual Meeting.)

Founding \$10,000 and above _____

Leading \$5,000 to \$9,999 _____

Sponsor \$2,500 to \$4,999 _____

Benefactor \$1,000 to \$2,499 _____

(In addition to membership privileges, the above donors shall be invited to the Northstar Round Table Seminar and dinner of the Annual Meeting.)

Northstar Problem Gambling Alliance, Inc
P.O. Box 555
Arlington, MN 55307

Northstar Alliance

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P.O. Box 555, Arlington, MN 55307



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- To increase public awareness
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Fax: (507) 964-2950
ngpa@frontiernet.net

Gambling in Minnesota: An Overview

Gambling is one of Minnesota's most popular pastimes. More than 90 percent of Minnesota's adults have participated in some form of gambling in their lifetime, and four out of five gamble in any given year.

Minnesotans can gamble at over 3,000 retail establishments that sell Minnesota State Lottery tickets, or at one of the 3,000 locations selling charitable pull-tabs, bingo, raffles, paddlewheel games, or tipboards. We can find casino action at one of the 18 tribally-operated casinos in the state, or visit the card club or race track at Canterbury Park. Informal card games, office pools and other social wagers are a part of life for many, and of course we can also travel to one of the many gambling venues in bordering states or beyond. On the darker side, law enforcement officials report substantial organized illegal gambling activity. Total annual wagering in the state is estimated to be at least \$6 billion.

The citizens of the state have benefited in many ways. The Lottery has contributed over \$1 billion to a variety of state programs. Many worthy organizations have benefited from charitable gambling. Casinos have brought jobs, economic development, and opportunity to some of Minnesota's most impoverished communities, while the horse racing industry is intimately tied to Minnesota agriculture. And for most who participate, gambling has provided some well-deserved fun and entertainment.

But for some, it hasn't been fun and games.

Compulsive gambling is a disease, just like alcoholism or drug addiction. It's difficult to detect, and can have devastating effects on the gambler's family, friends, and employer. It can lead to bankruptcy, divorce, foreclosure, and even suicide. It affects thousands of Minnesotans each year. Fortunately, treatment of this disease is possible, available, and effective.

Problem Gambling Questions and Answers

What is problem gambling?

Problem gambling goes beyond normal kinds of gambling for fun, recreation or entertainment. Compulsive, or pathological gambling is the inability, over an extended period of time, to resist impulses to gamble. It is often characterized by increasing preoccupation with gambling and a general loss of control. Pathological gamblers often "chase" their losses, feel a need to bet more frequently and in larger amounts, and continue to gamble in spite of the serious negative consequences of their behavior.

Who becomes a problem gambler?

Problem gamblers can be male, female, young, middle-aged, old, wealthy, poor, white, or people of color.

Is someone who gambles a lot a compulsive gambler?

necessarily. Many people who gamble frequently are simply people who enjoy gambling as entertainment. Generally these people set aside a predetermined amount of money for gambling, gamble for fun rather than for the "certainty" of winning, recognize

that they are likely to lose, and don't bet more than they can afford to lose.

Is compulsive gambling associated with other mental health problems?

In many cases, the answer is yes. Various studies have found high rates of alcoholism, depression, anti-social personality disorder, mood disorders, and other conditions in compulsive gamblers, leading some researchers to believe that problem gambling is often a symptom of an underlying condition.

Can you have a gambling problem without being a compulsive gambler?

Much as it's possible to abuse alcohol without being an alcoholic, it's also possible to have gambling problems without being a pathological gambler. Often this sort of problem resolves itself without professional intervention, but sometimes can have serious consequences.

Do most people who gamble eventually become problem gamblers?

No. For the vast majority of those who choose to gamble, it remains a harmless form of entertainment.

Can problem gamblers be helped?

Yes. Studies have shown that treatment is effective in a great many cases. A wide range of programs exist, ranging from Gamblers Anonymous to inpatient treatment centers. There is no one program what is right for all people. If a treatment program hasn't work for a particular individual, a different program may well succeed. There are over 50 programs located throughout Minnesota with staff who are trained in the treatment of problem gambling.

Where can I find help for myself or a loved one?

Call the Minnesota Problem Gambling Helpline - 1-800-333-HOPE. No judgment - only hope.

What is the Northstar Problem Gambling Alliance?

Members of the Northstar Problem Gambling Alliance include therapists, people in recovery, researchers, members of the gaming industry, and other concerned citizens. We share a belief that problem gambling is a serious public health problem that is both treatable and preventable. We are neutral on gambling policy though we will advocate in public forums or programs that benefit problem gamblers and those affected by them.

Our mission is to:

- Increase public awareness
- Promote the widespread availability of treatment for problem gamblers and their families, and
- Encourage education, research, and prevention.

Who should join?

- Workers in the field of problem gambling
- Problem gamblers in recovery
- Researchers in the field of behavioral addictions
- Those affected by problem gambling
- Medical professionals, attorneys, counselors, and educators
- Workers and organizations in the gaming industry
- Government regulators and policy analysts

Problem Gambling: Cultural Diversity and Co-existing Disorders

Sponsored by Northstar Problem Gambling Alliance

March 12, 2004

**Gloria Dei Lutheran Church
700 South Snelling Avenue
St. Paul, MN**

Conference providing education, research, and networking opportunities for professionals, consumers, and concerned citizens.



The Northstar Alliance thanks the Minnesota Indian Gaming Association for
make this conference possible in conjunction with the National Council of
Gambling Awareness Week.

Problem Gambling: Cultural Diversity and Co-existing Disorders

Sponsored by Northstar Problem Gambling Alliance

This conference will provide participants an opportunity to:

- Better understand compulsive gambling and co-existing disorders
- Better understand multi-cultural issues and compulsive gambling
- Meet and network with others who work with problem gamblers
- Become more aware of available resources and services

CONFERENCE AGENDA

7:30	Registration/Continental Breakfast
8:00	Welcome and Overview of the Day Philip J. Kelly, President of the Board, Northstar Problem Gambling Alliance Opening Prayer/Peace Ceremony, Native American Drum Group
8:20	Cultural Diversity, Co-existing Disorders and Mandates for Treatment Harold Wynne, Ph.D., Wynne Resources
9:30	Break
9:45	Treatment Imperative: Remembering the Second Stage Earnie Larsen, E. Larsen Enterprises, Inc.
10:45	Break
11:00	Cultural Diversity and Co-existing Disorders: Treatment Crises or Opportunity Panel: Foung Heu, Minnesota Council of Nonprofits (moderator) Maxine Boswell, White Earth Reservation Pablo Obregon, Vanguard, Project Turnabout Sunny Sinh Chanthanouvong, Lao Assistance Center of Minnesota Efren Maldonado, Chicano Latinos Unidos En Servicio
12:00	Lunch

- 12:30 Trends in Minnesota Youth Gambling: Cross-cultural Comparisons
Randy Stinchfield, Ph.D., L.P., University of Minnesota Medical School
- 1:30 Break
- 1:45 Workshops
 - Steps to Change—Does "One Size" Fit All?
Earnie Larsen, E. Larsen Enterprises, Inc.
 - Recovering Gamblers Have an Agenda Too! You Might Be Surprised
Mary Stream, Mike J.
 - Helplines and Hotlines: Is There Help? Is There Hope? Our Experience and How We Fit In
Kelly Reynolds, Minnesota Institute of Public Health
- 2:45 Break
- 3:00 Workshops
 - Relating Research to Treatment Programs and Public Awareness
Harold Wynne, Wynne Resources; Randy Stinchfield, University of Minnesota Medical School
 - Recovering Gamblers Have an Agenda Too! You Might Be Surprised
Mary Stream, Mike J.
 - Helplines and Hotlines: Is There Help? Is There Hope? Our Experience and How We Fit In
Kelly Reynolds, Minnesota Institute of Public Health
- 4:00 Break
- 4:15 Are Our Research Needs Related to Cultural Diversity and Co-existing Disorders Being Met? What More is Needed?
Panel:
Harold Wynne, Wynne Resources (moderator)
Sunny Sinh Chanthanouvong, Lao Assistance Center of Minnesota
Donald Feeney, Minnesota State Lottery
Efren Maldonado, Chicanos Latinos Unidos En Servicio
Randy Stinchfield, University of Minnesota Medical School
Sharon Walp, Minnesota Department of Human Services
- 5:15 Concluding Remarks, Evaluation and Adjournment

REGISTRATION

Registrant Information

Registration must be received by March 5, 2004

Name _____

Organization _____

Address _____

City/State/Zip _____

Phone/Fax/Email _____

Fees/Amount Due

Conference fee \$75 (\$60 for Northstar Problem Gambling Alliance members). Fee includes lunch and conference materials.

Exhibit fee \$175 (\$60 for Northstar Problem Gambling Alliance members)

- Check enclosed made payable to Minnesota Institute of Public Health (MIPH). Please reference registrant name on check. Registration fees, less a \$20 administrative fee, will be refunded if written cancellation is received on or before March 5, 2004. Fees are nonrefundable after this date, however registration may be transferred to another person. No confirmations will be sent. For more information, contact Linda Ryden at MIPH, 763-427-5310.

