

**Added Information on
Expenditures in Biotechnology in 1997**

**Prepared by the TAC Chairman
for discussions on Biotechnology
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Update on 1997 Expenditures in Biotechnology

The following tables report on the amounts being spent by centers in 1997 on various classes of biotechnology. In May 1997, centers engaged in such work were asked by TAC to report estimated expenditures, exclusive of center overheads. In September 1997, the centers were asked to review their earlier estimates and report any changes. The September estimates are the basis for the tables.

Table 1 contains the amounts reported to TAC. In Table 2, the dollar amounts have been converted to percentages.

- Category 8b, Other, contains several different activities. Some of the responses labeled "Other" by centers, e.g., \$500t in equipment and infrastructure by IRRI, were distributed across Activities 1-8a.
- While most centers do some amount of training in conjunction with their work, only three centers (CIAT, CIMMYT, and IRRI) explicitly reported training and networks; therefore, category 8a includes only those three.
- Finally, it appears that little of the activity included in "Other" deals directly with genetic transformations.

General conclusions:

- Exclusive of center overhead charges, the centers are spending about \$24m on biotechnology. Of that amount, about 27% is related directly to livestock (most of it on animal health).
- Roughly 15% of the total expenditure goes to genetic transformations, with nine centers participating--and some 60% of the total in the three centers with the largest commitments.
- Said another way, about 85% of the expenditures are in small scale biotechnology, where gene mapping is the largest single activity.
- Some 27% of the total is in "Other," with ILRI making up two-thirds of that (via genotyping \$1.0m, production of biologicals \$1.0m, and pre-biotechnology and testing/delivery \$2.1m). Without ILRI, the remaining amounts in "Other" are about 10% of the remaining total.

Table 1: Estimated 1997 Expenditures by Centers in various Biotechnology Activities (\$000s)

Centers/ Activities	CIAT	CIMMYT (a)	CIP (b)	ICARDA (c)	ICLARM	ICRAF	ICRISAT	IITA	ILRI	IPGRI	IRRI (d)	WARDA	Total*
1. Tissue Culture	200		400	60		10	300	195	250	920	170	110	2,615
2. Embryo Rescue	50	440		25			130	100	100	110	350	30	1,335
3. ELISA	80	40	500	30			65	25	250	630	100		1,720
4. Marker-Assisted Selection	300	420	275	40			130	40	30		340	210	1,785
5. Gene Mapping	350	990	275	320			220	550	1,000		630		4,335
6. Gene Sequencing	250	200	345	120		20	130	20	200		270		1,555
7. Genetic Transformation	300	935	345	90			260	265	500	260	640		3,595
8a. Networks/ Training	300	100									410		810
8b. Other	100	145		160	310	180	65	580	4,330	230	375		6,475
Total*	1,930	3,270	2,140	850	310	210	1,300	1,780	6,660	2,150	3,285	350	\$24,200

(a) CIMMYT reported economics and capital (\$175t) under Other; the amount was allocated across Activities 1-8a.

(b) CIP reported Activities 4 and 5 together; half of the total was assigned to each. Activities 6 and 7 were similarly reported and handled.

(c) Reported by ICARDA inclusive of center overheads and adjusted to exclude overheads.

(d) IRRI reported expenditures on construction and equipment, and for management (\$525t) under Other; the amount was distributed proportionately across Activities 1-8a.

*Totals may not exactly equal sums, as many numbers have been rounded.

Table 2: Estimated^a 1997 percentages^b expended per center and in total on various Biotechnology Activities

Centers/ Activities	CIAT	CIMMYT	CIP	ICARDA	ICLARM	ICRAF	ICRISAT	IITA	ILRI	IPGRI	IRRI	WARDA	Total ^c
1. Tissue Culture	10		19	7		5	23	11	4	43	5	31	11
2. Embryo Rescue	3	14		3			10	6	2	5	11	9	6
3. ELISA	4	1	23	4			5	1	4	29	3		7
4. Marker-Assisted Selection	16	13	13	5			10	2			10	60	7
5. Gene Mapping	18	30	13	38			17	31	15		19		18
6. Gene Sequencing	13	6	16	14		10	10	1	3		8		6
7. Genetic Transformation	16	29	16	11			20	15	7	12	20		15
8a. Networks/ Training	16	3									13		3
8b. Other	5	4		19	100	86	5	33	65	11	11		27

^a See notes for Table 1.

^b Columns sum to 100%, except for rounding errors.

^c Represents percentage of grand total for all centers.