

## **2006 Hay Market and Export Report**

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According to the USDA National Agricultural Statistics Service, the value of all hay in Washington in 2004 was about \$344 million while the value of alfalfa hay was about \$234 million (Table 1). Among agricultural commodities, hay value ranks sixth in Washington. Table 2 shows the acreage of the top 12 hay producing counties in the state with Grant and Franklin counties having 43 percent of all hay acres and 45 percent of the alfalfa acreage in 2004. In 2004 there were 790 thousand acres of hay harvested with alfalfa making up 480 thousand of those acres (Tables 3 & 4). Alfalfa acreage was down 6.3% in the state, while all hay acreage decreased 2.5 from 2003 to 2004 (Tables 4 & 5). In 2004, the decreased acreage and yield was offset by increased pricing resulting in an 8% increase in value of all hay. Alfalfa production was offset by a 21% increase in average price to yield a 7.8% increase in production value. In 2005, it is expected that production will be up slightly due to better yields. Value of production will be slightly higher due to higher prices and yields throughout the year. Figures 1, 2 & 3 show the trend for alfalfa acres, production, and average prices over the past 10 years. Due to higher than average expected supply and reduced prices in 2003, a sharp drop in acreage occurred in 2004 and carried over to 2005. Figure 4 shows a relatively flat 10-year trend for value of production.

Ten-year data for area, yield, production, price per unit, and value of production for Oregon are shown for all hay and alfalfa in Tables 6 and 7, respectively. In Oregon, all hay production was flat for 2004. Price was up sharply by 22% allowing for value of production to be up by a similar percentage. Alfalfa acreage was flat for 2004 with a projected decrease of 8.3% for 2005. Due to a 19% increase in average price per unit, overall value of production was up 11.6%. Although alfalfa acreage was down for 2005, higher yields with a continued higher average price will allow for a relatively flat value of production.

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Tables 8 and 9 provide Idaho information for area, yield, production, price per unit, and value of production for all hay and alfalfa, respectively. Although there was decreased acreage, higher yields provided an 8% increase in all hay production for Idaho in 2004. Average price per unit increase by 22% and with the increase yield, value of production was up 30% at \$557 million. Data for alfalfa hay, which made up 88% of the forage production in Idaho in 2004, was the driving force behind the changes in the statistics for all hay. 2004 showed only a slight decline in acreage and with increase alfalfa yields production was up significantly. With a 12% improvement in price, value of production was up 31% at over a half billion dollars. Projections for 2005 appear to be flat with 2004.

Washington's average monthly alfalfa prices for the last 10 years are shown in Table 10. In general, there is a trend for prices to be highest during the months of May, June, and July. Average prices for 2004 was similar to 2001 beginning weak and improving as the year progressed. 2005 is similar to 2002 having relatively strong prices for the entire year. If the trend continued to mirror 2001 and 2002, prices could soften to average levels beginning in July 2006. This scenario is not likely due to the lack of supply, a colder, wetter winter, and higher prices in California that should remain through mid 2006. In addition, demand for non-GMO alfalfa by Pacific Rim Countries, will allow for pricing opportunities in 2006 from Washington Hay Growers who continue to be dedicated toward Pacific Rim customer requirements.

Hay stocks for Washington, Oregon and Idaho are shown in Table 11. May 1 hay stocks for 2004 were above ten-year averages for the Pacific Northwest (PNW) states and the year ended with above average hay stocks. December 1 hay stocks were flat for all three states. The 2004 and 2005 May 1 hay stocks for the PNW were similar to 2003 with the exception of Washington showing a decreasing trend in 2005. Visual observation for Washington in December 2005 showed minimal hay stocks especially for quality hay. The number for December 1<sup>st</sup> hay stocks will be available toward mid-January.

Table 12 provides data for area, yield, production, price per unit, and value of all hay production for the PNW. The year 2004 provided for fewer acres for the PNW with slightly higher yields to produce slight increase in production for all hay. Value of production was over \$1.3 billion up 20% from 2003 due to an increase in average price. Production for 2005 is expected to be similar to 2004. Value of production is projected to remain flat due to increased yields and firm pricing and in spite of lower acres.

Table 13 provides information on area, yield, production, price per unit, and value of production for alfalfa hay over five years in the PNW. In 2004, production was similar to 2003. However, a strong price allowed for a value of production of almost \$1 billion an increase of almost 20%. Total hay supplies for the PNW for the last 10 years are shown in Table 14. Supplies have remained stable since 2003.

Annual milk production for the three PNW states is shown in Table 15. Washington's annual milk production continued to grow at a slow pace through 2003 and then dropped in 2004 due to a drop in milk cow numbers. Washington is the leading state in the United States for milk production per cow with 22,852 pounds of milk per cow. Oregon's annual milk production shot up 22% due to an increase of 20% in milk cow numbers in 2002 and has continued to grow slightly since then. Idaho continues to be a bright spot with production increases climbing 116% since 1995. This was due to a 83% increase in cow numbers and a 18% increase in milk production per cow in the same period of time.

The number of animals on feed is a relevant factor affecting the demand for hay. As the number of animals that are fed hay increases, then clearly the demand for hay increases. Table 16 provides information for all cattle on feed in the PNW for the past 10 years. The data indicated a drop of 5% for cattle on feed for Washington for 2005 and stable for Oregon and Idaho.

Exports are an important market for the PNW forage producer. Forage products exported from the PNW include alfalfa hay and cubes, timothy, orchardgrass, oat hay, ryegrass and fescue straw. Table 17 shows the United States export data to the Pacific Rim for 2001-2004. The United States exported about 2.8 million metric tons of forage products to the Pacific Rim in 2004 (Table 17). Japan's share of the market continues at about 75 percent with Korea's share at about 17% percent.

While Japan's alfalfa cube imports continued to decline, (Table 18 and Figure 5) baled hay imports continue to grow exceeding the two million metric ton mark in 2002 growing to almost 2.3 million metric tons in 2004 (Table 19 and Figure 6). The combined data for hay and cube import by Japan is presented in Table 20 while pellet hay imports are reported in Table 21. Table 22 shows Japan's total forage imports by major countries. In the past ten years Japan has increased it's total forage imports by 18.5%. In the same period of time, imports from the US have increased on 7.5%. Canada and Australia are the

main competitors for the US forage market to Japan. While Canada's share of the market has remained stable, Australia's share has grown by about 800% from about 48 thousand metric tons in 1995 to about 436 thousand metric tons in 2004. Although most of the product is in the form of grass hay, it is still a trend that forces concern.

About 66 percent of hay products for Japan were shipped from the United States with about 17 percent from Canada in 2004 (Table 22). 82 percent of the pellet imports for Japan were from Canada while the Netherlands has recently taken a 12-13% share (Table 21). In 2004, the US had only 4% of that market.

