

Washington State Department of Agriculture

Future of Farming Project

Working Paper and Statistics on Farmland in Washington

Background:

Among the critical issues faced by Washington's farmers and ranchers in the years ahead will be access to land. As the population of our state continues to grow, the cost of land is likely to continue rising. Already many farmers are finding themselves unable to afford to expand their operations. New farmers are finding it difficult to enter farming. And some find it necessary to sell land for development or other non-agricultural uses.

Much of this upward pressure on the price of agricultural land is driven by competition from land uses other than agriculture. How serious is this problem? How widespread within the agriculture industry in Washington? What impacts is it already having on our industry and what effect is it likely to have in the years ahead? What, if anything, might we be able to do about it?

This paper is designed to provide some of the basic statistical information that will help us answer those questions.

Working statistics on cost-availability of Washington's Farmlands:

- **Land in agriculture.** The total number of acres, of all kinds, in agriculture in Washington has diminished over the years. During the 10 years between 1997 and 2007, the Census of Agriculture reported a loss of approximately 678,606 acres in agriculture in Washington, dropping from 15,778,606 in 1997¹ acres to 15,318,008 acres in 2002, and then to approximately 15,100,000 acres in 2007.² This was a loss of about 4.3% over those 10 years.

¹ Note: In 2002, USDA changed the way it calculates agricultural acreage in the Census of Agriculture. The figure shown for 1997 is adjusted upward from the original reported number of 15,179,710 to account for this change. See: http://www.farmlandinfo.org/agricultural_statistics/index.cfm?function=statistics_view&stateID=WA. Also see: See USDA Census of Agriculture, 1997 - http://www.nass.usda.gov/census/census92/volume1/wa-47/wa_intro.pdf, 2002 - <http://www.nass.usda.gov/census/census02/volume1/wa/index1.htm>

² Note: this number is apparently an approximation. See: USDA/NASS Report from 1997 Census of Agriculture data: Farms and Land in Farms and Livestock Operations 2007 (February 2008), p.9, http://usda.mannlib.cornell.edu/usda/current/FarmLandIn/FarmLandIn-02-01-2008_revision.pdf

Analysis: There are a wide variety of reasons land might disappear from agriculture over time. These might include development, conversion to non-agricultural estates, environmental conversion, non-cultivation by former farmers/ranchers, public acquisition, etc. Not also that this number does not, alone, indicate the type or quality of agricultural land that is disappearing.

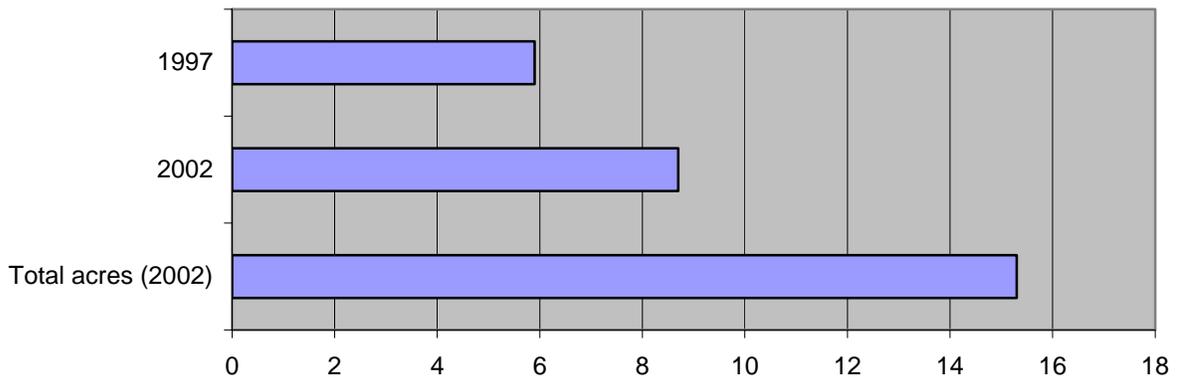
- **Land lost to development:** The most recent USDA National Resources Inventory data indicates that, between 1992 and 1997, 118,600 acres of agricultural land were converted to developed uses. Thus the State of Washington lost an average of 23,720 acres per year just to development over this 5 year period.

Analysis: The amount of land lost from agriculture overall is not the same as the amount that may have been specifically lost to development – this figure was an attempt by USDA to separate out losses to developed uses. There do not appear to be any overall statistics reflecting total acres lost for other reasons (e.g., non-cultivation, environmental conversion, public acquisition, other). (Compare the above numbers with statistics for loss of prime farmland, below.) By way of reference, 23,720 acres is roughly equivalent to the size of Lake Washington.³

- **Age of owners:** Between 1997 and 2002, the average age of farm/ranch operators in Washington increased. And the amount of land managed by older operators significantly increased to well over half the active farmland in the State.⁴

	<u>1997</u>	<u>2002</u>
○ Percentage of operators 55 years of age and older:	46%	50%
○ Land managed by operators 55 and older (acres):	5,954,178	8,690,036
○ Land managed by operators 55 and older (percent)	38%	57%

Agricultural land managed by operators 55 years of age and older
(in million acres)