Two Easy Ways to Register

- 1) Mail this form with payment to: Minnesota Institute of Public Health, 2720 Highway 10 NE, Mounds View, MN 55112-4092
- 2) Fax this form to: 763-427-7841 (MIPH will follow-up with invoice/payment)

Breakout Session preferences

Session 1: Steps to Change Recovering Gamblers Helplines & Hotlines
Session 2: Relating Research Recovering Gamblers Helplines & Hotlines

Special Meals/Needs

Vegetarian meal requested Special needs with meals _____

Americans with Disabilities Act (ADA) Individuals with disabilities needing a reasonable accommodation to participate in the event should indicate this request in the space provided on the registration form. All requests must be submitted by March 5, 2004. If you have any questions, please contact Linda Ryden, MIPH, at 763-427-5310.

This brochure produced by the Minnesota Institute of Public Health. Registrations and logistics for this conference are being handled by MIPH, 2720 Highway 10 NE, Mounds View, MN 55112-4092; 763-427-5310.

GENERAL SESSION SPEAKERS

Earnie Larsen

Earnie has a BA degree in Philosophy from Immaculate Conception in Oconomowoc, Wisconsin, a Masters of Religious Education from Loyola University, Chicago and a Degree in Counseling with accreditation in chemical dependency and family counseling from the University of Minnesota. Earnie has made a video series for treatment centers, has been heard on hundreds of radio stations, and has appeared on television shows including Oprah Winfrey, CNN and the Sally Jessie Raphael show. Earnie created and wrote the initial structure and content of the "Life Management Program," which is used in Australia, England and Ireland, as well as by hundreds of professionals who have been trained to provide Life Management in the United States. As of 2003, Earnie has written approximately 60 books, produced 35 videos, made 15 audio tape albums and more than 20 single audio tapes.

Randy Stinchfield, Ph.D., L.P.

Dr. Randy Stinchfield, a Licensed Clinical Psychologist, is the Associate Director of the Center for Adolescent Substance Abuse Research at the University of Minnesota Medical School. He has conducted research in problem gambling with adults and youth for over a decade. Dr. Stinchfield provided testimony to the National Gambling Impact Study Commission and was a contributor to the Committee on the Social and Economic Impact of Pathological Gambling, National Research Council, National Academy of Sciences. Dr. Stinchfield serves on the editorial board for the *Journal of Gambling Studies* and was the recipient of the 2002 National Council on Problem Gambling Research Award.

Harold Wynne, Ph.D.

Dr. Wynne has three decades of experience as a community development practitioner, adult educator and social science researcher. As CEO to three Canadian human development organizations, he has planned and implemented hundreds of social service, adult education and research programs. Dr. Wynne has conducted many seminal gambling and problem gambling studies, and he continues to advise governments, community organizations, and the gaming industry on gambling policy, program and research initiatives. Dr. Wynne lectures and conducts research on gambling topics and he is the co-developer of the widely used Canadian Problem Gambling Index. He holds academic appointments at the University of Alberta and McGill University, and serves as a research advisor to national and international institutions, including the Ontario Problem Gambling Research Centre, International Centre for Youth Gambling Problems and High Risk Behaviours (McGill University); Institute for Research on Pathological Gambling and Related Disorders (Harvard University); and Canadian Centre on Substance Abuse. Dr. Wynne is a co-editor of the International Gambling Studies Journal, and serves on the Editorial Boards of the Journal of Gambling Studies, The WAGER, and eGambling. Dr. Wynne has been recognized for his contributions to the field of gambling studies, and in September 2003, he received the International Excellence Award from the Responsible Gambling Council (Ontario).

2nd Annual Conference

**Problem Gambling:
Cultural Diversity and
Co-existing Disorders**

Sponsored by Northstar Problem Gambling Alliance

March 12, 2004

**Gloria Dei Lutheran Church
700 South Snelling Avenue
St. Paul, MN**

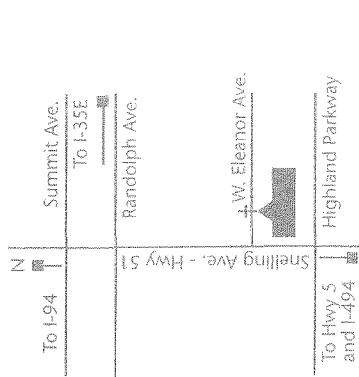
Continuing Education Units (CEU's) have been applied for through:

**Minnesota Board of Social Work
Licensing Board of Psychology
Minnesota Board of Dietitians
Minnesota Board of Speech Pathology
Minnesota Board of Physical Therapy**

Minnesota Institute of Public Health

**2720 Highway 10 NE
Mounds View, MN 55112-4092**

**Directions: Gloria Dei Lutheran Church
700 South Snelling Ave., St. Paul, MN 55116**



To Hwy 5 and I-94

To I-35E

Summit Ave.

Randolph Ave.

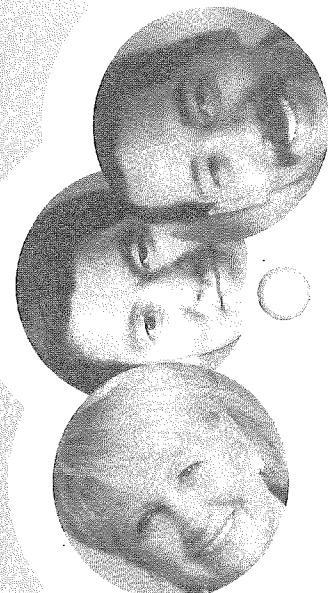
W. Eleanor Ave.

Hwy 5

I-94

I-35E

Highland Parkway



Legislative Arguments

2005 - 2006

- **The Northstar Problem Gambling Alliance, Inc.** is a private non-profit gambling neutral entity that, as a non-governmental entity, can do some things that government can't. For example:

We bring together **all** of the diverse parties involved in gambling, -all of the gambling venues in the State of Minnesota including The Minnesota State Lottery, Canterbury Park, Allied Charities of Minnesota, The Minnesota Indian Gaming Association and the Independent Tribal Nations, and other **stakeholders** such as residential treatment providers, out-patient providers, financial service providers, lawyers, academic and practical research, and recovering persons, - and **gatekeepers** such as clergy, school counselors, teachers, and probation officers, - to the same table, which is **gambling neutral** by definition, to address our primary mission which is **concern, advocacy and support for the problem gambler and those affected by problem gambling**. No other agency has been able to bring this diverse group together.

- We produce a quality newsletter called the ***Northstar Roundtable*** which is available to all stakeholders, gatekeepers, providers of services, legislators and other policy makers, and related agencies. We initiated this important effort because the State of Minnesota DHS Compulsive Gambling Advisory Committee and program eliminated this much needed professional and public information venue.
- When DHS dropped the Annual Problem Gambling Awareness Week Conference for providers, stakeholders, gatekeepers and all other interested parties, a very important statewide event held in conjunction with the National Council on Problem Gambling's National Awareness Week, we picked that up as well in 2003. (See our brochures for the 2003, 2004, and 2005 Minnesota Problem Gambling Awareness Week Conferences.)
- We are working with the Inter Faith Community in developing training programs and other ways that local faith communities can help their own effectively deal with the problem gambler and families and others affected by problem gambling. This includes participation by **all** faith systems. No other profession has such immediate and broad exposure to Minnesotans. However, clergy and other religious professionals are not trained, at this point, to see, listen for, or recognize problem gambling issues.
- Two other action committees are The Financial Services Industry Committee and The Judiciary/Legal Services Committee. Both of these committees involved research, white papers, and practical "what do we need to know" brochures for providers of services, clients and customers.
- We would like to begin a more aggressive program of research for the State of Minnesota. As is painfully clear, we lack good information and research regarding all aspects of gambling and co-existing mental illness disorders. Part of the reason is that gambling has only been given appropriate attention in the last decade, in contrast to drugs and alcohol addiction, which has close to a century of research.
- We have been chosen by the **National Council on Problem Gambling** in Washington, D.C. to be its official Minnesota Affiliate.
- **Why and how would the funds be used?** The State, itself, is directly and significantly involved in the gaming industry. The funds would be matched dollar for dollar with non-state funds, and used for:
 - Operating expenses
 - Fact sheets
 - Brochures for specific audiences
 - Research start up funds
 - Public information
 - Training for stakeholders, gatekeepers and providers
 - Expand newsletter to be "online". Create website

Northstar Alliance

The Northstar Problem Gambling Alliance, Inc.

BOARD OF DIRECTORS:

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President

Administrator

Project Turnabout

Roger Svendsen, MS

Vice President

Minnesota Institute of
Public Health

John McCarthy

Secretary

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Minnesota Indian
Gaming Association

Don Feeney, MS, MPP

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Randy Stinchfield, Ph.D.

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Mary Stream

Recovering Person

King Wilson

Executive Director
Allied Charities of
Minnesota

Ken Winters, Ph.D.

Dept. of Psychiatry
University of Minnesota

EXECUTIVE DIRECTOR:

T. Lance Holthusen

"Attachment J"

Northstar Problem Gambling Alliance, Inc.