Table 23 provides information on Japan's alfalfa cube imports through November 2005. The distribution of the cube imports for the United States, Canada, and Australia was 86%, 13%, and 1%, respectively. The percent of market for Japan's baled hay imports through November 2005 was 68%, 21%, and 11% for the US, Australia and Canada, respectively (Table 24).

Korea import data for forage products over 10 years are shown in Tables 25-28. Total forage product imported by Korea has increased by 284% over the last ten years to about 610 thousand metric tons in 2004. The US has the majority of the business with about 84% of the market. Data for Korea's forage imports through November 2005 is shown in Tables 29-32. Exports from the US to Korea grew by almost 14% in 2005 with most in the form of baled products.

Japan baled hay and cubed hay imports by month for 2005 are shown in Figures 7 and 8, respectively. Baled hay imports are somewhat stable by month peaking in the spring months while cubed hay tended to peak in January, February and March. This trend could be due to lack of supply of baled hay along with increased demand for hay during winter months due to temperatures.

Table 33 provides annual forage import data for Taiwan. Although the data shows a fairly stable import record for forage products in the last 10 years peaking in the year 2000 at 333 thousand metric tons, 2004 was down 16.5% from that peak. Market share for the US, Canada, and Australia was 62%, 8%, and 29%, respectively.

Data provided by the Port of Portland indicates that the PNW share of exports to Japan from the US increased 5% to 64% (1.3 million metric tons) in 2004, while the PSW was responsible for 36% (Table 34). About 11.2 million metric tons of hay was produced in the PNW in 2004 (Table 41). In 2004, 11.8% of the hay was exported to Japan (Table 42). Estimates for forage exports from

Washington are about 18 percent of the state's total hay production. It is generally accepted that forage exports help support and stabilize forage prices in the PNW.

The west coast forage exports to the Pacific Rim for 2004 are shown in Table 43. About 1.7 million metric tons of forage was exported from the PNW representing 64% of the US total exports. About 16 percent of the PNW hay was exported to the Pacific Rim (Table 43).

### **Livestock and Forage Production in Japan and Korea**

Livestock production in Japan has declined about 9% in the last 10 years (Table 36). Decline in cattle production (33%) has been slightly offset by pig production in Korea over the last 10 years (Table 37). More meaningful would be the decline in forage production in both Japan (17%) and Korea (53%) over the last 10 years while milk production has been somewhat stable for Japan and has grown by 15% in Korea. This would explain the 284% increase in Korea's forage imports over the last 10 years.

**Table 1: 2004 Washington State Hay Value**

Crop	2003	2004	Change 2003 vs. 2004
	\$1,000		Percent
<i>Alfalfa</i>	<i>233,810</i>	<i>252,000</i>	<i>7.8%</i>
<i>Other Hay</i>	<i>109,800</i>	<i>119,040</i>	<i>8.4%</i>
<i>All Hay</i>	<i>343,610</i>	<i>371,040</i>	<i>8.00%</i>

Source: USDA-NASS

**Table 2: 2004 Alfalfa Hay by County**

Rank	County	Harvested	Yield	Production
		Acres	Tons	Tons
1	<i>Grant</i>	<i>135,000</i>	<i>6.3</i>	<i>854,000</i>
2	<i>Franklin</i>	<i>80,000</i>	<i>7.1</i>	<i>570,000</i>
3	<i>Adams</i>	<i>30,000</i>	<i>6.5</i>	<i>194,000</i>
4	<i>Yakima</i>	<i>30,000</i>	<i>6.0</i>	<i>180,000</i>
5	<i>Walla Walla</i>	<i>15,000</i>	<i>6.3</i>	<i>94,000</i>
6	<i>Stevens</i>	<i>39,000</i>	<i>2.0</i>	<i>77,000</i>
7	<i>Okanogan</i>	<i>22,000</i>	<i>3.5</i>	<i>76,000</i>
8	<i>Benton</i>	<i>10,000</i>	<i>7.0</i>	<i>70,000</i>
9	<i>Spokane</i>	<i>34,000</i>	<i>2.0</i>	<i>67,000</i>
10	<i>Lincoln</i>	<i>14,000</i>	<i>3.0</i>	<i>42,000</i>
11	<i>Klickitat</i>	<i>28,000</i>	<i>1.4</i>	<i>39,000</i>
12	<i>Kittitas</i>	<i>9,000</i>	<i>3.9</i>	<i>35,000</i>

Source: USDA-NASS

**Table 3: 2004 All Hay by County**

Rank	County	Harvested	Yield	Production
		Acres	Tons	Tons
1	<i>Grant</i>	<i>148,000</i>	<i>6.4</i>	<i>941,000</i>
2	<i>Franklin</i>	<i>87,000</i>	<i>7.1</i>	<i>615,000</i>
3	<i>Kittitas</i>	<i>50,000</i>	<i>4.9</i>	<i>246,000</i>
4	<i>Adams</i>	<i>39,000</i>	<i>6.2</i>	<i>240,000</i>
5	<i>Yakima</i>	<i>37,000</i>	<i>5.5</i>	<i>205,000</i>
6	<i>Walla Walla</i>	<i>19,000</i>	<i>5.8</i>	<i>111,000</i>
7	<i>Spokane</i>	<i>54,000</i>	<i>2.0</i>	<i>107,000</i>
8	<i>Benton</i>	<i>16,000</i>	<i>6.3</i>	<i>101,000</i>
9	<i>Okanogan</i>	<i>35,000</i>	<i>2.9</i>	<i>101,000</i>
10	<i>Stevens</i>	<i>46,000</i>	<i>2.0</i>	<i>93,000</i>
11	<i>Lincoln</i>	<i>25,000</i>	<i>2.9</i>	<i>72,000</i>
12	<i>Klickitat</i>	<i>36,000</i>	<i>1.5</i>	<i>55,000</i>

Source: USDA-NASS

**Table 4: Washington All Hay Production**

Year	Harvested	Yield	Production	Price per	Value of
	acres - thousand	tons	1000 tons	Unit dollars/ton	production 1000 dollars
1995	760	4.31	3,278	\$97.00	\$328,878
1996	800	3.93	3,140	\$115.00	\$371,347
1997	780	3.95	3,084	\$115.00	\$361,824
1998	750	4.21	3,156	\$97.00	\$312,588
1999	740	4.13	3,059	\$98.00	\$307,027
2000	780	4.17	3,249	\$107.00	\$355,261
2001	790	3.91	3,088	\$120.00	\$375,328
2002	820	4.07	3,336	\$111.00	\$375,366
2003	810	4.45	3,603	\$93.50	\$343,610
2004	790	4.29	3,392	\$108.00	\$371,040
2005*	770	4.52	3,481		

