

DOMESTIC DAIRY SEMEN SALES (1)

UNITS OF SEMEN

| BREED | 1990 | 1989 | %+/- |
|-------------------|------------|------------|--------|
| HOLSTEIN | 12,276,057 | 11,799,125 | 4.04% |
| JERSEY | 610,154 | 602,618 | 1.25% |
| GUERNSEY | 176,525 | 174,311 | 1.27% |
| BROWN SWISS | 139,104 | 124,251 | 11.95% |
| AYRSHIRE | 51,866 | 51,049 | 1.60% |
| MILKING SHORTHORN | 18,086 | 18,034 | 0.29% |
| OTHER DAIRY | 211 | 144 | 46.53% |
| TOTAL | 13,272,003 | 12,769,532 | 3.93% |

CUSTOM FROZEN DAIRY SEMEN (1)

UNITS OF SEMEN

| BREED | 1990 | 1989 | %+/- |
|-------------------|---------|---------|---------|
| HOLSTEIN | 683,054 | 630,298 | 8.37% |
| BROWN SWISS | 127,504 | 53,054 | 140.33% |
| JERSEY | 36,018 | 43,234 | -16.69% |
| AYRSHIRE | 9,327 | 23,367 | -60.08% |
| MILKING SHORTHORN | 4,131 | 7,204 | -42.66% |
| GUERNSEY | 3,416 | 3,639 | -6.13% |
| OTHER DAIRY | 54 | 0 | N/A |
| TOTAL | 863,504 | 760,796 | 13.50% |

DAIRY SEMEN EXPORT SALES (1)

UNITS OF SEMEN

| BREED | 1990 | 1989 | %+/- |
|-------------|-----------|-----------|---------|
| HOLSTEIN | 4,191,516 | 3,831,228 | 9.40% |
| BROWN SWISS | 273,552 | 331,974 | -17.60% |
| JERSEY | 152,969 | 133,871 | 14.27% |
| GUERNSEY | 8,270 | 7,057 | 17.19% |
| OTHER DAIRY | 7,578 | 2,776 | 172.98% |
| TOTAL | 4,633,885 | 4,306,906 | 7.59% |

DAIRY SEMEN EXPORT SALES (2)

UNITS OF SEMEN

| REGION | 1990 | 1989 | %+/- |
|----------------------|------------------|------------------|--------------|
| EUROPEAN COMMUNITY | 1,745,396 | 1,677,977 | 4.02% |
| SOUTH AMERICA | 801,423 | 841,229 | -4.73% |
| NORTH AMERICA | 728,181 | 628,799 | 15.81% |
| ASIA | 322,009 | 413,207 | -22.07% |
| MIDDLE EAST | 296,739 | 206,004 | 44.05% |
| OTHER WESTERN EUROPE | 212,709 | 179,741 | 18.34% |
| OCEANIA | 178,777 | 127,774 | 39.92% |
| EASTERN EUROPE | 124,968 | 122,135 | 2.32% |
| AFRICA | 121,242 | 68,405 | 77.24% |
| CENTRAL AMERICA | 112,047 | 115,753 | -3.20% |
| CARRIBEAN | 16,674 | 22,239 | -25.02% |
| TOTAL | <u>4,660,165</u> | <u>4,403,263</u> | <u>5.83%</u> |

DAIRY SEMEN EXPORT SALES (2)

DOLLAR VALUE

| REGION | 1990 | 1989 | %+/- |
|----------------------|---------------------|---------------------|---------------|
| EUROPEAN COMMUNITY | \$25,878,416 | \$23,009,057 | 12.47% |
| NORTH AMERICA | 4,848,921 | 3,750,507 | 29.29% |
| SOUTH AMERICA | 3,211,055 | 3,160,285 | 1.61% |
| ASIA | 3,023,375 | 2,873,547 | 5.21% |
| OTHER WESTERN EUROPE | 2,515,751 | 1,627,093 | 54.62% |
| MIDDLE EAST | 2,276,084 | 1,390,673 | 63.67% |
| AFRICA | 1,513,123 | 799,638 | 89.23% |
| EASTERN EUROPE | 1,407,790 | 1,318,124 | 6.80% |
| OCEANIA | 1,323,716 | 879,095 | 50.58% |
| CENTRAL AMERICA | 411,143 | 391,781 | 4.94% |
| CARRIBEAN | 70,369 | 46,204 | 52.30% |
| TOTAL | <u>\$46,479,743</u> | <u>\$39,246,004</u> | <u>18.43%</u> |

DOMESTIC BEEF SEMEN SALES (1)

UNITS OF SEMEN

| BREED | 1990 | 1989 | %+/- |
|-----------------|---------|---------|---------|
| ANGUS | 410,026 | 374,469 | 9.50% |
| SIMMENTAL | 127,510 | 126,366 | 0.91% |
| POLLED HEREFORD | 98,656 | 96,395 | 2.35% |
| BRAHMAN | 47,083 | 47,232 | -0.32% |
| LIMOUSIN | 28,430 | 23,892 | 18.99% |
| GELBVIEWH | 27,606 | 21,537 | 28.18% |
| RED ANGUS | 26,580 | 20,953 | 26.86% |
| CHAROLAIS | 25,607 | 19,140 | 33.79% |
| HEREFORD | 14,580 | 17,687 | -17.57% |
| MAINE ANJOU | 14,075 | 12,351 | 13.96% |
| SALERS | 12,993 | 12,350 | 5.21% |
| CHIANINA | 10,445 | 11,678 | -10.56% |
| BRANGUS | 4,038 | 2,559 | 57.80% |
| OTHER BEEF | 33,306 | 35,595 | -6.43% |
| TOTAL | 880,935 | 822,204 | 7.14% |

