

Annual Report of the AETA Statistics Committee For Calendar Year 2005

The US embryo transfer industry is healthy and on the rise. Almost all major categories of embryo transfer activity in 2005 showed significant increases over the 2004 data. Both dairy and beef collection data have been analyzed, and ETB data has been computed so that practitioners can compare their collection and transfer data to industry averages.

The stats committee would like to thank all the ETBs that collected and reported their data ahead of the deadline. It takes 100 plus man hours for the committee to enter all the data and analyze it every year. This data is extremely important to our industry, not only for those of us who make their living doing embryo transfer, but for those who supply us and our clients with products and services. With new and emerging biotechnologies on the horizon, who other than ourselves can provide the information that these companies need to make sound business and marketing decisions for the products that WE will benefit from? A small number of ET practitioners commented that collecting this data was too painful and apparently of little value to them. Speaking for myself, I can say that for what I gain from being an AETA member, collecting data once a year is the least I can do to contribute to this association of my professional peers and good friends. For those who were late or had incomplete data, I strongly encourage you to do your best to keep up during the year, so that data collection isn't a burden. Each letter that has to be written and each phone call made in behalf of these delinquent files is an added burden to the committee, the president, and to the AETA office – and it costs money!

One final thought before we dive in and look at the data. Several comments were made to make the questionnaire as consistent as possible from year-to-year, so that ETBs can begin collecting data on a daily basis instead of waiting for the “new” questionnaire each year. The committee hears you loud and clear. The new questionnaire/spreadsheet is already available for the 2006 calendar year. Vicki Paden will be sending those documents electronically sometime in July. If you don't receive one, please email or call her at the AETA office. If you wish to enter each donor collection electronically so that stats will be computed for you ask for the file “AETA ETB Stats Spreadsheet 2006”. If you have software to compute your own stats, please ask for the file “AETA Stats Survey Hard Copy 2006”.

The 2005 breeding year has shown the most substantial one year growth of ETBs reporting data since the AETA began collecting data over a decade ago. The only region suffering a decline is the southwest, but there is only one state (California) active in that region. The south central region enjoyed the largest percent increase in ETBs by growing 37%. There were 115 certified ETBs reporting in 2005, and 19 non-certified companies.

Dairy Data Collection

Dairy ET practitioners enjoyed an increase in both the number of donors stimulated and the number of embryos collected in 2005.

2004 Dairy Collection Data by Region

REGION	NON STIM DAIRY DONORS FLUSHED	Average # of EMB Collected from Non-Stim Dairy Donors	DAIRY DONORS STIMULATED & FLUSHED	TRANS EMB COLLECTED FROM STIM DAIRY DONORS	Ave # of Viable Embs Collected From Stim Dairy Donors	TOT Viable EMB COLLECTED FROM DAIRY DONORS
NorthEast	182	0.53	4900	25767	5.26	25864
SouthEast	31	0.74	823	4068	4.94	4091
NorthCentral	154	0.49	6363	34502	5.42	34578
SouthCentral	21	0.62	730	3689	5.05	3702
NorthWest	17	0.76	1213	6741	5.56	6754
SouthWest	2	0.50	957	2138	2.23	2139
Totals	407	0.55	14986	76905	5.13	77128

2005 Dairy Collection Data by Region

REGION	NON STIM DAIRY DONORS FLUSHED	Average # of EMB Collected from Non-Stim Dairy Donors	DAIRY DONORS STIMULATED & FLUSHED	Viable EMBs COLLECTED FROM STIM DAIRY DONORS	Ave # of Viable EMBs Collected from Stim Dairy Donors	TOT TRANSFERABLE EMB COLLECTED FROM DAIRY DONORS
Northeast	143	0.42	5579	29919	5.4	29979
Southeast	22	0.55	975	5955	6.1	5967
NorthCentral	140	0.47	7616	41716	5.5	41782
Southcentral	10	0.50	525	2449	4.7	2454
NorthWest	16	0.69	931	5381	5.8	5392
Southwest	3	0.67	428	2310	5.4	2312
Totals	334	0.47	16054	87730	5.5	87886

Nation wide, single egg collections decreased, but stimulated collections increased by 1068. Viable embryos collected also increased by almost 11,000. The southwest dropped in numbers, but the northeast and the north central regions had very healthy increases in dairy activity.