Source: USDA-NASS

\*Projected

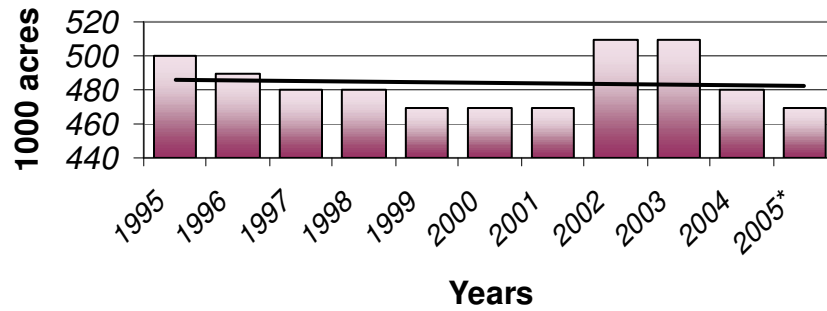
**Table 5: Washington Alfalfa Hay Production**

Year	Harvested	Yield	Production	Price per	Value of
	acres - thousand	tons	1000 tons	Unit dollars/ton	production 1000 dollars
1995	500	5.10	2,550	\$93.00	\$237,150
1996	490	4.70	2,303	\$110.00	\$253,330
1997	480	4.80	2,304	\$111.00	\$255,744
1998	480	5.00	2,400	\$91.50	\$219,600
1999	470	4.90	2,303	\$89.00	\$204,967
2000	470	5.00	2,350	\$98.00	\$230,300
2001	470	4.80	2,256	\$114.00	\$257,184
2002	510	4.90	2,499	\$107.00	\$267,393
2003	510	5.30	2,703	\$86.50	\$233,810
2004	480	5.00	2,400	\$105.00	\$252,000
2005*	470	5.30	2,491		

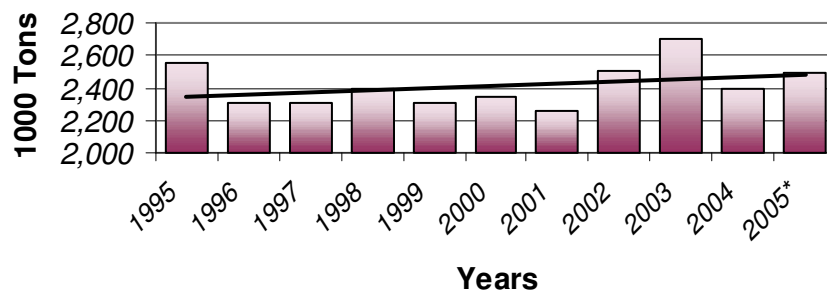
Source: USDA-NASS

\* Projected

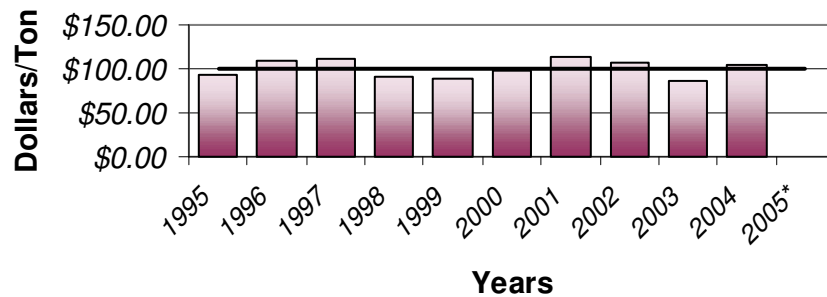
### Figure 1: WA Alfalfa Acres



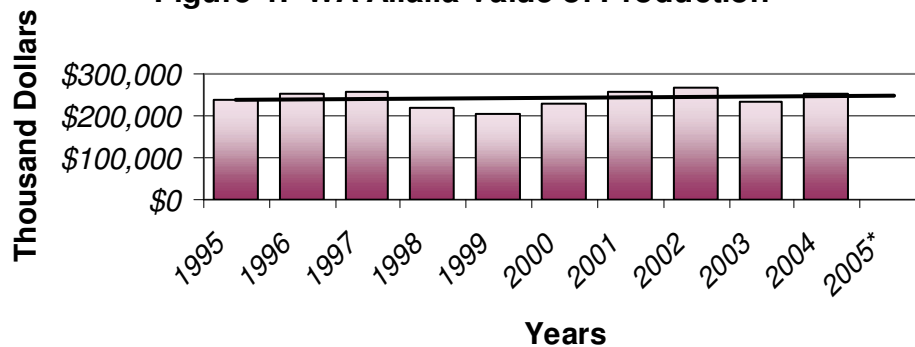
### Figure 2: WA Alfalfa Production



### Figure 3: WA Alfalfa Average Prices



### Figure 4: WA Alfalfa Value of Production



**Table 6: Oregon All Hay Production**

Year	Harvested	Yield	Production	Price per Unit	Value of production
	acres - thousand	tons	1000 tons	dollars/ton	1000 dollars
1995	1100	3.00	3,300	\$99.50	\$303,615
1996	1070	3.03	3,244	\$104.00	\$313,336
1997	1035	3.16	3,266	\$117.00	\$361,020
1998	970	3.48	3,374	\$104.00	\$337,698
1999	1100	2.92	3,208	\$92.00	\$286,208
2000	1080	2.79	3,018	\$94.50	\$278,772
2001	1025	2.98	3,052	\$112.00	\$333,626
2002	1115	3.13	3,493	\$100.00	\$348,019
2003	1100	3.25	3,572	\$88.50	\$313,262
2004	1130	3.21	3,624	\$108.00	\$381,708
2005*	1040	3.35	3,480		

Source: USDA-NASS

\*Projected

**Table 7: Oregon Alfalfa Hay Production**

Years	Harvested	Yield	Production	Price per Unit	Value of production
	acres - thousand	tons	1000 tons	dols / ton	1000 dollars
1995	450	4.30	1,935	\$104.00	\$201,240
1996	460	4.40	2,024	\$109.00	\$220,616
1997	420	4.70	1,974	\$123.00	\$242,802
1998	400	4.80	1,920	\$110.00	\$211,200
1999	420	4.40	1,848	\$96.00	\$177,408
2000	390	4.20	1,638	\$99.00	\$162,162
2001	460	4.30	1,978	\$116.00	\$229,448
2002	495	4.30	2,129	\$101.00	\$215,029
2003	480	4.60	2,208	\$94.00	\$207,552
2004	480	4.30	2,064	\$112.00	\$231,168
2005*	440	4.50	1,980		