P.O. Box 555, Arlington, MN 55307

Phone: 507-964-5184

Fax: 507-964-2950

E-mail: npga@frontiernet.net

FOR YOUR INFORMATION: NORTHSTAR PROBLEM GAMBLING ALLIANCE, INC.

The Northstar Problem Gambling Alliance, Inc., a non profit organization, came into being as a result of a concern that there was not an independent entity, representing *at the same table*, the concerns of all of the stakeholders and gatekeepers in the arena of problem gambling in the State of Minnesota and this Region.

Stakeholders are defined as those who have a vested interest in gambling, including all of the gambling venues such as The Minnesota State Lottery, The Minnesota Indian Gaming Association, the independent tribal communities, Allied Charities of Minnesota, and Canterbury Park, as well as the recovering compulsive gambler, and those affected by problem gambling, such as families and friends, retail finance and banking, the judicial system, and information transfer systems.

Gatekeepers are defined as those who provide a door to recovery or other appropriate help, such as researchers who help to provide reality regarding the issue of problem gambling, school counselors, clergy, physicians and nurses, county social workers, and residential and out patient treatment providers.

Despite our sometimes conflicting missions we all share one commonality, the belief that *problem gambling* is a serious public health issue, and that it is both treatable and preventable. There is help and there is hope.

Our mission is to:

1. Increase public awareness
2. Promote the widespread availability of treatment for problem gamblers and their families, and
3. Encourage education, research and prevention.

We are emphatically *neutral* on gambling policy, though we will advocate in public forums for programs that benefit problem gamblers and those affected by problem gambling. Our mission can be summarized that we serve the problem gambler and those affected by problem gambling.

The Northstar Alliance officially began operations September 1, 2002. We cooperate with the National Council on Problem Gambling and the State of Minnesota DHS Compulsive Gambling Program. As an example of our cooperation with them we sponsored the 2003 National Problem Gambling Awareness Week Annual Conference in Minnesota held March 14, 2003.

We commend The State of Minnesota DHS Compulsive Gambling Program, other state entities, and their initiatives in the problem gambling arena, and seek continuing support and collaboration with their efforts in whatever way appropriate.

Problem Gambling's Impact on Family and Others

April 1st, 2005 at Gloria Dei Lutheran Church, St. Paul, MN

**A Training Conference Sponsored by
The Northstar Problem Gambling Alliance, Inc.**

Northstar is the Minnesota Affiliate of the National Council on Problem Gambling, Washington, DC

Co- Sponsored by:

**Canterbury Park Minnesota Fund and Minnesota State Lottery
With**

**Lutheran Social Service of Minnesota, Project Turnabout-Vanguard, New Wave Training, and
Lake Superior Area Family Services**

(Tentative) Agenda

Moderator: T. Lance Holthusen, Executive Director NPGA

8:00 – 8:30 AM: Registration and Continental Breakfast.

8:30 – 8:45 AM: Welcome, Overview and Opening Remarks.

Sponsor's Welcome: Randy Sampson, President of Canterbury Park

8:45 – 9:30 AM: *One Family's Saga.* Speaker: Nancy Dahlin-Teich, BSW, Social Service Supervisor, Isanti County Family Services, Cambridge, MN.

9:30 – 10:30 AM: *How Problem Gambling Impacts Families.* Lisa Vig, LAC and NCGC, Director, and Dawn Cronin, LSW and NCGC, both of gambler's Choice, a program of Lutheran Social Service of North Dakota.

10:30 – 10:45 AM: Break and Refreshments.

10:45 – 11:45 AM: Panel: *Treatment and Recovery Services for Families, Friends, and Others.* Moderator: Steve Dettinger, Executive Director, Lake Superior Area Family Services.

Panel: Greg Anderson, LP MSW, Senior Therapist, Lake Superior Area Family Services, Duluth, MN.

Greg Robertson, MSW, Fairview Recovery Services, Minneapolis, MN.

Kelly Reynolds, MA, L.I.C.S.W., Director, Minnesota Problem Gambling Helpline Roseville, MN.

Sandy Brustuen, Project Turnabout-Vanguard, Granite Falls, MN.

**2005 3rd Northstar Alliance Annual Awareness Conference, Continued.
(Tentative Agenda) Page 2 of 4.**

11:45 – 12:15 PM *Update on Gambling Research and Youth Gambling in Minnesota, Part 1: Gambling Treatment Outcomes Monitoring system,* Randy Stinchfield, Ph.D., Dept. of Psychiatry, University of Minnesota Medical School.

12:15 – 12:45 PM: Lunch Break

Sponsor's Welcome: Clint Harris, Executive Director, Minnesota State Lottery

12:45 – 1:15 PM: Randy Stinchfield, Ph.D., Part 2: *2004 Student Survey.*

1:15 – 2:15 PM: *What About a Minnesota Gambling Court?* Speakers: The Honorable Gary Larson, Ass't Chief Judge of Hennepin County and Presiding Judge of Hennepin County Drug Court; Marjorie Rapp, Attorney, Bridgeport Family Law, St. Paul and Mantorville, MN.

**2:15 – 3:15 PM: Panel(Those in recovery and/or affected by problem gambling): *How Effective Are Present Treatment and Counseling Services In Minnesota?*
Moderator: Kathleen Porter, Program Manager, State of MN DHS Compulsive Gambling Program.**

**Panel: Mike J. (Panel includes recovering persons and affected persons.)
Mary S.
Nancy D.
Len P.**

3:15 – 3:30 PM: Short Break and Refreshments.

3:30 – 4:30 PM: Panel: *Financial Impact of Problem Gambling On Families and the Road Back.*

**Moderator: Don Feeney, Director of Research and Planning, MN State Lottery
Panel: Todd Sipe, Executive Vice President Greater MN Bremer Bank.
Susan Aulie, Senior Director Financial Services LSS MN, Duluth.
Others**

4:30 – 4:45 PM: Closing Remarks, Evaluation and Adjourn.

CEUs Applied for with the following:

MN Bd. of Social Work

MN Bd. of Psychology

MN Bd. of Marriage and Family Therapy

MN Bd. of Pharmacy

MN Bd. Of Legal Education

2005 Northstar Alliance Annual Awareness Conference, Continued (Tentative Agenda) Page 3 of 4.

Registration Form

3rd Annual Minnesota Problem Gambling Awareness Conference:

Problem Gambling's Impact on Family and Others

April 1st, 2005 at Gloria Dei Lutheran Church
700 S. Snelling Avenue, St. Paul, MN

Registration Deadline is March 23rd, 2005

Name _____

Organization _____

Address _____

City _____ State: _____ Zip: _____

Phone: _____ E-Mail: _____

Mail form and payment to:
Northstar Alliance
Box 555
Arlington, MN 55307
(Checks payable to
Northstar Alliance)

- I am a member of the Northstar Alliance. Enclose is my check for \$75.00.
 I'd like to join. Enclosed is my check for \$75.00 plus _____ for my chosen level of membership:
____ \$35 \$100 \$250 \$500
(Add membership in the National Council for just \$35.00 more.)
 Enclosed is my check for \$110.00 Registration as a non-member.

Questions: 1-507-964-5184

E-Mail: npga@frontiernet.net

**Northstar Alliance 2005 Annual Awareness Conference, Continued.
Page 4 of 4.**

The following is information that should be in a separate boxes someplace in the brochure:

***NEW WAVE TRAINING
2005 SCHEDULE:***

One Day Training: May 6 in Duluth, Sept. 30 in Minneapolis

**60 Hour Training: "Working With the Compulsive Gambler"
May 9-14, also in Minneapolis**

**Courses approved by the American Council on Compulsive Gambling
and The MN Dept. of Human Services Fee-For-Service Program.**

**For More Information Contact: Judy Gaskill, New Wave Training, 6915 Three Lakes Road, Canyon, MN 55717 E-Mail:bgaskill@cpinternet.com
Or call:1-218-345-8042.**

The Northstar Problem Gambling Alliance, Inc., a 501(c)(3) non-profit entity is the Minnesota affiliate of the National Council on Problem Gambling, and cooperates with the State of Minnesota DHS Compulsive Gambling Program. It represents the concerns of *Stakeholders* and *Gatekeepers* in the State of Minnesota and this Region.

Northstar Alliance is emphatically *neutral* on gambling policy, though we will advocate in public forums for programs that benefit problem gamblers and those affected by problem gambling. *Our mission can be summarized that we serve the problem gambler and those affected by problem gambling.*

**T. Lance Holthusen, Executive Director
Box 555
Arlington, MN 55307
(Phone: 507-964-5184; Fax: 507-964-2950; E-Mail: npga@frontiernet.net)**

NORTHSTAR ROUNDTABLE

The Newsletter of the Northstar Problem Gambling Alliance

Volume 2 • Issue 1

Winter 2005

From the Executive Director

Isn't it interesting that some of the best selling Christmas gift items for 2004 were anything related to "Texas Hold'em", chips or other gaming supplies. Surprised store managers mused that they couldn't keep enough of them in stock.

No, this is not going to be a litany of horror stories, bankruptcies or suicides. In this editorial I want to make a simple point: The State of Minnesota needs to catch up.

