

Minnesota

Minnesota ranks 24th among the states in federal support for R&D with \$477 million in obligations for fiscal year 1994, but is a strong performer of private R&D. Of the \$2.9 billion total spent on R&D in the state in 1993, almost \$2.5 billion was performed by industrial firms, nearly all with firms' own funds. Industry supports 72 percent of Minnesota's total R&D, compared to 58 percent for the nation as a whole (see Table 1).

The 3M Company, headquartered in St. Paul, is a key performer of R&D in the state. 3M maintains labs in St. Paul employing nearly 9000 people, including almost 2000 doctoral scientists and engineers. 3M is Minnesota's largest private employer. Many of 3M's products are developed and tested in Minnesota, and 3M conducts basic and applied research in a variety of fields related to ceramics, electronics, magnetic recording, and information processing.

The University of Minnesota, which employs over 34,000 people, is the 16th largest university recipient of federal R&D funds, with a total of \$182 million in obligations for FY 1994. The university depends on the federal government to finance 57 percent of its total research, according to NSF statistics (see Table 5). No other single source funds more than 15 percent of the university's total research. The university reports that for the past decade, federal support for R&D has been increasing by an average of 9 percent a year, slightly less than the growth rate in total federal support for university research. It recently released an annual report on research, warning of increased competition for research funds if federal support of university R&D declines as projected in the next several years.

The National Institutes of Health (NIH) is by far the largest sponsor of R&D at the University of Minnesota. In FY 1994, the Department of Health and Human Services obligated \$123 million in R&D funds to the university, nearly all of which came from NIH. Although NIH's share of Minnesota's federal R&D portfolio has been declining over time, it still accounts for a majority of federal funds. The next largest sponsor, NSF, trailed far behind in FY 1994 with a total of \$27 million for R&D. Other agencies such as the Department of Agriculture and the Department of Defense (DOD) annually provide less than \$10 million each for R&D (see Table 4).

Private industry obtains significant funding for R&D from DOD, totaling \$167 million in FY 1994. DOD is the second-largest federal sponsor of R&D in Minnesota, after NIH, but unlike NIH, the Defense Department obligates nearly all of its funds to private firms. While some of these funds go toward research, most of these funds are obligated for the development, testing, and evaluation of weapons systems prototypes.

The Department of the Interior's National Biological Service (NBS) operates two federal labs on the University of Minnesota campus in St. Paul. These two labs, the Minnesota Cooperative Fish and Wildlife Research Unit and the University of Minnesota Cooperative Park Studies Unit, together received \$16 million for R&D from Interior in FY 1994. Because they are located on the campus, these labs provide opportunities for education and training as well as research that is of use to Interior activities. These labs' current projects include interdisciplinary research on fish and wildlife resource management and studying global change in the national parks of the Western Great Lakes region. Although the NBS will be merged into the U.S. Geological Survey (USGS) in October, 1996, USGS is expected to continue supporting their work.

The U.S. Department of Agriculture obligated \$15 million for R&D in its labs in FY 1994, including the North Central Soil Conservation Research Laboratory (NCSCRL) in Morris. NCSCRL conducts research on agricultural problems in the transitional subhumid zone of the U.S., encompassing most of Minnesota, the Dakotas, and Iowa.

Table: Federal R&D by Agency & Performer

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Science and Engineering Profile

	Minnesota	U.S.	Rank		Minnesota	U.S.	Rank
Doctoral scientists, 1993	7,705	430,332	18	Total R&D performance, 1993 (millions)	\$2,922	\$161,427	14
Doctoral engineers, 1993	1,163	81,293	21	Industry R&D, 1993 (millions)	\$2,458	\$117,622	11
S&E doctorates awarded, 1995	475	26,482	18	Academic R&D, 1994 (millions)	\$318	\$20,573	22
of which, in life sciences	30%	24%		of which, in life sciences	69%	55%	
in engineering	24%	23%		in engineering	10%	16%	
in psychology	16%	13%		in math & computer sciences	7%	4%	
S&E postdoctorates, 1994				Higher education current-fund			
in doctorate-granting institutions	705	36,143	15	expenditures, 1993 (millions)	\$3,099	\$163,994	18
S&E graduate students, 1994				Number of SBIR awards, 1990-94	269	18,023	18
in doctorate-granting institutions	5,969	438,694	26	Patents issued to state residents, 1995	1,657	55,717	11
Population, 1995 (000s)	4,610	262,755	20	Gross state product, 1992 (billions)	\$110.3	\$5,994.1	18
Civilian labor force, 1995 (000s)	2,589	132,281	20	of which, agriculture	3%	2%	
Personal income per capita, 1995	\$23,118	\$22,788	20	manufacturing, mining, construction	25%	23%	
Federal spending				transportation, communication, utilities	8%	9%	
Total expenditures, 1995 (millions)	\$18,825	\$1,326,294	26	wholesale and retail trade	17%	16%	
R&D obligations, 1994 (millions)	\$474	\$65,654	24	finance, insurance, real estate	18%	18%	
				services	18%	20%	
				government	11%	12%	

Rankings and totals are based on data for the 50 States and D.C.

Data on S&E postdoctorates and S&E graduate students include health fields.

Federal Obligations for Research and Development in Minnesota by Agency and Performer: Fiscal Year 1994

[Thousands of dollars]

	Total	Federal intramural	All FFRDCs	Industrial firms	Universities & colleges	Other nonprofits	State & local government	State rank
Total, all agencies	474,372	40,620	0	183,537	171,224	73,128	5,863	24
Department of Agriculture	24,263	14,963	0	160	9,074	0	66	20
Department of Commerce	2,727	0	0	2,274	453	0	0	26
Department of Defense	184,886	4,093	0	166,869	11,616	2,308	0	23
Department of Energy	6,867	0	0	0	6,867	0	0	36
Dept. of Health & Human Services	187,722	0	0	3,862	109,315	69,986	4,559	16
Department of the Interior	17,664	15,973	0	1,219	472	0	0	12
Department of Transportation	5,284	0	0	3,017	1,154	0	1,113	23
Environmental Protection Agency	10,376	5,591	0	3,001	1,659	0	125	12
Nat'l Aeronautics & Space Admin.	4,152	0	0	2,009	2,079	64	0	36
National Science Foundation	30,431	0	0	1,126	28,535	770	0	21
State rank	24	36	na	21	22	10	9	

Federal R&D obligations are as reported by funding agencies.

FFRDC = federally funded research and development center

SBIR = small business innovation research

na = not applicable

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