Beef Donor Collection Data

Beef Donor Collection Data 2004

2004 Regions	BEEF DONORS STIMULATED & FLUSHED	TRANS EMB COLLECTED FROM STIM BEEF DONORS	VIABLE EMB PER COLLECTION BEEF
NorthEast	1212	7205	5.94
SouthEast	4602	31562	6.86
NorthCentral	7034	44415	6.31
SouthCentral	10643	73182	6.88
NorthWest	2028	13827	6.82
SouthWest	196	1373	7.01
Totals	25715	171564	6.67

Beef Donor Collection Data 2005

2005 Regions	NON STIM BEEF DONORS FLUSHED	AVE # EMB COLLECTED FROM NON STIM BEEF DONORS	BEEF DONORS STIMULATED & FLUSHED	VIABLE EMB COLLECTED FROM STIM BEEF DONORS	AVE # VIABLE EMB COLLECTED FROM STIM BEEF DONORS	TOT VIABLE EMB COLLECTED FROM BEEF DONORS
Northeast	2	0.50	1665	10237	6.15	10238
Southeast	1	0.00	5021	43084	8.58	43084
NorthCentral	18	0.56	10323	65334	6.33	65344
Southcentral	26	0.77	12170	77739	6.39	77759
NorthWest	7	0.43	2765	19049	6.89	19052
Southwest	0		235	1956	8.32	1956
Totals	54	0.63	32179	217399	6.76	217433

Beef stimulated donor collections rose overall by nearly 6500. Viable embryos collected increased by an astounding 45,835! That's a 21% increase over the previous year. Every region showed growth in donors collected and embryos recovered. The north central region had a 20,000 embryo increase from 2004.

Fresh Transfers:

Fresh Transfers Dairy 2004

REGION	FRESH TRANSFERS DAIRY
NorthEast	11985
SouthEast	2060
NorthCentral	11615
SouthCentral	1600
NorthWest	3266
SouthWest	2528
Totals	33054

Fresh Transfers Dairy 2005

REGION	FRESH TRANSFERS DAIRY
Northeast	14128
Southeast	2373
NorthCentral	15562
Southcentral	1106
NorthWest	2610
Southwest	849
Totals	36628

Overall, there was only a small increase in the number of fresh dairy embryos transferred in 2005.

Fresh Transfers Beef 2004

2004 Regions	FRESH TRANSFERS BEEF
NorthEast	2797
SouthEast	13687
NorthCentral	11649
SouthCentral	29464
NorthWest	3914
SouthWest	912
Totals	62423

Fresh Transfers Beef 2005

2005 Regions	FRESH TRANSFERS BEEF
Northeast	3107
Southeast	15243
NorthCentral	15154
Southcentral	29325
NorthWest	5475
Southwest	345
Totals	68649

Across the US about 6000 more fresh transfers were done. All regions except the Southwest and South central showed healthy increases in fresh beef embryo transfers.

Total Fresh Transfers Beef and Dairy Combined

2005 TOTAL FRESH TRANSFERS BEEF & DAIRY
17343
17648
30879
30656
8085
1194
105805

The total fresh transfers (beef and dairy combined) was up 8724 from 97,081 in 2004.

Embryos Frozen

Dairy Glycerol vs. DT vs. Vitrified 2004

REGION	EMB FROZEN GLYCEROL DAIRY	EMB FROZEN DT DAIRY	EMB VITRIFIED DAIRY	TOTAL EMB FROZEN DAIRY
NorthEast	2419	10965	0	12170
SouthEast	235	1688	0	1923
NorthCentral	5668	15409	0	21077
SouthCentral	492	931	0	1423
NorthWest	16	2243	0	2259
SouthWest	571	1584	566	2721
Totals	9401	32820	566	41573

Dairy Glycerol vs. DT vs. Vitrified 2005

REGION	EMB FROZEN GLYCEROL DAIRY	EMB FROZEN DT DAIRY	EMB VITRIFIED DAIRY	TOTAL EMB FROZEN DAIRY
Northeast	2221	14586	0	16719
Southeast	405	3381	0	3786
NorthCentral	5796	20146	10	25952
Southcentral	29	822	0	851
NorthWest	56	2487	0	2543
Southwest	33	1357	0	1390
Totals	8540	42779	10	51241

In 2004, 22.6% of dairy embryos were frozen in glycerol. The percentage decreased to 16.6% in 2005. Overall, 10,000 more dairy embryos were frozen with that increase being attributed to more dairy embryos collected, plus a push towards freezing in ethylene glycol. It's interesting that 566 embryos were reported vitrified in 2004 and only 10 in 2005, especially since there was no report of vitrified embryos being transferred in 2005. There seems to be a lot of talk about vitrification, but little commercial activity associated with it. Dairy ET practitioners seem to stay with what works. We'll see what happens in 2006 with vitrification data.

