

Overview and Summary of Recent Initiatives

The Hoeven administration's economic development initiative targets development of a range of technology sectors, including aspects of the biosciences, such as applications to value-added bioprocessing of agricultural commodities. Since the last BIO report, the state **Centers of Excellence Commission** received an additional \$20 million to fund academic/industrial collaborations, which will be matched 2:1 by nonstate sources. The state's **Department of Commerce** is redefining the state's targeted industries to include science-based niches.

Building Bioscience R&D Capacity

Research programs

Red River Valley Research Corridor is the state's branded initiative to grow federal research funding in several targeted fields including the biosciences along the corridor connecting the University of North Dakota (UND) in Grand Forks with North Dakota State University (NDSU) in Fargo. The **North Dakota Department of Commerce** committed 3 years of funding for development of the Corridor, leveraged by a 3-year university centers grant from the U.S. Economic Development Administration (U.S. EDA). An inventory of life science assets is currently under way as part of the project.

The UND secured line item support from the Office of National Drug Control Policy for positron emission tomography (PET) and functional magnetic resonance imaging (MRI) instrumentation that will be used in addiction research. NDSU has used support from the NIH COBRE program to create a **Center for Protease Research**.

Encouraging Academic/Industrial Interaction

The Centers of Excellence are not necessarily research centers, but may include programs for collaboration including research parks, incubators, and commercialization centers associated with them. For example, the **Center of Excellence in Life Sciences and Advanced Technologies** will co-fund a 60,000-square-foot, secured, academic/industrial BSL-3 laboratory at the UND Technology Park. The facility will house the UND Center for Infectious Disease, Proteomics, Genomics, and Bioinformatics as well as companies partnering with the center and associated emergency-preparedness training programs. It is co-funded by local government, private donors, and the U.S. EDA.

Another Centers of Excellence grant to NDSU funds a collaborative project to develop canola strains for testing at commercial biodiesel plants in the state.

Moving Technology into the Marketplace

Supporting bioscience entrepreneurs and emerging companies

The **Center for Innovation** at UND in Grand Forks is a multisector commercialization center aimed at assisting entrepreneurs through a range of technical support and introduction to venture capital. The center's Entrepreneurs Forum meets 10 times a year.

The North Dakota Legislature funded a recent program to review the impact of the state's open-record policy on commercialization of university intellectual property.

Making Capital Available

Pre-seed and seed capital

North Dakota also offers a **Seed Capital Tax Credit** against income tax of 45 percent on investments up to \$500,000 in businesses certified by the Division of Economic Development and Finance in the Department of Commerce. The program is capped at \$2.5 million in credits in any calendar year, and the aggregate investment for a single taxpayer is \$250,000. The credit must be claimed over several years and may be carried forward 4 years.

Venture capital

North Dakota offers a credit against income tax of 25 percent of investment (up to a maximum credit of \$2,000) in a qualified venture-capital company. The credit may be carried forward 7 years. There is a parallel deduction of up to \$5,000 in the first year in which the investment qualifies for the credit. The state offers a similar credit for investment in a Small Business Investment Company. Efforts are under way to organize qualifying funds in Fargo, Grand Forks, and Bismarck.

The Bank of North Dakota, the only state-owned bank in the nation, maintains a \$10 million **New Venture Capital Fund** that may make debt or equity investments up to \$300,000 in (among other categories) companies working to commercialize university-developed technology. The program complements the **North Dakota Development Fund**, an existing financing vehicle within state government.

Providing Space for Bioscience Companies

Incubators

The **Ina Mae Rude Entrepreneur Center**, one of the two incubators associated with the Center for Innovation at UND at Grand Forks, has added wet-lab capability to address bioscience businesses.

A 50,000-square-foot, wet-lab-equipped **Center for Technology Enterprise** is being planned for NDSU Research Technology Park in Fargo. It will also provide commercialization assistance.

Bioscience research parks

The UND in Fargo is planning an 80-acre **Research Enterprise and Commercialization Park** targeting pharmaceutical and veterinary products. It will be anchored by the Centers of Excellence–supported BSL-3 laboratory described above.

The **NDSU Research Technology Park**, currently three buildings on 55 acres, is supported by the Centers of Excellence program. Among other fields, the park targets agbiotech for nonfood uses, which is also the focus of a Centers of Excellence grant to the university.

Addressing Talent Needs

Recruiting management talent

NDSU's **5:01 Entrepreneur Society** sponsors networking events at which students, faculty, investors, and entrepreneurs can socialize. The **Center for Innovators** at UND offers an entrepreneurs forum 10 times a year.

The state Economic Development Strategic Plan supports **Operation Intern**, a tool to link students to businesses with skill shortages.

Pending Proposals

Governor John Hoeven has proposed expanding the capacity of the Centers of Excellence program to \$50 million in the 2007 budget year.