Source: USDA-NASS

\*Projected

**Table 8: Idaho All Hay Production**

Year	Harvested	Yield	Production	Price per	Value of
	acres - thousand	tons	1000 tons	Unit dollars/ton	production 1000 dollars
1995	1400	3.63	5,080	\$87.00	\$434,785
1996	1280	3.72	4,760	\$96.00	\$450,240
1997	1300	3.64	4,730	\$105.00	\$483,110
1998	1400	3.87	5,420	\$83.00	\$441,480
1999	1430	3.59	5,132	\$83.00	\$417,788
2000	1390	3.81	5,292	\$94.50	\$491,547
2001	1420	3.48	4,938	\$116.00	\$565,014
2002	1490	3.55	5,288	\$95.00	\$496,612
2003	1500	3.30	4,950	\$87.50	\$426,855
2004	1480	3.61	5,350	\$107.00	\$556,690
2005*	1480	3.56	5,262		

Source: USDA-NASS  
Projected

**Table 9: Idaho Alfalfa Hay Production**

Year	Harvested	Yield	Production	Price per	Value of
	acres - thousand	tons	1000 tons	Unit dollars/ton	production 1000 dollars
1995	1100	4.10	4,510	\$88.00	\$396,880
1996	1000	4.20	4,200	\$97.00	\$407,400
1997	1000	4.10	4,100	\$106.00	\$434,600
1998	1100	4.30	4,730	\$84.00	\$397,320
1999	1150	4.00	4,600	\$84.00	\$386,400
2000	1130	4.20	4,746	\$95.00	\$450,870
2001	1120	3.90	4,368	\$118.00	\$515,424
2002	1170	4.00	4,680	\$96.50	\$451,620
2003	1200	3.70	4,440	\$88.50	\$392,940
2004	1180	4.00	4,720	\$109.00	\$514,480
2005*	1180	3.90	4,602		

Source: USDA-NASS  
\*Projected

**Table 10: Washington Alfalfa Monthly Average Prices**

Year	Monthly Prices											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Dollars/Ton											
1995	88	87	90	91	93	94	91	90	91	90	89	90
1996	99	95	98	98	108	112	111	106	108	109	107	113
1997	112	116	110	110	112	110	114	113	116	108	114	110
1998	114	109	100	108	101	103	97	94	91	91	86	88
1999	92	84	74	77	90	95	89	84	86	89	88	87
2000	84	88	89	90	92	101	98	98	96	93	98	95
2001	94	97	99	97	105	120	115	112	114	110	110	112
2002	115	117	115	115	116	115	108	106	106	103	103	104
2003	103	103	103	102	105	113	100	95	90	90	75	85
2004	85	83	80	80	82	90	100	100	110	120	115	105
2005	105	100	100	100	100	110	115	110	110	115	115	115

Source: USDA-NASS

**Table 11: Washington, Oregon and Idaho on Farm Hay Stocks**

Year	Washington		Oregon		Idaho		PNW	
	May 1	Dec 1	May 1	Dec 1	May 1	Dec 1	May 1	Dec 1
	1000 tons							
1995	139	1410	85	2310	222	2794	446	6514
1996	426	1162	264	2108	660	2285	1350	5555
1997	283	1295	97	1600	286	2743	666	5638
1998	308	1663	621	2159	520	3252	1449	7074
1999	410	1377	135	2245	759	2617	1304	6239
2000	165	1303	128	1766	257	2790	550	5859
2001	195	1513	241	1901	258	2568	694	5982
2002	170	1600	183	2550	444	2824	797	6974
2003	285	1620	340	2357	635	2772	1260	6749
2004	470	1560	371	2366	445	2782	1286	6708
2005	322		362		535		1219	

Source: USDA-NASS

**Table 12: PNW All Hay Production**

Year	State	Harvested	Yield	Production	Value of
		acres - thousand	tons	1000 tons	production 1000 dollars
2001	ID	1,420	3.48	4,938	565,014
2001	OR	1,025	2.98	3,052	333,626
2001	WA	790	3.91	3,088	375,328
<b>2001</b>	<b>PNW</b>	<b>3,235</b>	<b>3.42</b>	<b>11,078</b>	<b>1,273,968</b>
2002	ID	1,490	3.55	5,288	496,612
2002	OR	1,115	3.13	3,493	348,019
2002	WA	820	4.07	3,336	375,366
<b>2002</b>	<b>PNW</b>	<b>3,425</b>	<b>3.54</b>	<b>12,117</b>	<b>1,219,997</b>
2003	ID	1,500	3.30	4,950	426,855
2003	OR	1,100	3.25	3,572	313,262
2003	WA	810	4.45	3,603	343,610
<b>2003</b>	<b>PNW</b>	<b>3,410</b>	<b>3.56</b>	<b>12,125</b>	<b>1,083,727</b>
2004	ID	1,480	3.61	5,350	556,690
2004	OR	1,130	3.21	3,624	381,708
2004	WA	790	4.29	3,392	371,040
<b>2004</b>	<b>PNW</b>	<b>3,400</b>	<b>3.64</b>	<b>12,366</b>	<b>1,309,438</b>
2005*	ID	1,480	3.56	5,262	
2005*	OR	1,040	3.35	3,480	
2005*	WA	770	4.52	3,481	
<b>2005*</b>	<b>PNW</b>	<b>3,290</b>	<b>3.72</b>	<b>12,223</b>	

Source: USDA-NASS

\*Projected

**Table 13: PNW Alfalfa Hay Production**

Year	State	Harvested	Yield	Production	Value of
		acres - thousand	tons	1000 tons	production 1000 dollars
2001	ID	1,120	3.90	4,368	515,424
2001	OR	460	4.30	1,978	229,448
2001	WA	470	4.80	2,256	257,184
<b>2001</b>	<b>PNW</b>	<b>2,050</b>	<b>4.20</b>	<b>8,602</b>	<b>1,002,056</b>
2002	ID	1,170	4.00	4,680	451,620
2002	OR	495	4.30	2,129	215,029
2002	WA	510	4.90	2,499	267,393
<b>2002</b>	<b>PNW</b>	<b>2,175</b>	<b>4.28</b>	<b>9,308</b>	<b>934,042</b>
2003	ID	1,200	3.70	4,440	392,940
2003	OR	480	4.60	2,208	207,552
2003	WA	510	5.30	2,703	233,810
<b>2003</b>	<b>PNW</b>	<b>2,190</b>	<b>4.27</b>	<b>9,351</b>	<b>834,302</b>
2004	ID	1,180	4.00	4,720	514,480
2004	OR	480	4.30	2,064	231,168
2004	WA	480	5.00	2,400	252,000
<b>2004</b>	<b>PNW</b>	<b>2,140</b>	<b>4.29</b>	<b>9,184</b>	<b>997,648</b>
2005*	ID	1,180	3.90	4,602	
2005*	OR	440	4.50	1,980	
2005*	WA	470	5.30	2,491	
<b>2005*</b>	<b>PNW</b>	<b>2,090</b>	<b>4.34</b>	<b>9,073</b>	