Beef Glycerol vs. DT vs. Vitrified 2004

2004 Regions	EMB FROZEN GLYCEROL BEEF	EMB FROZEN DT BEEF	EMB FROZEN VITRIFIED BEEF	TOT EMB FROZEN BEEF
NorthEast	52	4409	0	4461
SouthEast	882	19592	0	20474
NorthCentral	1025	32760	0	33785
SouthCentral	3338	36490	0	39828
NorthWest	1348	8335	0	9683
SouthWest	739	15	512	1266
Totals	7384	101601	512	109497

Beef Glycerol vs. DT vs. Vitrified 2005

2005 Regions	EMB FROZEN GLYCEROL BEEF	EMB FROZEN DT BEEF	EMB FROZEN VITRIFIED BEEF	TOT EMB FROZEN BEEF
Northeast	10	7021	0	7031
Southeast	422	22485	182	23089
NorthCentral	867	49492	0	50359
Southcentral	1179	46704	0	47883
NorthWest	993	12523	91	13607
Southwest	106	1576	0	1682
Totals	3577	139801	273	143651

Roughly 32,500 more beef embryos were frozen in 2005, which is a robust 23% increase. Beef embryos frozen in glycerol dropped by 50% from 2004 to 2005. Although the southwest reported vitrifying 512 beef embryos in 2004, the northwest and southeast are showing a progressive face in this area in 2005.

Frozen Embryos Transferred

Dairy and Beef Combined Frozen Embryos Transferred 2004

Region	EMB THAWED-GLY DAIRY & BEEF	EMB THAWED-DT DAIRY & BEEF	Total Emb Thawed Beef & Dairy
Northeast	1178	7968	9146
Southeast	523	10008	10531
NorthCentral	4185	22813	26998
Southcentral	2197	18631	20828
NorthWest	759	3584	4343
Southwest	945	3609	4554
Totals	9787	66613	76400

Dairy and Beef Combined Frozen Embryos Transferred 2005

REGION	EMB THAWED-GLY DAIRY & BEEF	EMB THAWED-DT DAIRY & BEEF	Total Emb Thawed Beef & Dairy
Northeast	973	10178	11151
Southeast	604	15606	16210
NorthCentral	3783	38454	42237
Southcentral	1078	34967	36045
NorthWest	1057	11375	12432
Southwest	1157	3090	4247
Totals	8652	113670	122322

Fewer embryos frozen in glycerol are being transferred. The number of DT embryos transferred nearly doubled from 2004 to 2005. However, there were likely some omissions of thawed embryo data due to some confusion in the 2004 questionnaire, so that figure is misleading. What isn't misleading is the fact that there were 13 times as many DT embryos transferred than glycerol in 2005. It looks like ethylene glycol is winning the war as the most popular cryoprotectant.

Biopsied Embryos

Biopsied Embryos 2004

STATE	FRESH BIOPSIED TRANSFERRED DAIRY	EMB BIOPSIED & FROZEN DAIRY	FRESH BIOPSIED TRANSFERRED BEEF	EMB BIOPSIED & FROZEN BEEF	TOT EMB BIOPSIED DAIRY & BEEF
Northeast	125	48	0	0	173
Southeast	17	12	0	0	29
NorthCentral	42	528	0	20	590
Southcentral	15	16	0	18	49
NorthWest	491	395	0	0	886
Southwest	210	0	210	0	420
Totals	900	999	210	38	2147

Biopsied Embryos 2005

REGION	FRESH BIOPSIED TRANSFERRED DAIRY	EMB BIOPSIED & FROZEN DAIRY	FRESH BIOPSIED TRANSFERRED BEEF	EMB BIOPSIED & FROZEN BEEF	TOT EMB BIOPSIED DAIRY & BEEF
Northeast	42	0	66	0	108
Southeast	32	19	0	0	51
NorthCentral	9	27	11	0	47
Southcentral	2	13	0	14	29
NorthWest	0	0	0	0	0
Southwest	0	0	0	0	0
Totals	85	59	77	14	235

Biopsied embryos took a significant drop in 2005.

Demi-embryos

Demi Embryo Activity 2004

Region	FRESH DEMIS TRANSFERRED DAIRY	DEMI EMB FROZEN DAIRY	FRESH DEMIS TRANSFERRED BEEF	DEMI EMB FROZEN BEEF	DEMI EMB THAWED
Northeast	0	0	0	0	0
Southeast	0	0	185	0	0
NorthCentral	28	0	26	0	0
Southcentral	24	2	231	0	2
NorthWest	0	0	0	0	0
Southwest	0	0	0	0	0
Totals	52	2	442	0	2

Demi Embryo Activity 2005

STATE	FRESH DEMIS TRANSFERRED DAIRY	DEMI EMB FROZEN DAIRY	FRESH DEMIS TRANSFERRED BEEF	DEMI EMB FROZEN BEEF	DEMI EMB THAWED
Northeast	0	0	0	0	0
Southeast	0	0	0	0	0
NorthCentral	121	0	22	0	0
Southcentral	23	0	200	0	0
NorthWest	0	0	0	0	0
Southwest	0	0	0	0	0
Totals	144	0	222	0	0

Embryo splitting is slightly up in the dairy industry, but down 50% in the beef sector. Overall, there is little change and very little activity reported industry wide.

