

MODEST INCREASE

AGBIOTECH R&D RISES 5 PERCENT

NEWYORK—U.S. agricultural biotechnology companies increased research and development (R&D) spending a modest 5 percent from fiscal 1990 to fiscal 1991, reports *Bio/Technology's* survey of agbiotech R&D outlays (Table 1). In all, the 10 firms surveyed laid out \$55.5 million on research last year, for an average of \$5.6 million a company.

Industry watchers put the rise in perspective. "The agbiotech sector is maturing. Instead of spending heavily on new research projects, companies are taking projects they've nurtured to market," says George Dahlman, an analyst at Piper Jaffray (Minneapolis, MN). And George Kidd, a vice president at Teweles & Co. (Milwaukee, WI), adds that the "quality of agbiotech research has changed. Companies are spending money on products instead of enabling technologies." Calgene (Davis, CA) is an example, as it plans to market a tomato genetically engineered to improve flavor next year.

For their part, 10 diversified pesticide-and-seed companies cut R&D spending 2.8 percent from 1990 to 1991. The firms anted up \$6.6 billion for research last year, or \$661 million per company,

on average. Along with agricultural research, though, many of these companies conduct chemical and pharmaceutical R&D.

As a percent of sales, agbiotech companies spent eight times more on research than pesticide-and-seed firms, mainly because agbiotech companies didn't bring in much money. On average, agbiotech firms laid out 46.4 percent of sales on R&D, with sales of \$12 million per firm. Research spending averaged 5.6 percent of sales for pesticide-and-seed companies, as each company averaged sales of \$11.7 billion.

Agbiotech companies—largely because they're small—spent over three times as much on research as pesticide-and-seed companies, per employee. Agbiotech companies kicked in \$43,269 for each worker, while pesticide-and-seed companies anted up \$13,673.

Among agbiotech companies, Calgene was the biggest R&D spender. Yet its \$11.2-million research budget barely topped runner-up Mycogen's (San Diego, CA) budget of \$10.7 million. Ciba-Geigy (Basel, Switzerland) led pesticide-and-seed companies, with research expenditures of \$1.5 billion.

Escagenetics (San Carlos, CA) increased R&D spending more than any other agbiotech company, with its outlay 42.4 percent greater than in 1990. Second-place Neogen (Lansing, MI) upped research spending 33.7 percent, compared to 1990. Among pesticide-and-seed companies, American Cyanamid (Wayne, NY) was the leader, increasing R&D spending 14.3 percent over 1990.

Crop Genetics International (Hanover, MD) topped all agbiotech companies in R&D spending as a percent of sales. It laid out 421.8 percent of sales on research, while runner-up Escagenetics anted up 112.9 percent of sales. Dekalb Genetics (Dekalb, IL) led the pesticide-and-seed companies, spending 13.3 percent of sales on R&D.

Per employee, Ecogen (Langhorne, PA) laid out more research dollars than any other agbiotech company, spending \$80,100 per worker. Second-place Crop Genetics spent \$59,810 per employee. Among pesticide and seed companies, Dow Chemical (Midland, MI) led the way, with research expenditures of \$18,628 for each worker.

—B.J. Spalding

AGBIOTECH R&D COMMITMENTS

Company	RESEARCH & DEVELOPMENT SPENDING				SALES		PROFITS
	Latest FY Spending (\$ Million)	Change from Last FY (%)	Versus Revenue (%)	Per Employee (\$)	Latest FY (\$ Million)	Change from Last FY (%)	Latest FY (\$ Million)
AGBIOTECH COMPANIES							
Biotechnica International	5.142*	-33.5	33.3	29,216	15.434	-24.9	-15.044
Calgene (6/91)	11.151*	7.0	42.7	49,341	26.104	-5.4	-14.379
Crop Genetics International	5.981	13.6	421.8	59,810	1.418	-17.2	-8.386
DNA Plant Technology	6.473	18.7	71.0	44,951	9.123	-16.1	-14.941
Ecogen	6.408*	17.0	102.7	80,100	6.240	244.0	-10.879
Escagenetics (3/91)	2.851	42.4	112.9	59,396	2.525	-43.2	-4.190
Idexx Labs	3.860	11.0	12.7	16,638	30.454	24.3	3.152
Mycogen	10.700*	-2.7	58.4	38,351	18.312	70.8	-3.305
Neogen (5/91)	0.857	33.7	14.4	8,240	5.963	-1.0	-0.774
Syntro (9/91)	2.099*	9.6	52.1	46,644	4.026	30.2	-0.944
Total	55.522	NA	NA	432,687	119.599	NA	-69.690
Average	5.552	5.0	46.4	43,269	11.960	24.0	-6.969
PESTICIDE-AND-SEED COMPANIES							
American Cyanamid	492.000	14.3	9.9	15,576	4,986.200	9.1	358.800
Ciba-Geigy (12/90)	1,483.000	-1.2	10.0	15,755	14,274.649	-4.4	747.034
Dekalb Genetics (8/91)	36.700	10.5	13.3	15,544	275.800	0.7	15.700
Dow Chemical	1,159.000	2.0	6.2	18,628	18,807.000	-4.9	942.000
DuPont	1,298.000	-9.1	3.4	9,790	38,151.000	-3.9	1,403.000
FMC	134.644	-14.6	3.5	5,816	3,899.449	4.8	173.083
ICI	1,115.000	-2.3	4.8	9,021	23,353.000	-6.2	1,014.000
Monsanto	627.000	2.5	7.1	15,962	8,864.000	-1.5	296.000
Pioneer Hi-Bred (8/91)	78.290	8.0	7.0	16,420	1,124.902	16.6	104.177
Rohm & Haas	183.000	2.7	6.6	14,217	2,773.000	-2.2	163.000
Total	6,606.634	NA	NA	136,729	116,509.000	NA	5,216.794
Average	660.663	-2.8	5.6	13,673	11,650.900	-3.3	521.679

Results are for the fiscal year ending 12/91, except as noted. *R&D includes customer-sponsored or government-sponsored expenses. NA means not available.

Source: Standard & Poor's Compustat Services (Englewood, CO)