Source: USDA-NASS

\*Projected

**Table 14: PNW Hay Supplies**

Year	Washington			Oregon			Idaho			PNW		
	May 1	Production	Supply	May 1	Production	Supply	May 1	Production	Supply	May 1	Production	Supply
	1000 tons											
1995	139	3278	3417	85	3300	3385	222	5080	5302	446	11658	12104
1996	426	3140	3566	264	3244	3508	660	4760	5420	1350	11144	12494
1997	283	3084	3367	97	3266	3363	286	4730	5016	666	11080	11746
1998	308	3156	3464	621	3374	3995	520	5420	5940	1449	11950	13399
1999	410	3059	3469	135	3208	3343	759	5132	5891	1304	11399	12703
2000	165	3249	3414	128	3018	3146	257	5292	5549	550	11559	12109
2001	195	3088	3283	241	3052	3293	258	4938	5196	694	11078	11772
2002	170	3336	3506	183	3493	3676	444	5288	5732	797	12117	12914
2003	285	3603	3888	340	3572	3912	635	4950	5585	1260	12125	13385
2004	470	3392	3862	371	3624	3995	445	5350	5795	1286	12366	13652
2005*	322	3481	3803	362	3480	3842	535	5262	5797	1219	12223	13442

Source: USDA-NASS

\*Projected

**Table 15: Annual PNW Milk Production**

Year	Washington			Oregon			Idaho			PNW		
	Production	Milk Cows (Average)	Milk Produced per Cow	Production	Milk Cows (Average)	Milk Produced per Cow	Production	Milk Cows (Average)	Milk Produced per Cow	Production	Milk Cows (Average)	Milk Produced per Cow
	mill lbs	1000 Head	pounds	mill lbs	1000 Head	pounds	mill lbs	1000 Head	pounds	mill lbs	1000 Head	pounds
1995	5,304	264	20,091	1,677	97	17,289	4,210	232	18,147	11,191	593	18,509
1996	5,279	257	20,541	1,608	93	17,290	4,735	256	18,496	11,622	606	18,776
1997	5,305	253	20,968	1,610	90	17,889	5,193	272	19,092	12,108	615	19,316
1998	5,326	248	21,476	1,583	89	17,787	5,765	292	19,743	12,674	629	19,669
1999	5,535	247	22,409	1,665	89	18,708	6,453	318	20,292	13,653	654	20,470
2000	5,593	247	22,644	1,640	90	18,222	7,223	347	20,816	14,456	684	20,561
2001	5,514	247	22,324	1,717	95	18,074	7,757	366	21,194	14,988	708	20,531
2002	5,620	247	22,753	2,093	114	18,360	8,155	388	21,018	15,868	749	20,710
2003	5,581	245	22,780	2,177	119	18,294	8,774	404	21,718	16,532	768	20,931
2004	5,416	237	22,852	2,270	120	18,917	9,093	424	21,446	16,779	781	21,072

Source: USDA-NASS

**Table 16: January 1, All Cattle On Feed in the PNW**

	Wash	Oregon	Idaho	PNW
Year	1000 Head			
1995	156	100	270	526
1996	166	80	270	516
1997	163	80	270	513
1998	200	60	295	555
1999	205	65	295	565
2000	235	50	315	600
2001	255	55	325	635
2002	250	50	335	635
2003	190	55	305	550
2004	205	85	305	595
2005	195	80	300	575

Source: USDA-NASS

**Table 17: U. S. Forage Exports to the Pacific Rim**

Country	2001 1000 mt	Percent Share	2002 1000 mt	Percent Share	2003 1000 mt	Percent Share	2004 1000 mt	Percent Share
Japan	1,759.5	76.6%	2,231.9	75.4%	2,250.7	74.1%	2,074.0	74.8%
Korea	379.5	16.5%	482.4	16.3%	576.6	19.0%	464.0	16.7%
Taiwan	115.6	5.0%	201.2	6.8%	172.9	5.7%	172.9	6.5%
Other	41.6	1.9%	42.9	1.5%	39.3	1.2%	61.1	2.0%
Total	2,296.2	100.0%	2,958.4	100.0%	3,039.5	100.0%	2,772.0	100.0%

Source: Port of Portland

**Table 18: Alfalfa Cube Imports for Japan**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	528,196	482,712	479,950	428,055	410,159	384,084	357,688	348,624	377,821	326,866
CANADA	189,203	158,003	150,736	143,996	117,950	113,743	94,587	64,358	36,515	43,713
AUSTRALIA	0	2,467	7,977	6,639	927	1,957	4,812	7,610	5,715	5,591
OTHERS	2,411	3,931	11,514	9,384	5,770	2,875	3,970	6,523	2,613	115
TOTAL	719,810	647,113	650,177	588,074	534,806	502,659	461,057	427,115	422,664	376,285

Source: Japan Customs

**Table 19: Baled Hay Imports for Japan**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	1,189,197	1,223,485	1,462,265	1,240,617	1,373,676	1,423,459	1,421,167	1,490,607	1,717,179	1,520,704
CHINA	51,101	58,867	69,228	61,167	56,752	15,238	520	616	5,042	5,081
AUSTRALIA	48,098	85,461	115,081	113,913	158,911	182,984	194,946	296,778	362,038	429,941
CANADA	88,074	89,309	104,906	138,716	149,502	184,283	214,316	233,298	198,501	298,450
OTHERS	7,324	4,771	5,529	3,903	7,021	13,846	11,904	8,468	9,661	8,598
<b>TOTAL</b>	<b>1,383,794</b>	<b>1,461,893</b>	<b>1,757,009</b>	<b>1,558,316</b>	<b>1,745,862</b>	<b>1,819,810</b>	<b>1,842,853</b>	<b>2,029,767</b>	<b>2,292,421</b>	<b>2,262,774</b>

Source: Japan Customs

**Table 20: Alfalfa Hay and Cube Imports for Japan**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	1,717,393	1,706,197	1,942,215	1,668,672	1,783,835	1,807,543	1,778,855	1,839,231	2,095,000	1,847,570
CHINA	51,101	58,867	69,228	61,167	56,752	15,238	520	616	5,042	5,081
CANADA	277,277	247,312	255,642	282,712	267,452	298,026	308,903	297,656	235,016	342,163
AUSTRALIA	48,098	87,928	123,058	120,552	159,838	184,941	199,758	304,388	367,753	435,532
OTHERS	9,735	8,702	17,043	13,287	12,791	16,721	15,874	14,991	12,274	8,713
<b>TOTAL</b>	<b>2,103,604</b>	<b>2,109,006</b>	<b>2,407,186</b>	<b>2,146,390</b>	<b>2,280,668</b>	<b>2,322,469</b>	<b>2,303,910</b>	<b>2,456,882</b>	<b>2,715,085</b>	<b>2,639,059</b>