Embryos in Storage

Dairy and Beef Embryos Stored in 2004

Region	FROZEN EMB IN STORAGE DAIRY	FROZEN EMB IN STORAGE BEEF	TOTAL EMB IN STORAGE
Northeast	4919	149	5068
Southeast	75	11156	11231
NorthCentral	6348	64302	70650
Southcentral	3711	40884	44595
NorthWest	988	10406	11394
Southwest	213	0	213
Totals	16254	126897	143151

Dairy and Beef Embryos Stored in 2005

STATE	FROZEN EMB IN STORAGE DAIRY	FROZEN EMB IN STORAGE BEEF	TOTAL EMB IN STORAGE
Northeast	5696	2759	8455
Southeast	1323	5497	6820
NorthCentral	18078	66515	84593
Southcentral	2108	53167	55275
NorthWest	1868	24855	26723
Southwest	4354	3000	7354
Totals	33427	155793	189220

There was some confusion relative to the questionnaire about stored embryos. Stored embryos are only those in the possession of the ETB, and not those stored in Dewars on the farm. That will be clearly spelled next year. Stored embryos are up almost 50,000 from the previous year.

Dairy Exports

Dairy exports were not broken down by breed this year. However, the importing countries were. Overall, there were 5644 dairy embryos reported being exported in 2005. That's down slightly from 5868 in 2004. Japan led all importers in 2005 with 1600 embryos (2005 last year), followed by Germany with 646 and Holland with 587. Turkey also had 444 imports from the US.

ARGENTINA	AUSTRALIA	CANADA	CZECH	DENMARK	ENGLAND	FRANCE	GERMANY
165	103	349	4	7	160	411	646

HOLLAND	HUNGARY	IRELAND	ITALY	JAPAN	KENYA	MEXICO	PANAMA
587	13	15	149	1600	10	247	22

POLAND	ROMANIA	S AFRICA	SPAIN	SWEDEN	SWITZERLAND	TURKEY	UK
8	404	18	98	5	45	444	41

Beef Exports

Beef exports were not broken down by breed. Overall, 3572 beef embryos were exported in 2005. That's down from 4599 the previous year. The leading export country was Australia with 1306 followed by Brazil then Romania.

Australia	Brazil	Canada	Chile	C Rica	Eng	Guat	Mex	New Z
1306	570	267	16	21	5	0	0	217
Panama	Paraguay	Romania	Uruguay	Thailand	Nicaragua	Unknown		
8	26	350	287	67	25	367		

IVF Activity

IVF 2005

Total Collections	Oocytes per Recovery	Embryos Frozen	Fresh Trans	Fresh Transfers per Recovery	Total Emb Produced	Viable Embryos per Recovery	Fresh Transfer Preg Rate
1091	8.00	0	1305	1.20	1305	1.20	43

Only one ETB reported IVF data for 2005. All recoveries reported were on beef cattle.

Cloning

Commercial Cloning Activity 2005

# Cell Lines	#NT Trans Fresh	# Preg (60 Days)	60 Day Preg Rate
100	928	134	14.44%

Only one ETB reported commercial cloning activity.

Other Species

Equine Collections/Transfers

DONORS TOTAL	EMB REC	TRANSF	FRESH PREG RATE	FROZEN	VITRIFIED	DT THAWED	DT PREG RATE
1278	1039	1073	72.16667	1357	0	22	40.00%

Although this is a relatively small percentage of equine ET activity we are gaining ground from year to year.

Goats Collections/Transfers

DONORS TOTAL	EMB REC	TRANSF
69	782	568

This is all the data that was received on goats. Three ETBs reported goat activity.

Sheep ET

DONORS TOTAL	EMB REC	TRANSF	FRESH PREG RATE	FROZEN
3	10	0	0	10

Only one company reported.