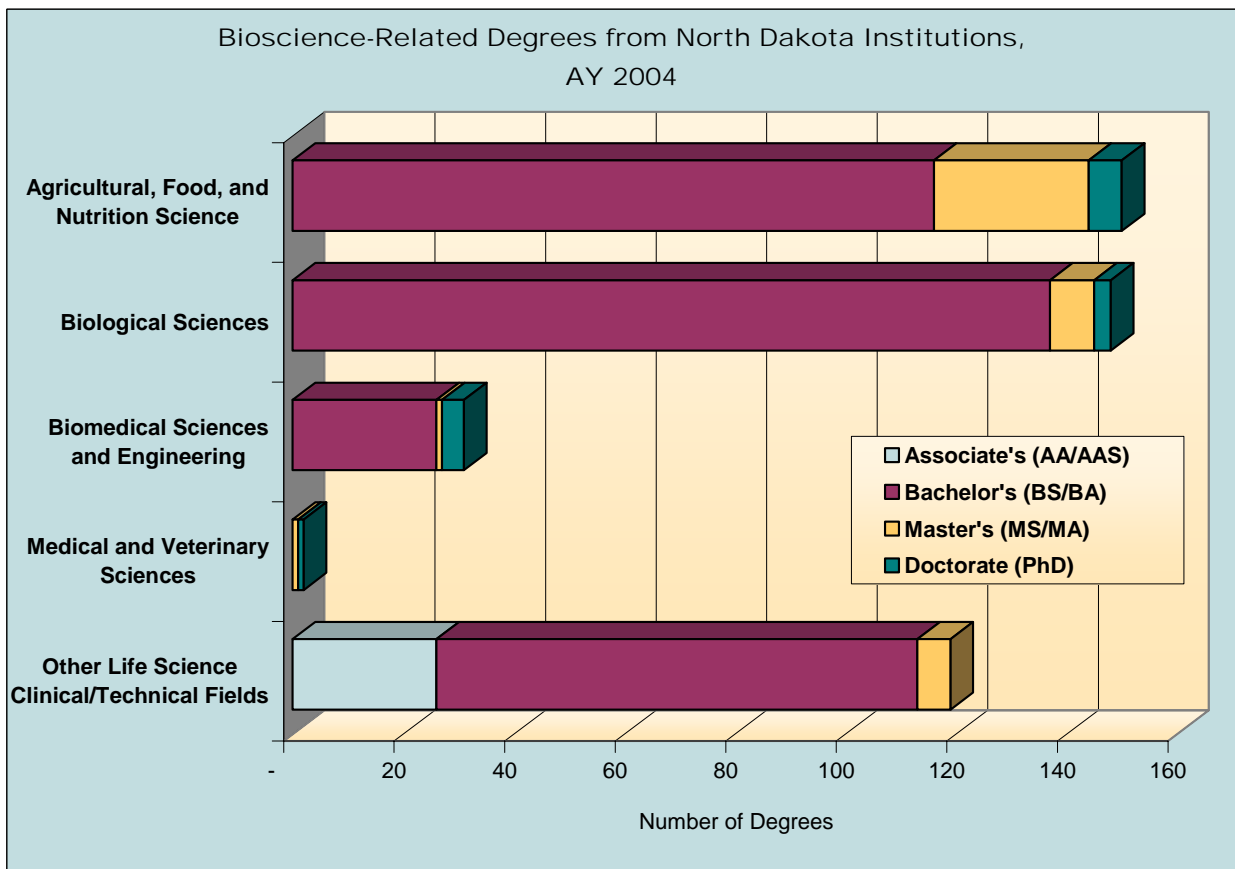
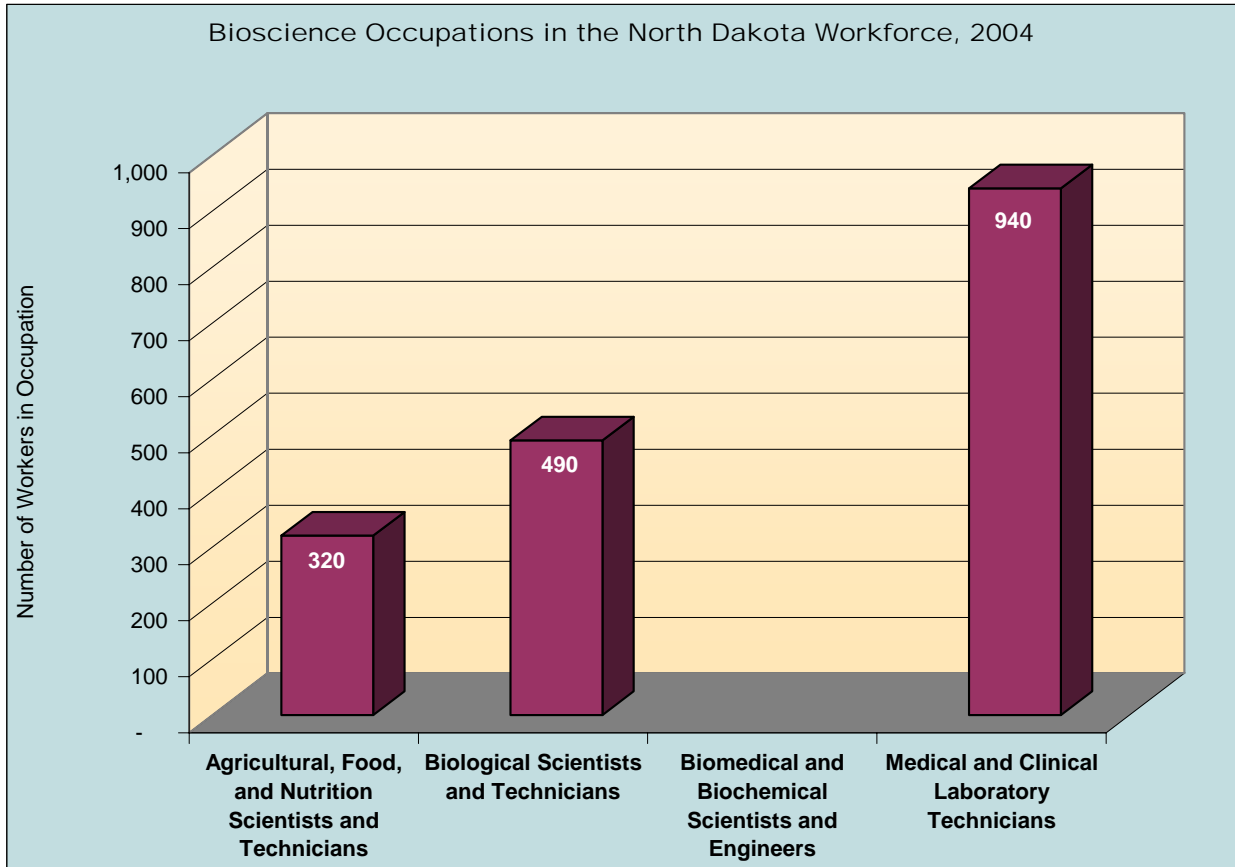
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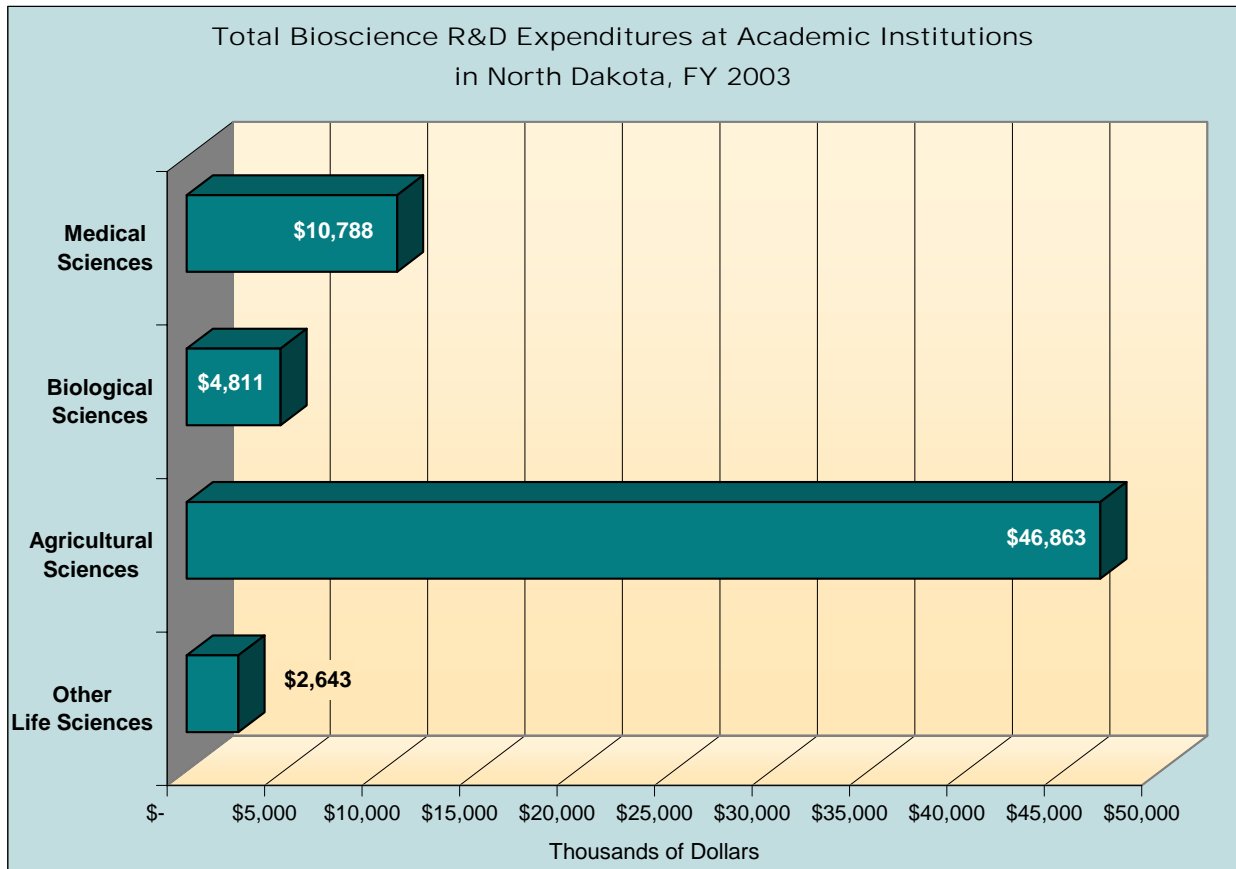
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Industry Subsector	North Dakota	United States
Agricultural Feedstock & Chemicals		
Establishments 2004	9	2,111
2001-2004 Establishment % Change	-30.3%	0.4%
Employment 2004	394	104,893
2001-2004 Employment % Change	-21.4%	-6.9%
Share of U.S. Employment	0.4%	100.0%
Location Quotient	1.59	n.a.
Average Annual Wage 2004	\$49,105	\$63,383
Direct-Effect Employment Multiplier	5.55	10.91
Total Employment Impact	2,190	1,212,094
Drugs & Pharmaceuticals		
Establishments 2004	0	2,589
2001-2004 Establishment % Change	0.0%	-0.6%
Employment 2004	0	313,207
2001-2004 Employment % Change	0.0%	2.7%
Share of U.S. Employment	0.0%	100.0%
Location Quotient	0.00	n.a.
Average Annual Wage 2004	0	\$79,303
Direct-Effect Employment Multiplier	0.00	9.51