Our understanding of the harmful impacts of gambling activity, legal and illegal, and the relative amount of research, treatment, money and other resources invested thereto, is where we were with drugs and alcohol in the 1940s and 1950s. With drugs and alcohol, and now even smoking, we have come a very long way. But even there, as the article below suggests, we still have much to learn about all aspects of addiction and compulsive behaviors.

We have a long way to go, particularly in the area of problem gambling .For example, the State of

Minnesota budgets about \$1.5 Million per year for its Compulsive Gambling Program. It budgets over \$100 Million annually for drug and alcohol programs. Is the harm caused by drug and alcohol use in Minnesota, greater than the harm cause by gambling by a factor of 70? We just don't know, and we behave as if we are afraid to even ask the question. We invest very little in research. Funding for treatment is limited to the extent that not only are gambling counselors leaving but fewer and fewer candidates are entering the field.

In September some 80 stakeholders, gatekeepers, and others interested in problem gambling issues met to participate in Joel Barker's *Implications Wheel®* process. The results suggest that not only does Minnesota not have adequate funding,

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Addictions: Separate or Syndrome?

The American Psychiatric Association lists pathological gambling as a separate and distinct disorder in the fourth edition of its Diagnostic and Statistical Manual. And indeed gambling addiction has its own treatment specialists, professional journals and societies, and 12 step programs.

A small but growing number of researchers and clinicians, however, believe that gambling and other "excessive behaviors" are symptoms of a broader

addiction syndrome, and that advances in treatment and prevention can best result from recognition of what different addictions have in common. At a December 2004 conference, Dr. Howard Shaffer of the Harvard Medical School likened the prevailing view of addictions to the early days of AIDS diagnosis, when physicians treated symptoms, but did not recognize their association with an underlying immune system disorder.

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From the Executive Director

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but that if it continues on its present course it will go backward at an increasingly harmful rate. I have often pondered how helpful it would be if, for every dollar spent on advertising for gambling, an equal amount would be invested on dealing with gambling information, problem prevention, research, counseling and treatment. Needless to say the usual response is laughter and "how naïve!". Is it?

Gambling in Minnesota is here to stay. We depend on it as the revenue source for an increasing number of programs and businesses in Minnesota. Whose responsibility is harm prevention, reduction and treatment? We all need to more aggressively step up to the plate. The longer we wait, the greater the consequences.

-T. Lance Holthusen, Executive Director

Problem Gambling: What the Public Thinks (and Why It Matters)

Problem gambling is not new. There are numerous examples of clinically accurate descriptions dating back to the 17th century. Many of these are phrased in moral terms. M.L. Weems wrote in 1812 of "God's revenge against gambling exemplified in the miserable lives and untimely deaths of a number of persons from both sexes, who had sacrificed their health, wealth, and honor at the gaming tables," while Samuel Johnson advised a gambler in 1750 to "rouse from this lazy dream of fortuitous riches." Excessive gambling (and often any gambling) was seen as a moral weakness, and gamblers could choose either to repent or to suffer the consequences of shame, dishonor, and damnation.

Freud was among the first to see gambling as something other than a moral problem, placing it in the same category as alcoholism and drug dependence and a fit subject for psychoanalysis. These days phrases like "illness," "behavior disorder," or "progressive disease" are commonly used when describing compulsive gambling. We've come a long way.

Three out of five Minnesota adults believe that "controlling problem gambling is mostly a matter of willpower."

Or have we? Does Joe Citizen believe in the medical model? Or does the public still make the moral judgments of M.L. Weems? The answer sheds light on the attitudes of public officials towards problem gambling and the reaction that family, friends, employers, and the community are likely to have when someone comes forward with a gambling problem.

In surveys conducted over the past two years, the Minnesota State Lottery has asked the public for their opinions on issues related to problem gambling. These surveys, conducted by the survey research center at St. Cloud State University, shed a great deal of light on a previously unexplored corner of problem gambling research.

The surveys found that the public is torn between the medical and morality models. Forty-four percent of the public agreed that "the main cause of compulsive gambling is moral weakness." An identical 44 percent disagreed, while 11 percent

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didn't know. You don't go to a clinic for a moral weakness.

Three out of five Minnesota adults believe that "controlling problem gambling is mostly a matter of willpower." Again, willpower is not a medical intervention. The medical model prevails on one count, however. Nine out of ten agree with Freud that "problem gambling is an addiction just like alcohol or drug addiction."

The public is also pessimistic about the benefits of treatment. Only 27 percent agreed that "treatment for problem gambling is often successful." If someone doesn't believe that treatment is effective, how hard will they try to get a spouse, friend, or relative to a clinician? This is consistent with a national survey that found fewer than one in three agreeing that "the majority of those who seek treatment for addiction to alcohol or drugs achieve life-long recovery."

Stereotypes of the problem gambler are also common. Forty-one percent agreed that "poor people are the most likely group to become addicted to gambling." Biases like this have the effect of marginalizing the problem gambler, leading to a view of the gambler as being different than ourselves, and perhaps less worthy.

Finally, the public believes that compulsive gambling is rampant. When asked "what percentage of Minnesota adults have a gambling addiction?", only 4 percent answered "1 percent or less." Eighteen percent said the rate was between 2 percent and 5 percent, 14 percent said it was between 6 percent and 10 percent, 13 percent though it was between

11 percent and 20 percent, and 21 percent of the public thought that more than one Minnesota adult in five had a "gambling addiction."

Most who work with problem gamblers believe that the problem is psychological and medical, not moral. They believe that problem gambling cuts across the socio-economic spectrum. They believe it is prevalent among a relatively small percentage of the population. And they believe that treatment works (though not all the time). These data suggest that a large segment of the general public thinks the opposite.

Why do we care? Well, we want people to enter treatment. We want their circle of friends and family to be appropriately supportive. We want the legislature to fund our programs. How many of these goals can be accomplished with a common perception that problem gambling is a moral weakness, that it can be controlled through greater will-power, and that treatment doesn't work?

The Department of Human Services has decided to focus on a simple message: Treatment is available. It is affordable. And it works. This by itself is a critical message to communicate to the public. But we need to do more to educate the public on the truth about problem gambling. Doing so can only help in our efforts to reach more problem gamblers earlier in their disease and return them as productive members of society.

The author would like to acknowledge his debt to Dr. Bo Bernhard's work on this topic.

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Separate or Syndrome?

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Shaffer recognizes that individual addictions each have some unique components. Chasing losses, for example, is unique to gambling, while infections from needle use result from substance abuse. His list of commonalities, however, is much more extensive. The same genetic risk factors, for example, seem to be involved in multiple addictions. The same risk factors—impulsivity, delinquency, poverty—are found in addicts of all stripes. Symptoms such as tolerance, withdrawal, shame, deceit, guilt, depression, and anxiety do not distinguish one addiction from another. And treatments have much in common, as evidenced by the spread of “12 step” programs from one addiction to another.

The idea of a common addiction syndrome is not new. Dr. Julian Taber, for example, wrote in 1991 that “whatever the addiction, the mood cycle is the same, the progression of use is the same, the immature personality organization is the same, the withdrawal is similar, the social consequences are equally drastic, and the tendency to be multiply addicted is the same.” Dr. Durand Jacobs and colleagues noted similarities between alcoholics, pathological gamblers, and compulsive overeaters as early as 1985. Jacobs wrote in 1989 that “addicts of markedly disparate types share a common dissociative-like experience when indulging that clearly sets them apart from normal groups ... who also indulge in the same types of substances or activities.” More recently, Jacobs has stated that some individuals have a greater predisposition for an addiction, and that this predisposition has both biological and psychological components.

Shaffer expands on these earlier theories by citing biological and psychological evidence from studies done on a wide range of addictive behaviors. It has been found, for example, that drugs such as alcohol, cocaine, and heroin, and behaviors such as gambling can stimulate the brain’s reward system in a similar way (particularly involving the brain

chemical dopamine). Some scientists believe that a malfunction in the dopamine system makes one vulnerable to addiction. Other studies have found common genetic vulnerabilities to different addictions. One study, for example, linked the same genes to alcohol dependence and pathological gambling. No studies cited by Shaffer could find addiction-specific genetic links, that is, genes associated with one type of addiction but not others.

Numerous studies also find common psychological risk factors among those suffering from addictions. Conditions such as major depression and posttraumatic stress disorder have been found to precede a variety of addictions, though research on the links between these conditions and behavioral addictions is limited.

Addiction, according to Shaffer, results from a highly complex interaction between biological factors, psychological factors, a person's environment, and exposure to an addictive object at a critical time.

Finally, the same social risk factors appear to be present in a variety of addictions. Poverty seems to be one common link. Poor parental supervision and juvenile delinquency are others, though we don’t know the extent to which these are causal or just an indicator of higher risk.