ETB Information

2005 Data

REGION	ETBs Reporting	FULL TIME	PART TIME	PROF STAFF	PRO STAFF/ETB	SUPPORT STAFF	Support Staff per ETB	HOUSE DONORS	PROVIDE RECIPS
Northeast	28	11	17	22.00	0.79	19.00	0.68	5	2
Southeast	18	8	10	15.80	0.88	20.45	1.14	12	6
North Central	39	23	16	44.24	1.13	113.20	2.90	13	8
South Central	30	17	13	27.40	0.91	51.55	1.72	24	14
Northwest	15	7	8	9.15	0.61	22.50	1.50	22	7
Southwest	4	2	2	2.60	0.65	11.00	2.75	3	2
Totals	134	68	66	121.19	0.90	237.70	1.77	79	39

ETBs reporting are up by 33 from 2004. Those housing donors and recipients are up significantly.

The following data provides ET practitioners and ETBs with an industry standard for comparative purposes.

Donor Collections per Professional

Region	Dairy Donors Stimulated & Collected	Dairy Donors Collected per Professional	Beef Donors Stimulated & Collected	Beef Donors Collected per Professional	Total Donors Collected	Total Donors Collected per Professional
Northeast	5579	254	1665	76	7244	329
Southeast	975	62	5021	318	5996	379
NorthCentral	7616	172	10323	233	17939	405
Southcentral	525	19	12170	444	12695	463
NorthWest	931	102	2765	302	3696	404
Southwest	428	165	235	90	663	255
Totals	16054		32179		48233	398

Embryos Frozen per Professional

REGION	EMBs Frozen per Professional
Northeast	1080
Southeast	1701
NorthCentral	1725
Southcentral	1779
NorthWest	1765
Southwest	1182
Totals	1608

Frozen Embryos Transferred per Professional

REGION	EMB Thawed per Professional
Northeast	507
Southeast	1026
NorthCentral	955
Southcentral	1316
NorthWest	1359
Southwest	1633
Totals	1009

Fresh Embryo Transfers per Professional

Region	Dairy Fresh Transfers per Professional	Beef Fresh Transfers per Professional	TOTAL FRESH TRANSFERS BEEF & DAIRY	Beef & Dairy Combined Fresh Transfers per Professional
Northeast	642	141	17343	788
Southeast	150	965	17648	1117
NorthCentral	352	343	30879	698
Southcentral	40	1070	30656	1119
NorthWest	285	598	8085	884
Southwest	327	133	1194	459
Totals			105805	873

Total Transfers (Fresh + Frozen, Beef and Dairy) per Professional

Region	# of ETBs	TOTAL EMBRYOS TRANSFERRED FRESH & FROZEN	TOTAL EMBRYOS TRANSFERRED per Professional
Northeast	28	28510	1018
Southeast	18	33877	1882
NorthCentral	39	73140	1875
Southcentral	30	66712	2224
NorthWest	15	20517	1368
Southwest	4	5441	1360
Totals	134	228197	1703

Total Ova, Unfertilized and Degenerates Collected

Only 16% of ETBs failed to report this data. That’s a very good response considering this is the first year the committee has requested this data. Maybe next year practitioners will record and report the data since they know the committee will request it.

Percentages of UFOs, Degenerates, and Viable Embryos

	UFOs	Degens	Viable
Dairy	31.31%	14.02%	52.08%
Beef	30.15%	15.77%	55.98%

Beef cattle showed a slight tendency to produce a higher percentage of viable embryos. The big picture is that nearly half of the total ova collected from beef and dairy cattle are non-viable. That’s a tremendous loss of income between ETBs and cattle breeders. Although these figures are not surprising, the data set is substantial and suggests that we work on strategies to improve these numbers through better superovulation protocols, insemination timing, and better selection of semen from highly fertile males.

Pregnancy Rates

35% of the reporting ETBs failed to report exact or estimated pregnancy rates on transferred fresh and frozen embryos. Only 12 ETBs gave actual pregnancy rates, and 72 others reported estimated pregnancy rates. Although the data isn’t very accurate, the past presidents recommendation was to include the data in this report.

Pregnancy Rates

Region	FRESH PREG RATE	GLYC PREG RATE	DT PREG RATE
Northeast	60.15	56.50	56.15
Southeast	62.50	57.17	57.00
NorthCentral	62.48	54.56	57.41
Southcentral	61.38	51.43	53.90
NorthWest	62.33	55.40	54.56
Southwest	65.19	56.35	57.59
Totals	62.34	55.23	56.10

Pregnancy rates are mostly estimates of both dairy and beef transfers combined.

This concludes the 2005 report of the AETA stats committee. Thanks to all who contributed on time. Next year’s questionnaire will be sent out at exactly the same time. The committee begs everyone to comply in a timely fashion.

Respectfully submitted by the AETA Stats Committee,
Brad Stroud and Jeanne Rehyer