



Overview and Summary of Recent Initiatives

The biosciences are among several sectors targeted by the **Delaware Economic Development Office (DEDO)**, which is in the second year of administering the Minner administration's **New Economy Initiative**. This initiative emerged in turn from a **Strategic Economic Council** with heavy participation by the state's pharmaceutical and specialty-chemical companies. Since the last BIO report, DEDO has created a new commercialization center operating in partnership with the state's larger firms and unveiled several new financing programs operated in conjunction with local financial institutions.

Building Bioscience R&D Capacity

Recent state investments in facilities

State investments are now complete in two recent facilities: the 72,000-square-foot, \$22.5 million **Delaware Biotechnology Institute (DBI)**, a unit of the University of Delaware (UD); and the 26,000 square-foot **Fraunhofer Center for Molecular Biotechnology**, a U.S. affiliate of the Fraunhofer network of Germany. Both are anchors of the Delaware Technology Park (see below) adjacent to the university campus in Newark. The state's FY2006 budget authorized a loan of \$2 million being held in accounts for future construction at the DBI to the university for renovation of a biological sciences research building.

In the private sector, DuPont announced it would invest \$80 million over 5 years (including \$5 million in state support) in an **Innovation Center** at its Experimental Station in Wilmington, the first new facilities investment of this magnitude in many years. The Innovation Center is intended to help incubate new businesses based on DuPont and other technology donated to the state-supported commercialization center (see below).

Research programs

The second year of the New Economy Initiative included \$1.5 million in additional funding (added to \$3 million in the first year) to match a \$9 million EPSCoR award from NSF intended to link bioscience research at UD to parallel programs at Delaware State University and the Delaware Technical and Community College.

Encouraging Academic/Industrial Interaction

Under terms of earlier state support, both DBI and the Fraunhofer are expected to match state support with programs sponsored by bioscience industry. The state has also committed \$5 million over 5 years to Fraunhofer to continue plant-based research and begin development of a pilot GMP facility with excess contracting capacity.

Moving Technology into the Marketplace

Supporting bioscience entrepreneurs and emerging companies

The second year of support for the New Economy Initiative included \$3 million for a multisector commercialization program known as the **Emerging Technology Center**. The center will assist both university spin-offs and independent entrepreneurs and will work to commercialize technologies donated by DuPont, Hercules, and others. The center expects to receive 250 technology packages for commercialization. DuPont has agreed to provide access to the lead researchers for each package.

In addition, Delaware Technical Community College is using state support to create a Web-based portal to link potential mentors and service providers to independent entrepreneurs.

Making Capital Available

Pre-seed and seed capital

Pre-seed funds for entrepreneurs in multiple sectors including the biosciences are available through a \$1.5 million **Technology-based Seed Fund** administered by DEDO. These equity investments, which range up to \$50,000, may be matched by low-interest loans from a pool of equal size committed by Citizens Bank. In making these investments, DEDO relies on advice from a panel of entrepreneurs and financial and legal experts.

The **Delaware Innovation Fund**, an independent nonprofit started with state support, also offers seed-stage investment in fields related to the biosciences such as analytical instruments or chemicals. The fund has invested in turn in the **Mid-Atlantic Angel Group Fund I, LP**, created by Innovation Philadelphia to close the gap between angel funding and institutional venture capital in the entire mid-Atlantic region. The MAG fund does explicitly target the biosciences.

The **Delaware Strategic Fund**, a general loan and grant program operated by DEDO, has the flexibility to provide SBIR/STTR bridge funding.

Venture capital

The New Economy Initiative set aside \$3 million for investment in venture capital funds to encourage them to source Delaware deals. Following a competitive process, \$1.5 million was approved for investment in **Innovation Venture** and \$750,000 each to **Edison Venture Fund IV** and **Murex Investments**.

Providing Space for Bioscience Companies

Incubators

About 20 percent of the DBI space is set aside for commercial use, functioning in many respects as a shared-laboratory incubator. The state is working with Delaware State University to identify additional incubation space in Dover.

Facilities financing

The \$12.5 million **Delaware Competitiveness Fund** is a discretionary incentive program that will support location of R&D “related to existing manufacturing,” which includes biomanufacturing. Like the Seed Fund, it is paired with a parallel pool of low-interest loan funding from Citizens Bank.

Bioscience research parks

The **Delaware Technology Park** has five built-out structures over 40 acres including DBI, Fraunhofer, an office structure, and two wet-lab-capable multitenant buildings (27,500 and 38,000 square feet, respectively). Development of the final site (100,000 square feet) is in partnership with the Science Center in Philadelphia.

Addressing Talent Needs

Specialized postsecondary programs

As part of the Innovation Center investment, DuPont will provide six biotechnology seminars per year aimed at high school students.