Are some people, then, destined to become addicts? Shaffer stresses that as with many other medical conditions, predisposition does not mean the condition is inevitable. We know, for example, that some people are more likely to become obese or to develop hypertension than others, but not all of those at risk develop the condition. In fact, knowledge of the risk factors can lead to changes in behavior and to therapies that make development of the condition less likely. Addiction, according to Shaffer, results from a highly complex interaction between biological factors, psychological factors, a person’s environment, and exposure to an addictive object at a critical time. Some with multiple risk factors will never develop an addiction, either by luck or by the acquisition of preventative techniques. And some with relatively few factors can still develop a problem when exposed to

the right agent under the right circumstances at the right time.

Rethinking individual addictions as a common syndrome suggests rethinking treatment with a focus on the underlying condition rather than the object of the addiction. Jacobs suggests a three-pronged approach to addiction treatment, involving the teaching of stress management techniques, addressing and resolving underlying psychological problems and learning skills to cope with everyday reality. Shaffer and colleagues believe that "conventional wisdom discourages clinicians from paying sufficient attention to the underlying core of addictive behaviors." They propose a multi-modal "cocktail" approach with elements that address the overall addiction syndrome and others that deal with the specific addiction. Both the gambler and the alcoholic, for example, might benefit from improved coping skills, but the gambler must deal with unique financial issues while the drug abuser may have unique medical issues. Shaffer also believes that concentrating on the addiction object can lead therapists to ignore "addiction hopping" between chemical and behavioral addictions. Drs. Jon Grant and S.W. Kim have found that some of the same medications can be effective on addictions ranging from gambling to sex to kleptomania to chemicals, but emphasize that the medications must be combined with more traditional forms of therapy to have the greatest effect.

Prevention efforts may also need to be seen in a different light. With many physical diseases we focus prevention on those most at risk. Could the same be done for addiction? Jacobs has advocated that schools focus on teaching coping and life skills such as stress management, how to deal with emotions, and self-acceptance rather than focusing on specific behaviors such as drugs or gambling. Schools may welcome the opportunity to teach skills rather than being pressured to add curricula for one individual addiction after another. Too broad an approach, however, can ignore the dangers of non-addictive abuse. Teaching the risks of

drinking and driving, for example, is not about preventing addiction.

And what of the gambling industry, and those who produce or market other "addictive" items? If the item itself does not cause the addiction, and the addiction is an indicator of underlying biological and/or psychological conditions, does the industry bear any responsibility?

People are more or less predisposed to an addiction. But predisposition is not destiny. There is a moment (or moments) of truth when the potential addict is exposed to the addiction object at the right time. Clearly the object plays a role. We don't know much about how that moment can be made safer, but common sense suggests that it can be done. The involved industries need to consider how a particular environment or design or marketing strategy might affect the person on the edge. And it is well-accepted that businesses have a responsibility to those who have crossed the line. The existence of a genetic predisposition does not absolve the bartender from taking steps to ensure that someone who has imbibed too much doesn't drive. There are likely also moments of truth when exposure to the right message at the right time can push someone to make the first steps to recovery or to make someone teetering on the edge of an addiction think twice. Industry has a responsibility to learn what that message is and then to provide it.

Shaffer believes that viewing different addictions as indicators of a common syndrome can only lead to improved treatment and prevention efforts. He urges those treating chemical addictions to consider treatment methods used by those treating behavioral addictions and vice-versa, and concludes that "the necessary tools for improving addiction treatment might be already available. All that is required to enhance the use of these devices is a re-thinking of addiction." Cooperation between clinicians, researchers and businesses involved in a wide range of addictive objects can only hasten that rethinking.

Is problem gambling merely one manifestation of a larger syndrome? Share your thoughts on this article for the next issue of Northstar Roundtable. Write us at P.O. Box 555, Arlington, MN 55307 or e-mail us at npga@frontiernet.net

Interview with Dr. Harold Wynne

Harold Wynne Ph.D. is a renowned Canadian educator and researcher who has planned and implemented hundreds of social development and adult education programs. He has conducted provincial and national problem gambling research studies and continues to advise Canadian and international governments, agencies, and industry on gambling policy and programs. Dr. Wynne holds appointments at universities and research agencies including McGill University, Harvard Medical School, Canadian Centre on Substance Abuse, and University of Alberta. Dr. Wynne serves on the Editorial Board of the Journal of Gambling Studies, The WAGER, International Gambling Studies Journal, and the Electronic Journal of Gambling Issues. While in St. Paul to give the keynote speech at the 2004 Statewide Conference on Problem Gambling he spoke with *Northstar Alliance* board member Don Feeney.

DF: Could you describe for those of us who live south of the border what the state of gambling in Canada is and how, in your experience, it differs from what we see in the U.S?

HW: There's a fundamental difference in the model. In America, it's largely a private model, but in Canada, the state itself owns gambling in one way or another. It owns the lotteries, it owns the casinos or contracts with private businesses to run them on the government's behalf. So the government is very, very much involved in the whole of the gambling enterprise. Contrast that with gambling in Nevada, where the state's revenue comes from licensing and taxes and all of the casinos are owned by private corporations and, for the most part, the profits are theirs. In Alberta, the government doesn't have to lobby itself to expand or to get some comfort on regulation. In America the gambling industry has to lobby the government to



Dr. Harold Wynne

get concessions. We'll probably see that battle fought now in the area of internet gambling in both of our countries.

DF: Do Canadians like to gamble or do you just prey on the tourists?

HW: Canadians like to gamble. Although, interestingly, I've noticed when we did prevalence studies in Alberta in 1998, I think there was something like 87 percent of the public in that survey said they gambled. We did another one in 2001, three years later, and it was down to 83 percent. The very first one we did in 1992 was up to 93 percent. So, from 1992 to 2001, we saw a drop of some 10 percent of people's self-reported gambling. So, while still a significant number of people gamble, it looks like, if anything, despite expansion there seems to be a downward trend.

DF: Are there certain parts of Canada where you see less gambling activity?

HW: It's pretty universal wherever you go. The big difference is whether video lottery terminal gambling is provincially sponsored. Ontario and British Columbia don't have VLT programs yet, but there are VLTs in bars and lounges in the other provinces. Where the provinces have VLTs the participation rates are up significantly. And we know that there's a correlation between problem gambling and electronic gambling machines including VLTs. What I call the ticket trade—playing the lottery and lottery-like products like community-based raffles—is the most preferred form of gambling in every province. Then we move on down to casinos, video lottery terminals and

bingo. These draw roughly the same percentage of people, but it's a different mix of people participating in each of these. Horse racing is a more specialized group. On Prince Edward Island, it's extremely popular because of their long-standing horse racing industry.

DF: My sense is that the support services and programs available for problem gamblers in Canada, in general, far outstrip those available in the U.S. Is that fair?

HW: Oh, I would say that's absolutely fair. And maybe that has to do with the differences in the Canadian versus U.S. gambling model I mentioned earlier. With the government-owned and managed model there might be more of a moral obligation to do something about the consequences. For instance, in Canada we see that there are quite a few government sponsored resources for problem gamblers. But not just in Canada. The same can be said of Australia and New Zealand as well, where the government gambling model is very similar to the Canadian model. The Americans appear to be lagging behind as far as investing government funds in the prevention and treatment of problem gambling..

DF: In what ways? Is it in making treatment available? Is it in preventative services?

HW: I would say most noticeably in public awareness campaigns. For instance, in Minnesota I've heard people lament that there's more money being spent advertising and promoting gambling than there is raising people's consciousness about the issue of problem gambling. And I think you probably would find that across the United States. And, right now in Canada, there's a lot more provincial-level television-based public awareness campaigns saying that, "Look gambling is very harmful for a certain number and type of people. Do this at your own risk."

DF: Is there any evidence that those are in any way, shape or form effective?

HW: Well, that's the \$64,000 question. Is it money well spent or is it money that's just being frittered away? The jury is out on that.

DF: Do you find that there are more treatment services available in Canada?

HW: I would say that the services are very similar in Canada and the U.S. We both have residential treatment services and outpatient programs that are, for the most part, two- to four-week models. Depending on where you go in Canada and the U.S. you'll find more or less services in the community. But, frankly, traditional treatment services in neither country seem to be reaching the population that has a disorder right now. When we do our prevalence studies, we'll show that, for instance, in the Province of Ontario, there are estimated to be some 340,000-problem gamblers. Yet, fewer than 1,500 people across the province are in treatment. That's a huge difference: 1,500 to 340,000. The question remains: How do you reach those problem gamblers who are not predisposed to coming in for treatment?

We need to look at alternatives. Right now, I'm involved with a research project with the Center for Addictions and Mental Health in Toronto where we've developed a telecounseling treatment program. We're trying to promote and market telephone-based counseling of people so that it's at their convenience, in the privacy of their home, and it can be done 24-7. When they phone in they're matched up with their own therapist and a manual is shipped to them directly. The therapist and the gambler work through the manual over a half a dozen sessions. We're trying this approach to see, first of all, if we can reach problem gamblers—some of the 340,000 that we're not reaching—and then to see whether or not

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this telecounseling approach is effective.