Source: Japan Customs

**Table 21: Pellet Hay Imports for Japan**

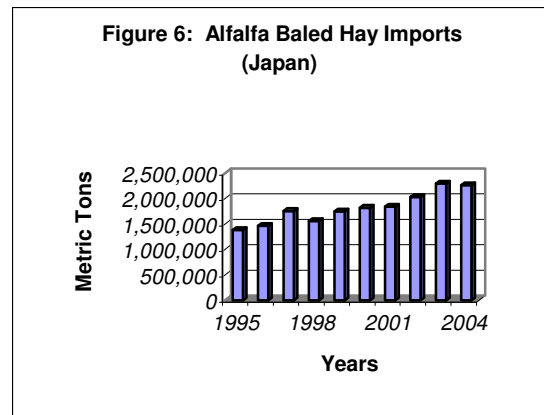
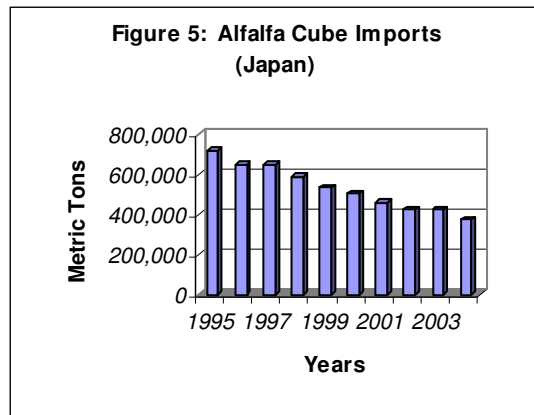
ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	7,384	7,958	4,705	2,089	3,325	10,763	3,090	15,157	45,866	8,088
CHINA	68	0	0	0	0	0	18	220	1,449	3,345
AUSTRALIA	347	1,016	248	132	17	121	124	70	26	0
CANADA	266,290	244,840	260,131	194,343	240,339	216,629	208,837	146,698	107,096	145,786
ITALY	0	0	0	0	0	224	1,958	9,476	6,556	0
NETHLDS	0	10	64	66	74	19	6,815	26,596	29,883	21,138
OTHERS	71	15	0	10,707	16	203	1,069	2,191	2,879	293
<b>TOTAL</b>	<b>274,160</b>	<b>253,839</b>	<b>265,148</b>	<b>207,337</b>	<b>243,771</b>	<b>227,959</b>	<b>221,911</b>	<b>200,408</b>	<b>193,755</b>	<b>178,650</b>

Source: Japan Customs

**Table 22: Total Forage Imports for Japan**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	1724777	1714155	1946920	1670761	1787160	1818306	1781945	1854388	2140866	1855658
CANADA	543567	492152	515773	477055	507791	514655	517740	444354	342112	487949
AUSTRALIA	48445	88944	123306	120684	159855	185062	199882	304458	367779	435532
OTHERS	60975	67594	86335	85227	69633	32405	26254	54090	58083	38570
<b>TOTAL</b>	<b>2377764</b>	<b>2362845</b>	<b>2672334</b>	<b>2353727</b>	<b>2524439</b>	<b>2550428</b>	<b>2525821</b>	<b>2657290</b>	<b>2908840</b>	<b>2817709</b>

Source: Japan Customs



**Table 23: Alfalfa Cube Imports for Japan (November)**

ORIGIN	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Metric Tons									
USA	441,078	438,241	390,465	376,602	349,783	323,282	311,226	347,921	299,204	281,142
CANADA	145,940	142,475	130,590	107,395	104,370	87,686	57,576	32,882	38,477	42,266
AUSTRALIA	2,467	7,853	6,639	927.00	1,931	4,481	7,127	5,134	5,148	3827.00
OTHERS	3,680	11,240	9,060	5,563	2,875	3,970	6,523	2,613	115	0
<b>TOTAL</b>	<b>593,165</b>	<b>599,809</b>	<b>536,754</b>	<b>490,487</b>	<b>458,959</b>	<b>419,419</b>	<b>382,452</b>	<b>388,550</b>	<b>342,944</b>	<b>327,235</b>

Source: Japan Customs

**Table 24: Baled Hay Imports for Japan (November)**

ORIGIN	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Metric Tons									
USA	1,126,940	1,348,683	1,121,781	1,253,354	1,304,421	1,310,907	1,323,318	1,573,089	1,377,168	1,432,879
CHINA	53,412	62,158	53,742	50,398	16,230	414.00	164.00	4,862	4,824	2,985
AUSTRALIA	76,616	104,375	103,512	145,096	166,755	178,613	264,226	324,620	386,082	448,738
CANADA	80,324	90,081	123,541	131,001	162,754	196,542	211,086	172,866	273,005	224,925
OTHERS	4,494	4,973	3,732	6,628	12,850	10,757	7,777	8,651	7,990	7,921
<b>TOTAL</b>	<b>1,341,786</b>	<b>1,610,270</b>	<b>1,406,308</b>	<b>1,586,477</b>	<b>1,663,010</b>	<b>1,697,233</b>	<b>1,806,571</b>	<b>2,084,088</b>	<b>2,049,069</b>	<b>2,117,448</b>

Source: Japan Customs

**Table 25: Annual Alfalfa Baled Hay (Korea)**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	13,400	23,055	29,875	18,606	54,814	85,233	77,741	99,290	116,309	106,824
CANADA	1,400	384	3,558	2,997	7,875	11,418	3,507	1,640	881	738
CHINA	728	0	92	0	104	38	297	336	1,204	1,443
OTHERS	1	540	927	316	2,517	1,094	1,988	3,084	2,006	529
<b>TOTAL</b>	<b>15,529</b>	<b>23,979</b>	<b>34,452</b>	<b>21,919</b>	<b>65,310</b>	<b>97,783</b>	<b>83,533</b>	<b>104,350</b>	<b>120,400</b>	<b>109,534</b>

Source: Korea Trade Statistics

**Table 26: Annual Other Baled Forage Product Imports (Korea)**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	9,229	37,171	53,463	46,031	99,973	282,654	311,440	346,021	368,507	391,362
CHINA	506	2,669	23,680	11,935	24,014	24,095	839	5,913	39,314	16,252
CANADA	349	666	467	46	2,220	22,736	50,720	34,777	9,869	23,488
AUSTRALIA	0	166	45	214	784	4,522	15,097	42,652	6,621	39,459
OTHERS	0	37	37	0	543	2,528	730	1,690	953	1,702
<b>TOTAL</b>	<b>10,084</b>	<b>40,709</b>	<b>77,692</b>	<b>58,226</b>	<b>127,534</b>	<b>336,535</b>	<b>378,826</b>	<b>431,053</b>	<b>425,264</b>	<b>472,263</b>