The Fraunhofer Institute created the Governor Minner Biotechnology Scholarship Fund in 2005. This fund will support students studying biology or biotechnology at UD, Delaware State University, and the Delaware Technical and Community College.

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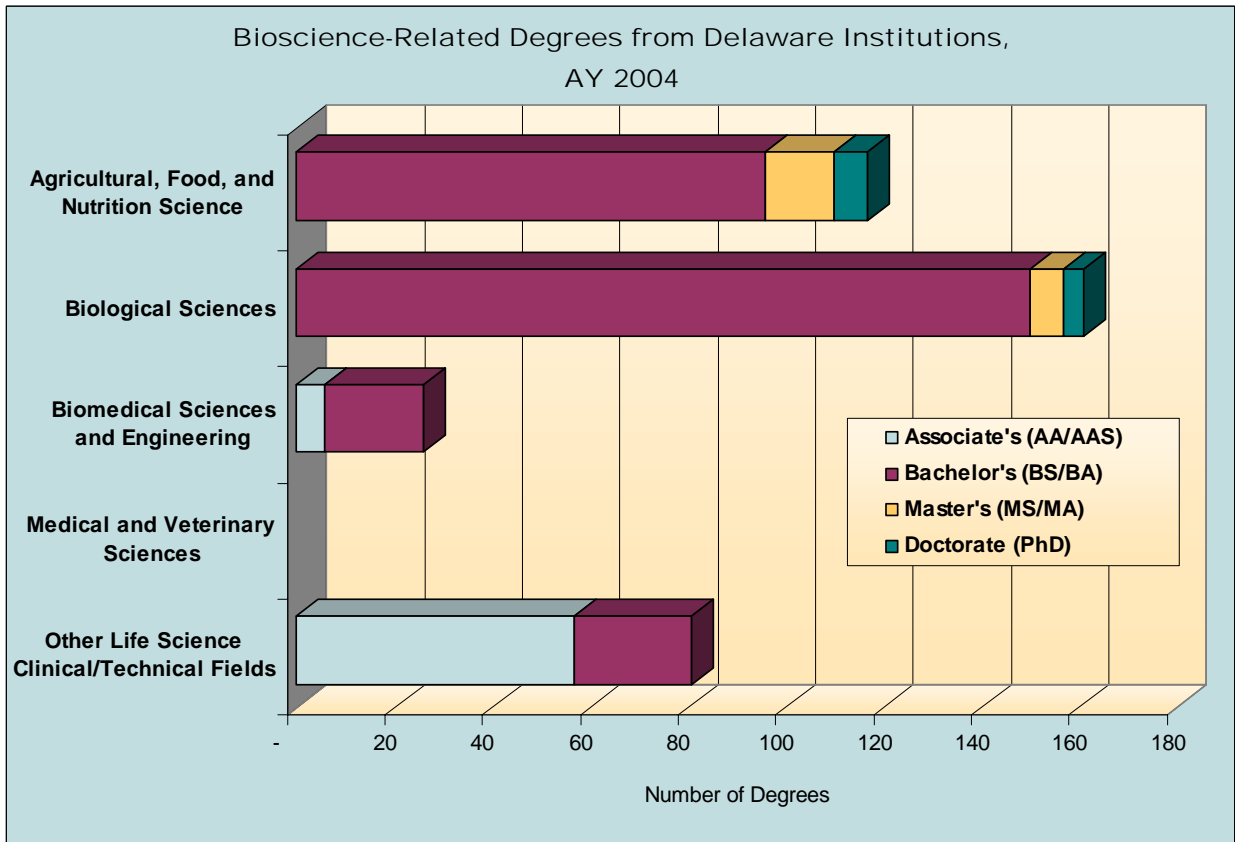
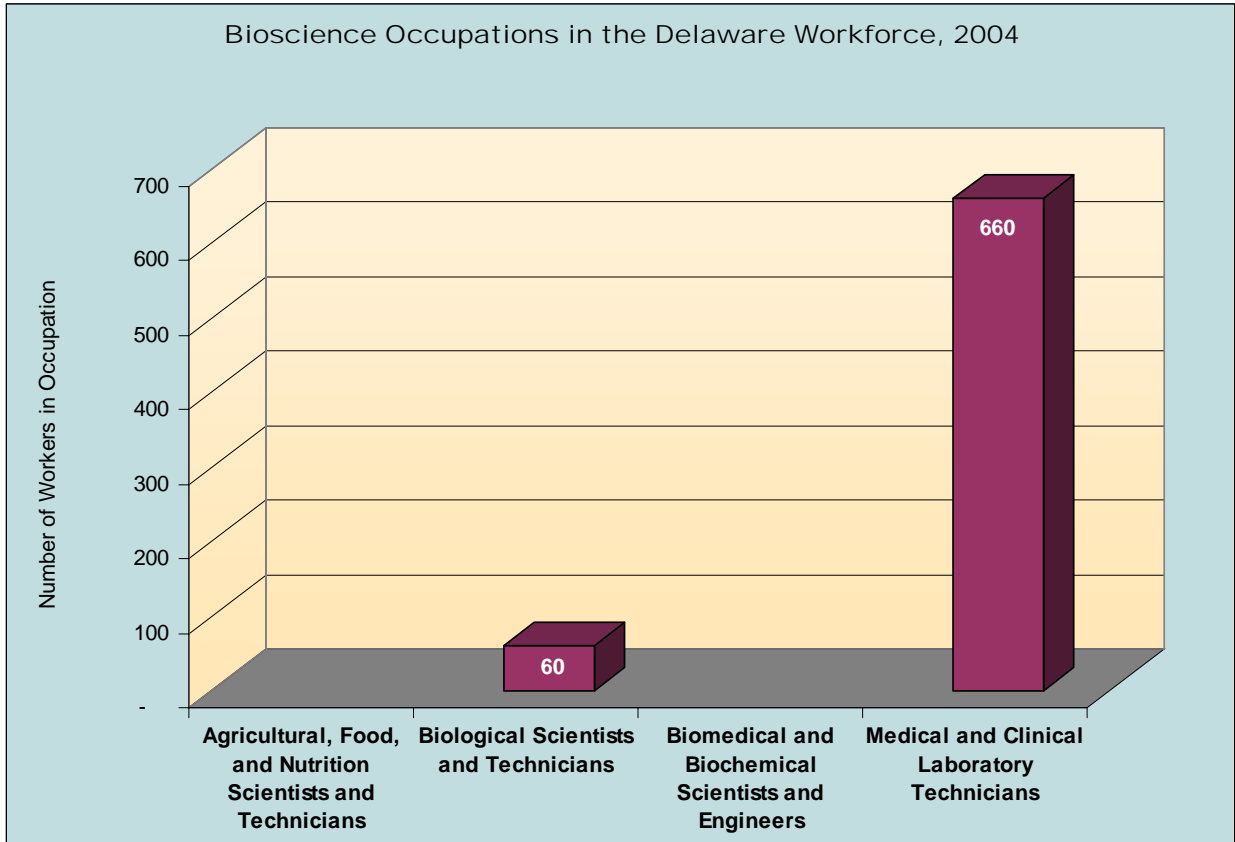
The Delaware BioScience Association is reorganizing. Interim contact is as follows:

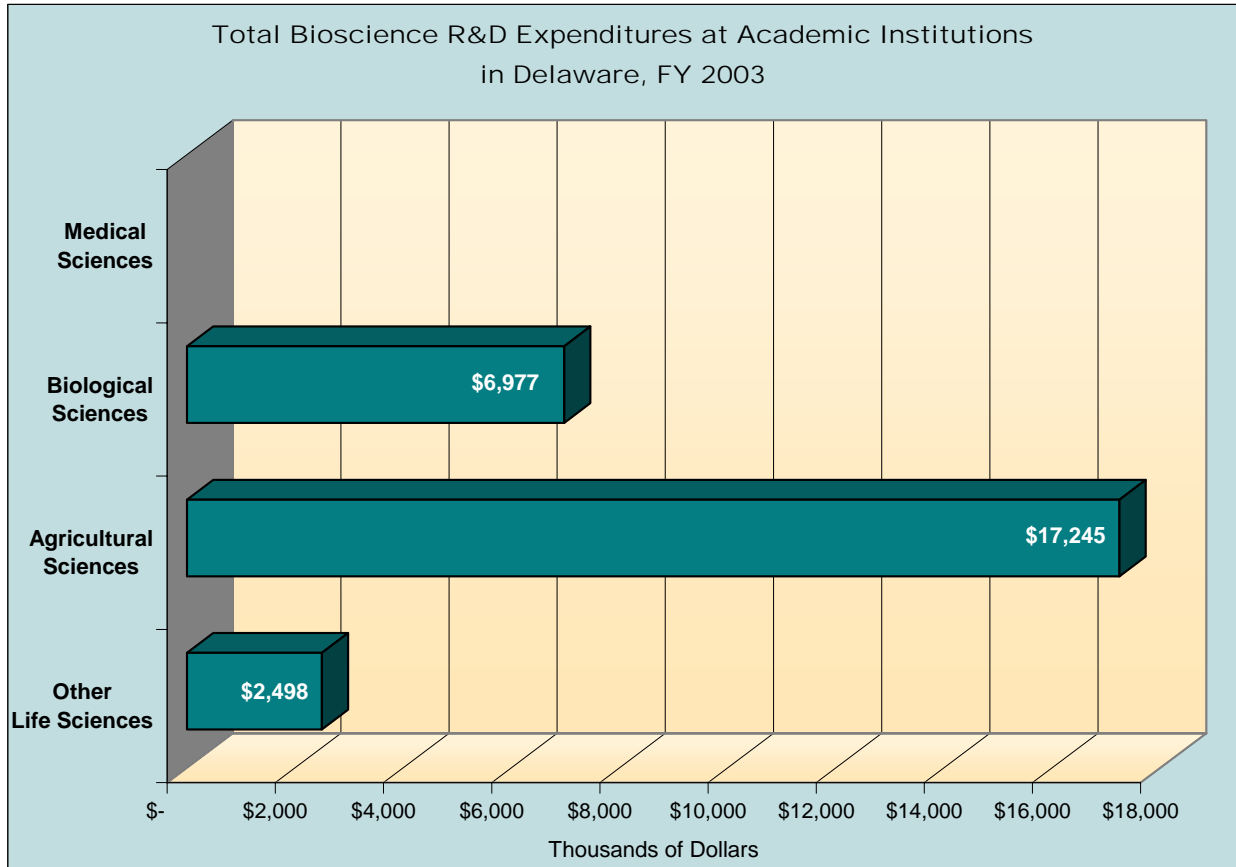
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Industry Subsector	Delaware	United States
Agricultural Feedstock & Chemicals		
Establishments 2004	6	2,111
2001-2004 Establishment % Change	-24.3%	0.4%
Employment 2004	223	104,893
2001-2004 Employment % Change	-66.7%	-6.9%
Share of U.S. Employment	0.2%	100.0%
Location Quotient	0.65	n.a.
Average Annual Wage 2004	\$67,279	\$63,383
Direct-Effect Employment Multiplier	6.23	10.91
Total Employment Impact	1,387	1,212,094
Drugs & Pharmaceuticals		
Establishments 2004	6	2,589
2001-2004 Establishment % Change	50.0%	-0.6%
Employment 2004	620	313,207
2001-2004 Employment % Change	-26.0%	2.7%
Share of U.S. Employment	0.2%	100.0%
Location Quotient	0.61	n.a.
Average Annual Wage 2004	\$64,724	\$79,303
Direct-Effect Employment Multiplier	4.57	9.51
Total Employment Impact	2,835	2,731,321
Medical Devices & Equipment		
Establishments 2004	35	15,190
2001-2004 Establishment % Change	18.6%	0.2%
Employment 2004	2,925	411,460
2001-2004 Employment % Change	-8.5%	-3.6%
Share of U.S. Employment	0.7%	100.0%
Location Quotient	2.18	n.a.
Average Annual Wage 2004	\$74,503	\$56,449
Direct-Effect Employment Multiplier	2.96	4.56
Total Employment Impact	8,655	1,817,705
Research, Testing, & Medical Laboratories		
Establishments 2004	86	20,565
2001-2004 Establishment % Change	55.9%	19.4%
Employment 2004	2,405	413,550
2001-2004 Employment % Change	-35.3%	8.2%
Share of U.S. Employment	0.6%	100.0%
Location Quotient	1.78	n.a.
Average Annual Wage 2004	\$85,719	\$65,414
Direct-Effect Employment Multiplier	2.17	3.15
Total Employment Impact	5,217	1,272,936
TOTAL PRIVATE SECTOR		
Establishments 2004	28,620	8,156,137
2001-2004 Establishment % Change	14.6%	4.8%
Employment 2004	356,080	109,249,195
2001-2004 Employment % Change	0.8%	-0.7%
Share of U.S. Employment	0.3%	100.0%
Location Quotient	n.a.	n.a.
Average Annual Wage 2004	\$42,351	\$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.





	Delaware	United States	Rank
University R&D Expenditures, FY 2003			
Total (\$ thousands)	\$104,650	\$40,104,621	49
Life Science R&D (\$ thousands)	\$26,720	\$24,062,088	50
Percent of Total R&D	25.5%	60.0%	
Life Sciences Per Capita	\$32.69	\$82.74	
Change in Life Sciences FY 1999-2003	39.7%	52.7%	
NIH Support to Institutions, FY 2004			
Total (\$ thousands)	\$29,175	\$22,556,459	46
Per Capita Expenditures	\$35.69	\$77.56	
Change in Expenditures FY 2000-2004	96.1%	53.2%	
Higher Education Degrees in Bioscience Fields, AY 2004	385	111,329	47
Bioscience Occupations in the Workforce, 2004	720	616,140	51