This approach was influenced by research that David Hodgins and several other colleagues and I did back in 1998 at the University of Calgary. We looked at the difference between lifetime problem gambling prevalence rates and current rates and we saw that there were a lot of people who had a problem in the past but not in the present. And there were really no programs for gamblers in Alberta at the time, even very few GA chapters. So, we could reasonably expect that somehow or other these people had recovered over the course of their lifetime without professional intervention. So, we went out and we interviewed these people to try to see what would have triggered a spontaneous remission, or natural recovery, as it was called then. We didn't have many people to interview so the research wasn't particularly conclusive. But we thought that maybe we could get people started along that self-recovery road and that's where the self-recovery manual idea came from. The Ontario project is based on this notion that people can, for the most part, recover nicely by themselves, thank you very much, but we're going to help you a bit through telecounseling and through the manual. This approach, along with the problem gamblers' own devices, might just be enough to move the problem gambler along the road to recovery.

DF: Are ethnic differences a significant factor when dealing with both adjustments to gambling and problem gambling?

HW: Well, I'm working on three research projects right now with ethnic and aboriginal communities. The first one is with eight ethnic communities in Toronto and Windsor-Essex County. The methodology that we're using is known as "participatory action research." Essentially, the responsibility for doing the research is turned over to

the community. My role is as a resource person to help empower the community and teach them how to do their own research. The first task is to help them build a research plan that has sound research questions and appropriate methodologies for gathering the data needed to address these. But, other than that, the community has the responsibility to go in and research gambling and problem gambling in their own population.

DF: These communities are?

HW: These communities are the Somalis, the Afghans, the Iraqis, the Filipinos, the Greeks and the Indo-Caribbeans in Toronto. In Windsor, it's the Jewish community and the South Asian communities. They've done their research, and each community has just finished their action-planning phase. After their research was completed, each community devised action strategies to affect the social change that's needed to deal with the issue of problem gambling. In the months ahead, these ethnic communities will be implementing their action plans, which will involve mounting culturally-appropriate prevention and treatment programs and services.

DF: How different are they?

HW: Very. To start with, some communities have very different notions about the permissibility of gambling. For example, in the Muslim communities, gambling is forbidden in the Qur'an. When the researchers interviewed their religious leaders, they were basically told that they didn't want to talk about it: "There is no gambling in our community. It's forbidden in the Qur'an." People don't gamble, and if they did, never mind whether they're problem gamblers; they're just sinners. And so the only way we can help them is through spiritual counseling through the Imams and in the mosque. That's it. On the other hand, you

have some non-Muslim ethnic communities in Toronto who are much more tolerant of gambling. They recognize that gambling exists, and that it is not forbidden on religious or moral grounds.. However, all communities agree that problem gambling is a blight on the individual, his or her family, and the community itself.

DF: How is that then reflected in terms of any types of intervention you might do on behalf of a problem gambler?

HW: Well, that remains to be seen. It's one of the biggest challenges that faces all communities. Even if gambling is permitted and tolerated in communities one thing that all of the communities hold in common is that they don't tolerate problem gamblers. Problem gamblers are seen, amongst other things, to bring shame on the community. Problem gambling is also seen very much as being a private trouble, not any kind of a public issue. Given these attitudes, dealing with problem gambling is going to be very much an uphill battle for every community, some more than others. Right now each community has the task of raising awareness that there is problem gambling in the population, even in the Muslim communities. Then, beyond that, they need to develop some kind of a collective responsibility to deal with problem gamblers. It's essential that they do it themselves because I and other university types wouldn't have two clues in a sandbox what works in the Afghan community.

DF: Do you find in some of these communities that there's just denial that problem gambling exists?

HW: Absolutely.

DF: How do you get over that?

HW: I don't know. The community itself is going to have to come up with the answer to

that one. How do you get over the Qur'an forbidding gambling in Muslim communities? Both the sacred and secular communities are going to, somehow, have to deal with the issue of problem gambling in their midst. That's why each ethnic community is participating in this research project and developing action strategies that will make sense in their community context.

DF: Is it possible that someone from, say the Afghan community, might actually be more comfortable coming in to a treatment program that is predominately Anglo because they wouldn't receive that same degree of shame that they would if they sought treatment in their own community?

HW: The answer is "yes". Some communities said as much. One of the questions all of the communities asked was about help-seeking preferences and many respondents said, "Listen. You know we would like treatment services in our language, obviously, so we can understand what's going on but not in our community because we don't want to be "outed" as a gambler, never mind a problem gambler." One of the well-respected, largest immigrant organizations in Canada is COSTI, which is the Toronto-based agency that sponsored this research project. Some communities are discussing whether COSTI can put some problem gambling services in place that will serve all the ethnic communities, because many of their people don't want to be seen to be going to their own community agencies.

DF: I'm guessing they gamble outside the community as well.

HW: Oh, sure. Many people want to hide their gambling. Very much so.

DF: Have you done any work in Canada with the First Nations populations at all?

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HW: Well, that's the second part of the ethnic research that we're doing. Right now, we are working with five aboriginal communities in Ontario doing the exact same thing we did with the ethnic populations in Toronto and Windsor. We're using participatory action research and working through a local research advisory committee that we helped each community establish so they can look at gambling and problem gambling in their populations. I'm just starting another study in Alberta with two aboriginal communities. We try to work with the community and help empower them to do their own research because they're the ones that are, first of all, going to gain access and probably get closer to finding out what the "truth" is as far as gambling and problem gambling goes and, more importantly, the community will have to plan the programs and services problem gamblers and their families will need. When all is said and done, the community leaders are not going anywhere, unlike most university researchers who leave Dodge when they're done collecting data. The leaders are still there and they're still interested in doing something to effect positive change. They're not interested in doing research as an academic exercise.

DF: What unique challenges do you find in these communities?

HW: One of the things we have to remind ourselves is that while our interest is in problem gambling, there's myriad problems in those communities and in the great scheme of things, problem gambling may be way down the list. Even as an addiction, it's way down the list. So, aboriginal communities are first and foremost still interested in dealing with alcoholism. But, there are other issues, too – neglect, abuse, abandonment, domestic violence, poverty. You load these problems on aboriginal communities and, in a way, problem gambling pales.

One of our challenges is to get problem gambling on the radar screen and see how it's interconnected with these other problems. We need to help the community best use the meager resources they have to help people who have a gambling problem. That's the biggest challenge for both the researcher and the community itself.

DF: Is it a big enough problem that they should be devoting their resources to gambling as opposed to putting them into some of these other issues?

HW: No. I would prefer to see some kind of an omnibus approach in the communities to provide the resources and develop the wherewithal needed to deal with the whole constellation of social problems. In many First Nations communities, this begins with economic development and employment programs to address the systemic poverty issue. You could argue that if you want to eradicate alcoholism and problem gambling and domestic violence on reserves, put people to work and give them a reason to be proud; give them some reason to have positive self-esteem, the rest of the things we, in the dominant cultural group, take for granted.

DF: In the twenty-odd years that you've been in this business, what's changed?

HW: One of the things that's obviously changed is that gambling has expanded to unprecedented levels, in both of our countries and worldwide. Second, gambling has gone and continues to go electronic. It's far more cost-effective to have electronic gambling machines situated in "convenience locations"—such as bars, lounges and grocery stores—than it is to build stand-alone casinos. And we're going to see this continue, of course, with Internet gambling. Third, I don't think any of the governments, certainly in Canada, had any idea how much revenue would be generated by expanding

gambling. And right now they are pleasantly shocked. In Alberta 5 percent of the province's annual budget is coming from gaming. That outstrips the revenues that come in from crude oil royalties in that resource-rich province. Ironically, this revenue windfall has become a real problem for governments because, even if a government wanted to disavow gambling and dismantle the gambling apparatus and go back in time and reduce the opportunities, they'd have a devil of a time backfilling the revenue. We're talking about billions of gambling dollars right now flowing to the public coffers.

DF: What do we know now that we didn't know twenty years ago?

HW: Twenty years ago we weren't vexed by problem gambling. Twenty years ago in Canada gambling still hadn't been turned over legally to the provinces – the change in the Canadian Criminal Code in 1985 allowed for this. We didn't have a great deal of gambling out there in people's faces. So, along with the rise in gambling over the last twenty years came the rise in problem gambling and our consciousness and awareness about this as a social and public health issue. It's really just in the last ten years that we've seriously addressed problem gambling as an individual and community issue. But, we're catching up fast. We're learning a lot. For example, we know that there are physiological determinants, and risk factors that predispose people to developing a gambling problem -- everything from genetic markers to brain chemistry. We have researchers working in that area and concurrently working on treatments that are medically based. We also have the psychological fraternity, who were the first ones to become interested in this issue, developing profiles of problem gam-

blers and testing various approaches to treat these individuals. Sociologists are beginning to study the extent to which social networks and interactions affect and influence people to have or not to have a gambling problem. Economists are now becoming interested in assessing the socio-economic impacts of gambling – determining whether or not it's net costly or net beneficial. So, there's more interest from the different academic disciplines now and, as a result, the knowledge base is beginning to grow as more disciplines become engaged.

DF: What do you think are the big unknowns? Where should we be focusing research money and resources?