Source: Korea Trade Statistics

**Table 27: Annual Cube and Pellet Imports (Korea)**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	14,087	19,390	30,080	15,121	19,425	24,658	17,032	6,757	4,010	3,396
CHINA	142	0	28	0	0	187	659	10,597	17,126	22,422
CANADA	114,455	100,356	79,298	50,578	85,290	90,611	57,339	5,505	193	344
AUSTRALIA	0	41	0	598	222	162	127	237	1	0
SPAIN	0	0	0	0	0	0	5,764	12,543	5,031	2,599
OTHERS	4,601	2,822	1,019	773	647	405	0	4,826	78	0
<b>TOTAL</b>	<b>133,285</b>	<b>122,609</b>	<b>110,425</b>	<b>67,070</b>	<b>105,584</b>	<b>116,023</b>	<b>80,921</b>	<b>40,465</b>	<b>26,439</b>	<b>28,761</b>

Source: Korea Trade Statistics

**Table 28: Annual Total Forage Imports (Korea)**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	36,716	79,616	113,418	79,758	174,212	392,545	406,213	452,068	488,826	501,582
CANADA	116,204	101,406	83,323	53,621	95,385	124,765	111,566	41,922	10,943	24,570
CHINA	1,376	2,669	23,800	11,935	24,118	24,320	1,795	16,846	57,644	40,117
OTHERS	4,602	3,606	2,028	1,901	4,713	8,711	23,706	65,032	14,690	44,289
<b>TOTAL</b>	<b>158,898</b>	<b>187,297</b>	<b>222,569</b>	<b>147,215</b>	<b>298,428</b>	<b>550,341</b>	<b>543,280</b>	<b>575,868</b>	<b>572,103</b>	<b>610,558</b>

Source: Korea Trade Statistics

**Table 29: Alfalfa Baled Hay (Korea) November**

ORIGIN	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Metric Tons									
USA	20,850	27,849	15,004	45,599	79,945	70,411	89,168	103,358	98,193	112,623
CANADA	384	3,426	2,541	6,723	11,112	3,507	1,159	1,018	738	1,733
CHINA	0	92	0	45	39	297	218	617	1,433	480
OTHERS	540	928	205	2,388	1,092	1,499	3,564	1,869	529	114
<b>TOTAL</b>	<b>21,774</b>	<b>32,295</b>	<b>17,750</b>	<b>54,755</b>	<b>92,188</b>	<b>75,714</b>	<b>94,109</b>	<b>106,862</b>	<b>100,893</b>	<b>114,950</b>

Source: Korea Trade Statistics

**Table 30: Other Baled Forage Product Imports (Korea)(November)**

ORIGIN	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Metric Tons									
USA	29,755	51,780	28,762	85,882	235,660	261,981	324,597	338,482	343,145	396,002
CHINA	1,377	23,580	7,752	19,554	23,634	839	4,100	37,175	13,725	14,746
CANADA	666	468	46	1,959	19,017	42,600	34,529	8,391	21,590	37,006
AUSTRAL	123	45	119	651	2,566	11,430	40,288	6,287	32,289	46,501
OTHERS	36	35	1	505	1,578	729	1,647	871	1,605	1,271
<b>TOTAL</b>	<b>31,957</b>	<b>75,908</b>	<b>36,680</b>	<b>108,551</b>	<b>282,455</b>	<b>317,579</b>	<b>405,161</b>	<b>391,206</b>	<b>412,354</b>	<b>495,526</b>

Source: Korea Trade Statistics

**Table 31: Cube and Pellet Imports (Korea)(November)**

ORIGIN	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Metric Tons									
USA	16,980	28,620	12,475	18,347	21,098	16,291	6,519	3,208	5,580	690
CHINA	0	28	0	0	187	659	7,905	14,897	106	22,515
CANADA	94,345	72,706	46,166	76,410	81,198	56,449	5,389	193	97,068	576
AUSTRAL	41	0	598	222	162	127	237	1	459	0
SPAIN	0	0	0	0	0	5,764	10,592	3,706	0	1,046
OTHERS	2,823	623	773	648	405	0	4,824	78	183	0
<b>TOTAL</b>	<b>114,189</b>	<b>101,977</b>	<b>60,012</b>	<b>95,627</b>	<b>103,050</b>	<b>79,290</b>	<b>35,466</b>	<b>22,083</b>	<b>103,396</b>	<b>24,827</b>