Total Employment Impact	0	2,731,321
Medical Devices & Equipment		
Establishments 2004	16	15,190
2001-2004 Establishment % Change	23.1%	0.2%
Employment 2004	190	411,460
2001-2004 Employment % Change	-2.6%	-3.6%
Share of U.S. Employment	0.0%	100.0%
Location Quotient	0.20	n.a.
Average Annual Wage 2004	\$29,809	\$56,449
Direct-Effect Employment Multiplier	1.78	4.56
Total Employment Impact	338	1,817,705
Research, Testing, & Medical Laboratories		
Establishments 2004	28	20,565
2001-2004 Establishment % Change	-9.3%	19.4%
Employment 2004	281	413,550
2001-2004 Employment % Change	44.5%	8.2%
Share of U.S. Employment	0.1%	100.0%
Location Quotient	0.29	n.a.
Average Annual Wage 2004	\$41,428	\$65,414
Direct-Effect Employment Multiplier	1.83	3.15
Total Employment Impact	515	1,272,936
TOTAL PRIVATE SECTOR		
Establishments 2004	22,390	8,156,137
2001-2004 Establishment % Change	4.6%	4.8%
Employment 2004	258,001	109,249,195
2001-2004 Employment % Change	2.9%	-0.7%
Share of U.S. Employment	0.2%	100.0%
Location Quotient	n.a.	n.a.
Average Annual Wage 2004	\$28,593	\$39,003

Source: Battelle calculations -- based on Bureau of Labor Statistics QCEW data from the Minnesota Implan Group, RIMS II Employment Multipliers from the Bureau of Economic Analysis, and the Census Bureau's Economic Census.

Note: n.a. = metric is not applicable.





	North Dakota	United States	Rank
University R&D Expenditures, FY 2003			
Total (\$ thousands)	\$133,615	\$40,104,621	44
Life Science R&D (\$ thousands)	\$65,105	\$24,062,088	44
Percent of Total R&D	48.7%	60.0%	
Life Sciences Per Capita	\$102.72	\$82.74	
Change in Life Sciences FY 1999-2003	71.2%	52.7%	
NIH Support to Institutions, FY 2004			
Total (\$ thousands)	\$16,275	\$22,556,459	48
Per Capita Expenditures	\$25.68	\$77.56	
Change in Expenditures FY 2000-2004	202.5%	53.2%	
Higher Education Degrees in Bioscience Fields, AY 2004	450	111,329	45
Bioscience Occupations in the Workforce, 2004	1,750	616,140	46