HW: All of our communities are not homogeneous--they're made up of many sub-cultural groups. People in different groups may be more or less afflicted with problem gambling disorders than others. We need to learn about the nature and characteristics of problem gambling in different populations and what the cultural nuances are from one group to the other. We have to do this all with a view to providing the resources that the community needs to deal with the problem itself, rather than the province or state trying to come up with some kind of one-size-fits-all program or service.

Another main research area is the need to examine the effects of the world-wide movement to electronic gambling machines. Understanding human-EGM interaction is critical to devising strategies to help people control their play on EGMs, and to ultimately treating problem gamblers who are addicted to these machines. This area of research is extremely important now, given the proliferation of Internet gambling. A related area of research needed is to examine the effects of EGMs and Internet gam-

"We need to learn about the nature and characteristics of problem gambling in different populations and what the cultural nuances are from one group to the other."

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bling on children and adolescents. Given how much they're computer-savvy, I am most concerned that the Game Boy generation—especially young males--will be especially vulnerable to developing an EGM or Internet gambling problem.

DF: Are there any industry practices that you feel most strongly should be changed?

HW: Industry has recognized that there is fallout from their practices that has to do with problem gambling. That said, the gaming industry feels it has a responsibility to do something about it, to promote something called responsible gaming. This means taking initiatives such as training casino staff to deal with and intervene with problem gamblers, problem gambling signage in casinos, problem gambling advertising perhaps funded by industry, putting responsible gaming features on video lottery terminals and so on to try to help people gain some control back. And it's easy to be cynical and say the gaming industry's doing this to protect their revenues, but I would take the view that even if they're doing it for arguably the wrong reasons, at least they are doing it. I welcome these initiatives, but we still have to evaluate whether or not they're having any kind of an positive effect on problem gambling. It is all well and good to mount responsible gaming features on video lottery terminals, but how do you know if they work or not? I'm doing research right now for the Alberta government to find out if these VLT features do help gamblers control their play more effectively.

DF: A personal bias of mine is that we have not

explored nearly enough the whole area of sub-clinical problem gambling. It may not meet the definition of an addiction, but it is still a problem, still has a cost, still causes damage and is probably much more widespread than an actual pathology. I think that these responsible gaming efforts would be much more likely to make a dent in the sub-clinical behavior than in the pathological behavior.

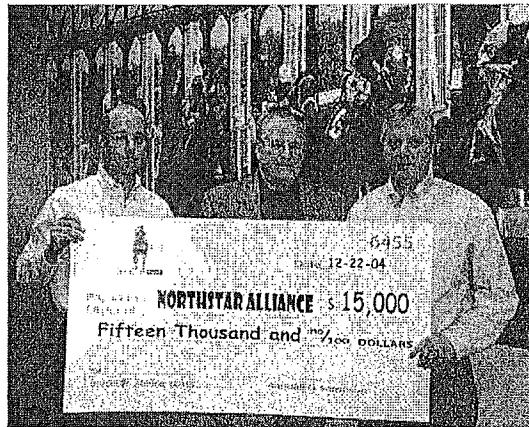
HW: I would agree with that. In fact, the Canadian Problem Gambling Index that I helped develop identifies four gambler subtypes: non-problem, low risk, moderate risk and problem gamblers. In all the Canadian studies recently undertaken, the low and moderate risk populations are much larger than the problem group, and we are most interested in pursuing research, prevention and treatment programs aimed at this at-risk group.. It has been argued in the literature and by therapists that there's only so much you can reasonably be expected to do to help problem gamblers, particularly while they are still gambling. Consequently, prevention and treatment interventions would be most profitably directed at the people who are at risk rather than the ones who already have a severe problem. The challenge here is to prevent gamblers who are at some level of risk from developing a full-blown gambling problem. The good news is that many colleagues are now beginning to study this at-risk group and to develop interventions to prevent these gamblers from developing a problem. To me, this is the most exciting and promising research that is presently being done in the gambling studies field.

NO JUDGMENT, ONLY HOPE 1-800-333-HOPE

The Minnesota Problem Gambling Helpline is available 24 hours a day, 7 days a week.
A service of the Department of Human Services and the Minnesota Institute of Public Health

Northstar Alliance Receives Grant from Canterbury Park

The Canterbury Park Minnesota Fund (CPMF) awarded a \$15,000 grant to the Northstar Problem Gambling Alliance in December to help finance a seminar series in 2005. The CPMF is a new donor-advised community fund established by Canterbury Park that focuses on aiding Minnesota's horse and agriculture industry as well as funding responsible gaming programs throughout the state.



Northstar Alliance Executive Director Lance Holthusen (middle) receives a check from Canterbury Park President Randy Sampson (right) and Director Eric Halstrom (left)

"We are proud to continue our support for the Northstar Problem Gambling Alliance through this grant," Canterbury Park Track President Randy Sampson said. "The gaming community has a duty to help address the issue of responsible gaming, and we are pleased to work toward that goal with the Alliance."

The grant raised Canterbury Park's total contributions to the Northstar Alliance to over \$22,000 in 2004.

Featured Website: Compulsive Gamblers Hub

<http://www.cghub.homestead.com>

The Compulsive Gamblers Hub is an open community for individuals in recovery who, share their "Experience, Strength, and Hope", with each other that they may solve their common problems and help others in working a recovery program. Founded in 2001 by a group of recovering gamblers under the leadership of Charlie P., the site asks only that prospective participants have a desire to stop gambling. There are no dues or fees to participate, though contributions are encouraged.

Among the resources found on the page are a 24 hour interactive chat room, scheduled online Gamblers Anonymous-formatted meetings, a daily message board, 12 Step message boards, financial pressure relief resources and recognition of participants' last day of gambling.

One participant recently described her experience with the Hub. "As an ex-addict struggling to understand how her life and thinking had gotten so crazy, the people on (this) site quite literally saved my sanity. I still remember the feelings of relief I

had the first time I visited ... and discovered that I truly was not alone in doing what I had done.

"Unlike walking into a room full of strangers, visiting the Hub can be as anonymous as the visitor needs to be ... they can read and remain silent until they feel comfortable/inspired/challenged enough to post. There are no awkward looks or embarrassing moments when a person first visits and because there is no record or indication of who is visiting at any given moment, there is absolutely no pressure on visitors to 'speak.'"

The site is not intended to replace face-to-face counseling or GA meetings. For those who can attend such sessions, the Hub serves as a complement or a way to ease into the recovery community. There are a variety of reasons, however, that can make this a critical resource for others. Gamblers who are geographically isolated, have a hearing impairment or have other physical limitations may find the site to be a lifeline.

Research Tidbits

Internet Gambling and Adolescents

Internet gambling is a relatively new phenomenon that does not seem to have yet captured the imagination of the general public. An April 2004 survey found that fewer than 2 percent of Minnesota adults had placed a bet using the Internet.

A Quebec study, though, suggests that online gambling may be making inroads among students. A sample of 2,087 high school and college students found that 89 percent reported gambling on the Internet with or without money in the past year. While only 5 percent reported gambling online for money, those reporting gambling problems were more likely to engage in Internet gambling without money than social gamblers. When asked what made Internet gambling appealing, the most common responses were ease of access, rapid play, convenience, and not having to leave home. To this list, probable pathological gamblers added the appeal of online competition.

Mood Disorders and Problem Gambling

A review of over 80 publications finds an "irrefutable" link between mood disorders and problem gambling. The review, conducted by the Mood Disorders Society of Canada, found greater prevalence of a number of mood disorders in pathological gamblers than the general population, including major depression, bipolar disorders, cyclothymia, and dysthymia.

In many cases, the mood disorder predated the onset of problem gambling, and the authors speculate

that gambling may be a way to seek relief from the mood disorder. In fact, the disorder often worsens due to the negative consequences of the gambling, which in turn may lead to more gambling.

The authors urge those treating patients with mood disorders to be aware of the potential for gambling problems and to include questions about gambling as part of the clinical assessment process.

Beautiful Women Make Men Stupid

McMaster University researchers have proven that men perform less well on a gambling task after looking at photos of attractive women.

Male students were shown pictures of either attractive or unattractive women and then given dice to throw. When they threw a "winning" combination, they were given a choice of between \$15 and \$35 the next day or \$50 to \$75 after a longer wait. Those seeing the attractive women were far more likely to take the smaller sum right away.

When given the same task, however, women who had been shown pictures of attractive men responded no differently than those seeing unattractive men.

The researchers concluded that the pictures of attractive women caused courtship and mating responses in the brain, leading them to emphasize short-term benefits over long-term consequences. Women, on the other hand, are more likely to associate courtship with long-term consequences, and therefore become less likely to discount the future.

Upcoming Events

March 10-11, 2005

Seventh Annual Compulsive Gambling Conference. Radisson Hotel Paper Valley, Appleton, WI. Sponsored by the Wisconsin Council on Problem Gambling

April 1, 2005

Problem Gambling's Impact on Family. Gloria Dei Lutheran Church, St. Paul, MN. Sponsored by the Northstar Problem Gambling Alliance.

April 17-20, 2005

Discovery 2005. Niagara Falls, Ontario. Sponsored by the Responsible Gambling Council.

June 23-25, 2005

19th Annual Conference on Prevention, Research and Treatment of Problem Gambling. New Orleans, LA. Sponsored by the National Council on Problem Gambling.