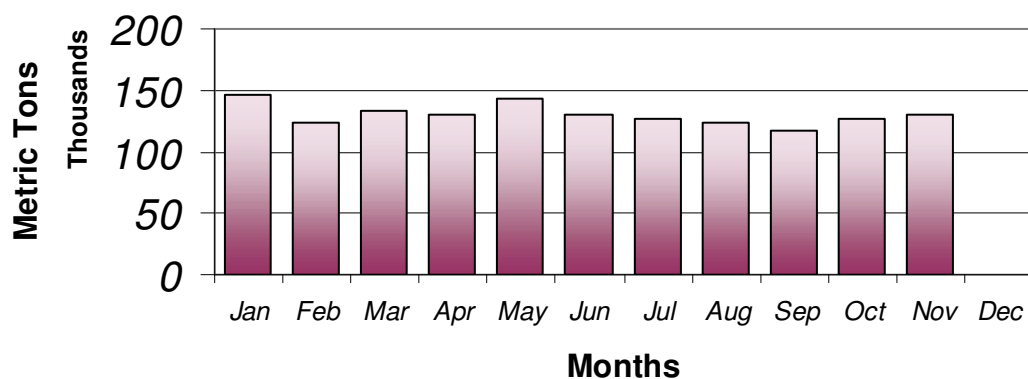
Source: Korea Trade Statistics

**Table 32: Annual Total Forage Imports (Korea)(November)**

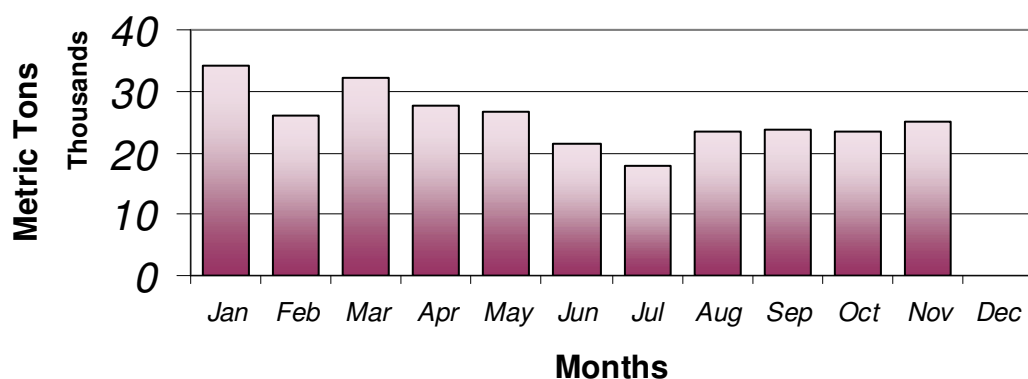
ORIGIN	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Metric Tons									
USA	67,585	108,249	56,241	149,828	336,703	348,683	420,284	445,048	446,918	509,315
CANADA	95,395	76,600	48,753	85,092	111,327	102,556	41,077	9,602	119,396	39,315
CHINA	1,377	23,700	7,752	19,599	23,860	1,795	12,223	52,689	15,264	37,741
OTHERS	3,563	1,631	1,696	4,414	5,803	19,549	61,152	12,812	35,065	48,932
<b>TOTAL</b>	<b>167,920</b>	<b>210,180</b>	<b>114,442</b>	<b>258,933</b>	<b>477,693</b>	<b>472,583</b>	<b>534,736</b>	<b>520,151</b>	<b>616,643</b>	<b>635,303</b>

Source: Korea Trade Statistics

**Figure 7: Japan Baled Hay Imports (USA) by Month 2005**



**Figure 8: Japan Cubed Hay Imports (USA) by Month 2005**



**Table 33: Annual Forage Imports (TAIWAN)**

ORIGIN	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Metric Tons									
USA	116,497	129,479	147,821	129,373	164,902	179,681	188,615	157,224	177,725	173,231
CANADA	98,547	74,054	46,232	55,197	46,929	60,612	34,281	27,352	25,591	23,417
AUSTRALIA	21,897	82,264	79,582	60,693	85,563	92,405	25,316	33,854	24,243	81,947
OTHERS	1,632	2,845	2,229	2,576	1,496	234	3,034	4,534	1,564	239
<b>TOTAL</b>	<b>238,573</b>	<b>288,642</b>	<b>275,864</b>	<b>247,839</b>	<b>298,890</b>	<b>332,932</b>	<b>251,246</b>	<b>222,964</b>	<b>229,123</b>	<b>278,834</b>

Source: Directorate General of Customs, Ministry of Finance, ROC

**Table 34: West Coast Forage Exports to Japan**

Origin	2003		2004	
	Forage Exports	Percent	Forage Exports	Percent
PSW	923	41.0%	755	36.4%
PNW	1328	59.0%	1319	63.6%
West Coast	2251	100.0%	2074	100.0%

Source: Port of Portland

**Table 35: West Coast Forage Exports to Pacific Rim**

Origin	2003		2004	
	Forage Exports	Percent	Forage Exports	Percent
PSW	1229	41.0%	996	36.4%
PNW	1769	59.0%	1742	63.6%
West Coast	2998	100.0%	2738	100.0%

Source: Port of Portland

**Table 36: Livestock Production in Japan**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>Livestock</b>	<b>1000 Head</b>									
<b>Cattle</b>	4,916	4,828	4,750	4,708	4,658	4,588	4,531	4,564	4,523	4,478
<b>Sheep</b>	20	18	16	13	12	10	10	11	11	11
<b>Goats</b>	30	29	29	29	33	35	35	35	34	34
<b>Pigs</b>	10,250	9,900	9,823	9,904	9,879	9,806	9,788	9,612	9,725	9,724
<b>Horses</b>	29	26	27	26	25	25	21	25	25	25

FAOSTAT data, 2004

**Table 37: Livestock Production in Korea**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>Livestock</b>	<b>1000 Head</b>									
<b>Cattle</b>	3147	3395	3280	2922	2486	2134	1954	1954	1999	2096
<b>Sheep</b>	2	2	1	1	1	1	1	1	1	1
<b>Goats</b>	681	675	604	539	462	445	440	444	435	430
<b>Pigs</b>	6461	6517	7096	7544	7864	8214	8720	8974	9231	9100
<b>Horses</b>	6	7	8	8	8	11	13	14	14	14

FAOSTAT data, 2004

**Table 38: Forage Production in Japan**

Product	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	1000 Metric Tons									
Maize for Forage+Silage	5,701	5,368	5,487	5,184	4,795	5,287	5,114	4,867	4,563	4,300
Sorghum for Forage+Silag	1,844	1,732	1,692	1,706	1,500	1,625	1,599	1,501	1,312	1,300
Grasses nes,Forage+Silag	10,402	10,196	10,546	10,378	10,550	10,833	10,675	10,594	10,257	10,000
Leguminous nes,For+Sil	292	280	258	266	259	233	241	225	218	220
Mixed Grasses&Legumes	22,382	21,306	21,253	21,287	20,345	20,879	19,629	19,486	18,225	18,000
Turnips for Fodder	80	70	60	50	45	40	35	30	25	22
Vegetables+Roots,Fodder	2	3	2	1	1	1	0	0	0	0
<b>Total Forage production</b>	<b>40,703</b>	<b>38,955</b>	<b>39,298</b>	<b>38,872</b>	<b>37,495</b>	<b>38,898</b>	<b>37,293</b>	<b>36,703</b>	<b>34,600</b>	<b>33,842</b>

FAOSTAT data, 2004

Food and Agricultural Organization of the United Nations

**Table 39: Milk Production in Japan**

Milk, Whole, Fresh Production (1000 Mt)	Year								
	1996	1997	1998	1999	2000	2001	2002	2003	2004
Japan	8,657	8,645	8,572	8,459	8,497	8,301	8,385	8,400	8,350

FAOSTAT data, 2004

Food and Agricultural Organization of the United Nations

**Table 40: Forage and Milk Production for Korea**

Products	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Forage	1,092,000	1,081,581	948,170	832,042	731,623	596,976	506,681	517,596	517,596	517,596
Milk	2,005,155	2,040,393	1,990,018	2,032,335	2,247,406	2,257,369	2,343,260	2,541,400	2,370,400	2,304,400

FAOSTAT data, 2004

Food and Agricultural Organization of the United Nations

**Table 41: 2004 PNW Hay Production**

State	Tons
Idaho	5,350
Oregon	3,624
Washington	3,392
<b>PNW</b>	<b>12,366</b>
<b>PNW (MT)</b>	<b>11,218</b>

**Table 42: 2004 Influence of Exports to Japan on PNW Hay Market**

All Hay	Exports	Influence
1000 Metric Tons		Percent
11,218	1,319	11.8%

**Table 43: 2004 Influence of Exports to Pacific Rim on PNW Hay Market**

All Hay	Exports	Influence
1000 Metric Tons		Percent
11,000	1,742	15.8%