BEEF SEMEN EXPORT SALES (1)

UNITS OF SEMEN

| BREED | 1990 | 1989 | %+/- |
|-----------------|---------|---------|---------|
| ANGUS | 66,601 | 55,214 | 20.62% |
| SIMMENTAL | 52,690 | 49,793 | 5.82% |
| BRAHMAN | 37,707 | 38,311 | -1.58% |
| POLLED HEREFORD | 36,692 | 31,243 | 17.44% |
| RED ANGUS | 22,343 | 17,779 | 25.67% |
| LIMOUSIN | 11,334 | 5,598 | 102.47% |
| CHAROLAIS | 9,875 | 10,442 | -5.43% |
| HEREFORD | 2,527 | 2,817 | -10.29% |
| BRANGUS | 971 | 662 | 46.68% |
| SANTA GERTRUDIS | 606 | 3,862 | -84.31% |
| CHIANINA | 345 | 869 | -60.30% |
| OTHER BEEF | 26,780 | 25,922 | 3.31% |
| TOTAL | 268,471 | 242,512 | 10.70% |

CUSTOM FROZEN BEEF SEMEN (1)

UNITS OF SEMEN

| BREED | 1990 | 1989 | %+/- |
|-----------------|-----------|-----------|---------|
| ANGUS | 230,979 | 168,558 | 37.03% |
| SIMMENTAL | 150,936 | 142,108 | 6.21% |
| BRANGUS | 89,467 | 96,044 | -6.85% |
| HEREFORD | 83,049 | 54,727 | 51.75% |
| LIMOUSIN | 80,537 | 69,055 | 16.63% |
| BEEFMASTER | 71,969 | 38,987 | 84.60% |
| CHAROLAIS | 68,907 | 64,952 | 6.09% |
| GELBVIEWH | 61,167 | 37,915 | 61.33% |
| POLLED HEREFORD | 53,795 | 97,368 | -44.75% |
| MAINE ANJOU | 49,495 | 46,643 | 6.11% |
| RED ANGUS | 35,739 | 6,447 | 454.35% |
| BRAHMAN | 33,160 | 14,611 | 126.95% |
| CHIANINA | 32,704 | 44,780 | -26.97% |
| SALERS | 30,845 | 41,657 | -25.95% |
| SANTA GERTRUDIS | 19,119 | 17,760 | 7.65% |
| OTHER BEEF | 165,328 | 127,864 | 29.30% |
| TOTAL | 1,257,196 | 1,069,476 | 17.55% |

BEEF SEMEN EXPORT SALES (2)

UNITS OF SEMEN

| REGION | 1990 | 1989 | %+/- |
|----------------------|---------|---------|----------|
| SOUTH AMERICA | 157,735 | 147,489 | 6.95% |
| NORTH AMERICA | 64,383 | 61,215 | 5.18% |
| CENTRAL AMERICA | 27,862 | 24,783 | 12.42% |
| OCEANIA | 14,411 | 6,724 | 114.32% |
| AFRICA | 3,834 | 2,242 | 71.01% |
| OTHER WESTERN EUROPE | 3,525 | 4,180 | -15.67% |
| EUROPEAN COMMUNITY | 2,590 | 2,857 | -9.35% |
| EASTERN EUROPE | 1,340 | 1,147 | 16.83% |
| CARRIBEAN | 1,078 | 3,227 | -66.59% |
| MIDDLE EAST | 110 | 480 | |
| ASIA | (487) | 5,494 | -108.86% |
| TOTAL | 276,381 | 259,838 | 6.37% |

BEEF SEMEN EXPORT SALES (2)

DOLLAR VALUE

| REGION | 1990 | 1989 | %+/- |
|----------------------|-------------|-------------|---------|
| SOUTH AMERICA | \$397,407 | \$380,504 | 4.44% |
| NORTH AMERICA | 369,189 | 371,841 | -0.71% |
| OCEANIA | 146,088 | 73,853 | 97.81% |
| CENTRAL AMERICA | 102,316 | 83,131 | 23.08% |
| OTHER WESTERN EUROPE | 64,383 | 51,992 | 23.83% |
| AFRICA | 40,437 | 29,535 | 36.91% |
| EUROPEAN COMMUNITY | 21,792 | 37,630 | -42.09% |
| EASTERN EUROPE | 14,159 | 62,998 | -77.52% |
| ASIA | 13,520 | 34,129 | -60.39% |
| CARIBBEAN | 4,008 | 15,258 | -73.73% |
| MIDDLE EAST | 560 | 5,245 | |
| TOTAL | \$1,173,859 | \$1,146,116 | 2.42% |

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(1) BASED ON QUARTERLY REPORTS OF SEMEN SOLD AND CUSTOM FROZEN

(2) BASED ON QUARTERLY SURVEY OF SEMEN SOLD FOR EXPORT