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3rd Annual Minnesota Problem Gambling Awareness Conference: Problem Gambling's Impact on Family and Others

Registration Deadline is March 23rd, 2005

Name: _____

Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ E-Mail: _____

Mail form and payment to:
Northstar Alliance
Box 555
Arlington, MN 55307
(Checks payable to
Northstar Problem Gambling
Alliance)

I am a member of the Northstar Alliance. Enclosed is my
check for \$75
 I'd like to join. Enclosed is my check for \$75.00 plus _____
for my chosen level of membership ranging from
\$35.00 to \$500.00. (Add membership in the National
Council on Problem Gambling for just \$35 more)
 Enclosed is my check for \$110.

ADA needs: _____

No Foolin', Save This Date!
April 1, 2005

Problem Gambling's Impact on Family and Others

Presented by the Northstar Problem Gambling Alliance, Inc.

8:00 AM—4:30 PM
Gloria Dei Lutheran Church
700 S. Snelling Avenue
St. Paul, MN

Lunch and parking included.

CEUs available

\$75.00 Northstar Alliance members \$110.00 non-members.
Register now using the form on the inside back page of this newsletter. See you there!

**Presented with the support of
Canterbury Park and the Minnesota State Lottery**

Northstar Problem Gambling Alliance, Inc.
P.O. Box 555
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PROBLEM GAMBLING: WHAT A GAMBLING MANAGER SHOULD KNOW

Problem gambling: It's a subject nobody likes to talk about, but it's one that can affect your friends, your families, your employees, and your customers. This document is designed to help you understand compulsive gambling, its causes, its effects, and what we can all do about it.

Most Minnesotans gamble, and most do it because it's fun. But sometimes gambling goes beyond the bounds of fun, recreation, or entertainment. This can be an occasional problem, like sometimes betting more than you can really afford, or it can become an addiction. "Problem gambling" refers to the broad range of inappropriate gambling behavior that goes beyond fun and entertainment, while "compulsive" or "pathological" gambling refers to the inability, over an extended period of time, to resist the impulse to gamble. As one compulsive gambler put it, "I couldn't think of one day of life without gambling. Even when I didn't gamble that day, my world revolved around it. And I got so tired and so depressed and so emotionally drained. Everything else had long since disappeared from my life – relationships, friendships, everything."

Compulsive gambling, in many ways, is similar to alcohol or drug dependence, even though no substance is ingested. It is one of a wide range of activities that can lead to addictive behavior, including sex, food, and even shopping. Indeed, as stated by noted gambling researcher Dr. Peter Collins, "Anything that gives pleasure is potentially addictive."

Fortunately, it's a rare condition. Estimates on the number of compulsive gamblers differ, but most recent studies in the U.S. place the rate at less than 1 percent of the adult population. Nevertheless, that number is not zero, and if you or someone you know is one of the unfortunate few, the consequences can be devastating. Pathological gamblers can lose their jobs, their families, and even, through suicide, their lives.

What are the signs of problem gambling?

Problem gambling is an invisible affliction. You can't smell a slot machine on someone's breath, or see any "tracks" on the gambling addict's arms. Yet as we know, the consequences of a gambling addiction can be every bit as devastating as a chemical one. How, then, can you spot a gambling problem in an employee, a customer, a friend or a relative?

Spending a lot of money on gambling does not, by itself, make one a compulsive gambler. Gambling, for most people, is a hobby, and like any hobby some pursue it with more interest than others. If they stay within preset limits, don't "chase" their losses, recognize that they are likely to lose, and gamble for fun rather than for money, they likely do not have a problem. Problem gambling is characterized by a loss of control and by continued gambling despite negative consequences.

Nor do compulsive gamblers always fit the stereotype of the middle-aged white male who "plays the horses." Problem gamblers can be male, female, white, black, Asian, Hispanic, or Native American. They can be 14 years old, 80 years old, or all points in between. They can play the horses, slots, pull-tabs, cards, or the lottery. They can be poor or wealthy. It is a very democratic condition.

The Vanguard Compulsive Gambling Treatment Program of Granite Falls has a list of eight warning signs of a gambling problem. These include:

- ✓ Looking for the "high" that comes from gambling
- ✓ Increasing isolation from family and friends
- ✓ Declining work performance
- ✓ Neglecting basic needs like money for food and rent
- ✓ Pressuring others for money as financial problems crop up
- ✓ Lying about how money is spent
- ✓ Escaping to other excesses (alcohol, drugs, sleep)
- ✓ Denying there is a problem

It is also important to know that problem drinking and problem gambling are strongly linked. In several studies about 50 percent of problem gamblers were also found to have substance abuse problems. People may have both addictions simultaneously, or switch from one addiction to another.

What can I do?

Recognizing these signs in an employee, customer, friend, or family member is not always easy. Even more difficult is knowing what to do once you suspect the existence of a gambling problem.

The Minnesota Problem Gambling Helpline has produced a video, "What Should I Say? What Can I Do?," that outlines six steps that can help deal with this difficult situation. They are:

- 1) Assure the person that you care about them.
- 2) Describe the behavior that is troubling you.
- 3) Describe how you feel when you see these behaviors.
- 4) Assure them that you'll listen to what they have to say.
- 5) Tell them what you want them to do about it.
- 6) Tell them what you are willing to do to help.

You can't expect this conversation to work the first time; it may have to be repeated many times to have an effect. You must also remember that you are not responsible for their behavior. If the person will not take responsibility for their gambling, you must protect yourself from the consequences. If the person is an employee, you should take steps to protect your finances and your business.

Sometimes even simple actions can be beneficial. Keep a poster or brochure for the Problem Gambling Helpline available and visible. If you see a customer looking at the brochure, encourage them in a non-threatening way, like "that's really good information if you think a friend might have a problem."

The video is available for free loan to Minnesota residents, or it can be purchased for \$50. The approach it outlines is also useful for coping with other problems, such as alcohol or eating disorders. Call the Helpline at 1-800-437-3641 for more information.

But what if someone walks up to your pull-tab booth and says, "I have a problem. Where can I get help?"

You're thinking that this will never happen to you. And you're probably right. But it has happened, and if it does, it can be a terrifying moment. In order to cope, you need to have thought about the situation beforehand so that you or your staff have some idea what to do.

First, remember that as hard as it is for you to be confronted with this situation, it's harder for them. Asking for help is a very difficult thing to do. And for that reason, it's important to get them to act now. Next week, tomorrow, or an hour from now they might change their mind. Second, remember that their asking you for help doesn't make you responsible for solving their problem. That's the job of the professionals. Your job is to get them in contact with those professionals as soon as possible.

You should have the brochure for the Problem Gambling Helpline readily available. Get a copy. Give it to them. Explain that they can call this number any time. It will be answered by a trained professional who will talk them through their immediate crisis and help the gambler find the local resources that are best for them. They can also help the family member who needs to know how to cope with the gambler in their life. Offer the use of your phone. Offer to dial the number (1-800-437-3641) for them.

Reassure them that they are not alone. They need to hear that there's hope, that people do recover from gambling problems, and that they can get their lives back. They might ask for money. Don't do it – that's the same as giving a drink to an alcoholic and will just delay their seeking help. If they ask you not to sell them any more pull-tabs or bingo cards, accommodate them. (If you're asked not to sell someone else tickets, such as a spouse, it's a more difficult situation. I can only tell you to use your best judgment based on your knowledge of the individuals.) They might lash out at you for making gambling available. Don't take it personally and don't get defensive. Let them vent. Over the

course of treatment, they will learn that their problem is their responsibility. It is not someone else's fault.

I hope you're never confronted with this situation, but if you are, consider that you've been given a unique opportunity to make a difference in someone's life. You can best do this by getting them to the professionals as quickly as possible.

What resources are available?

We are fortunate in Minnesota to have a wealth of resources available to help the problem gambler or their family. We've already mentioned the Problem Gambling Helpline. This free service is staffed 24 hours a day, 365 days a year. Receiving about 4,000 calls a year, the Helpline's counselors are trained in crisis intervention and can refer callers to a wide range of social services. But the Helpline is not just for crisis situations. It's the place to call if you're a concerned family member wondering what to do, or if you're looking for a poster for a local senior or youth center, or if you are interested in a speaker on problem gambling for a civic club meeting, or if you're just a concerned citizen looking for a brochure or more information.

Many calls to the Helpline result in a referral to a program designed to help those with gambling problems. One commonly used resource is Gamblers Anonymous (GA). This 12-step program currently holds meetings in more than 50 communities around Minnesota. Gam-Anon, a related organization for families and close friends of problem gamblers, has meetings in 15 cities around the state. A list of GA and Gam-Anon meetings can be found on the Internet at <http://www.miph.org/gambling/list.html>.

For those needing more intensive assistance, there are now more than 50 state-approved treatment programs located throughout the state. These range from individual therapists to general mental health clinics to outpatient programs specializing in gambling to intensive inpatient treatment. There are even programs for populations with unique needs, such as Native Americans, Asians, or senior citizens. The Helpline counselors can help determine which program is the best fit for you or someone you care about.