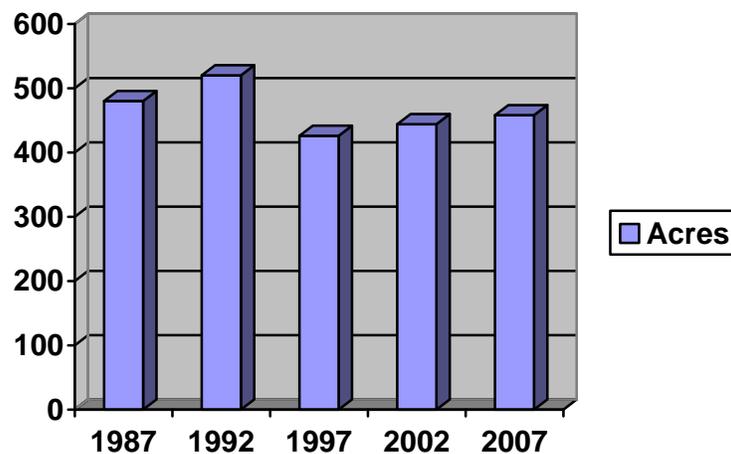


³ See USDA National Resources Inventory and calculations at:
http://www.farmlandinfo.org/agricultural_statistics/index.cfm?function=statistics_view&stateID=WA

⁴ See: Farmland Information Center, Washington Statistics Sheet:
http://www.farmlandinfo.org/agricultural_statistics/index.cfm?function=statistics_view&stateID=WA

Analysis: The rate at which land becomes vulnerable to conversion to non-farm uses is affected by the age of its owners or operators. As farmers reach retirement age, the chances that their land will go on the market for sale increase. The above statistics suggest two trends: 1) The average age of Washington farmers continues to rise. 2) The percentage of land managed by older farmers is also rising, but this is happening faster than the age increase. There are several potential explanations for this phenomenon. But the impact on availability of land is probably to generally increase the vulnerability of farmland to sale in the general market.

- **Average size of farm:** The average size of farms in Washington has varied substantially over the past 20 years. Average farm size is shown on the following table:⁵
 1987 – 480 1992 – 520 2002 – 426 2006 – 444 2007 – 458



Analysis: At least here in Washington, there does not appear to be any clear or strong trend over the past 20 year period in the average size of a Washington farm. Washington’s agriculture is highly diverse both in crops grown/raised, and in the types of land in agriculture and sized of farms and ranches. There could be mixed trends affecting different segments of agriculture hidden in the above data. It may be, for example, that farms in urban-edge communities are becoming smaller, driven by land fragmentation and development pressure. At the same time, it may be that industry trends, overall, driven by the economics of the agriculture business, are moving to larger farms. These statistics only capture the average.

- **Farm and non-farm uses compared, statewide:** Agriculture covers about 1/3 of the land area of Washington or about 1/2 of the private land in this state. The following table shows total acreages in various agricultural and non-agricultural land uses and their percentages of the state total and (for agricultural uses) of the total land in agriculture.⁶

⁵ USDA Farms and Land in Farms and Livestock Operations 2007 (February 2008), p.5, http://usda.mannlib.cornell.edu/usda/current/FarmLandIn/FarmLandIn-02-01-2008_revision.pdf

⁶ USDA/Natural Resources Conservation Service – National Resources Inventory, 2003 – land use data: <http://www.nrcs.usda.gov/technical/NRI/2003/Landuse-mrb.pdf>.

Washington Land uses	Acres x 1000	% of Total for State	% of Total Agriculture
Cultivated cropland (row crops, close grown crops etc.)	5,407.2	12.3	37.0
Non-cultivated cropland (hay, horticulture, etc.)	1,086.6	2.5	7.4
CRP land	1,194.3	2.7	8.2
Pastureland	1,080.1	2.5	7.4
Rangeland	5,861.0	13.3	40.1
<i>Agricultural total</i>	14,629.2	33.2	100.0
Forest land	12,707.1	28.8	
Other rural land	953.4	2.2	
Developed land	2,279.4	5.2	
Water areas	1,542.7	3.5	
Federal land	11,923.5	27.1	
<i>State total</i>	44,035.3	100.0	

[Note that the total for all lands in agriculture, in this table, add up to 14,629,200 acres rather than the 15,318,008 shown in the 2002 Census of Agriculture. Presumably this is accounted for by differences in methods of calculation and in margins of error. Also note that some of these uses may overlap (e.g. farm and forest). One can probably assume that the percentage for each of the agricultural uses is at least approximate.]

Analysis: Some key highlights from this table include: Active agriculture occupies about 1/3 of the total land area of the State of Washington and perhaps ½ of the private lands. Taken together, pasture and rangelands occupy about 47.5% of agricultural lands and cultivated and non-cultivated croplands occupy about 44.4% of agricultural lands (with about 8.4% in CRP). Keep in mind the likely overlap between farm and forest lands. Also, of interest, is the fact that this about ½ of the state’s private land base is owned by roughly 36,000 farm operators, or about 0.6% of the roughly 6 million total population of this state.

- **Farm size, numbers, and sales:** To fully understand the mix of small, mid-sized, and larger farms (at least in terms of acreage and sales, one can compare groups of farms by gross annual sales, numbers of farms in that sales grouping, and the average acreage producing those sales.

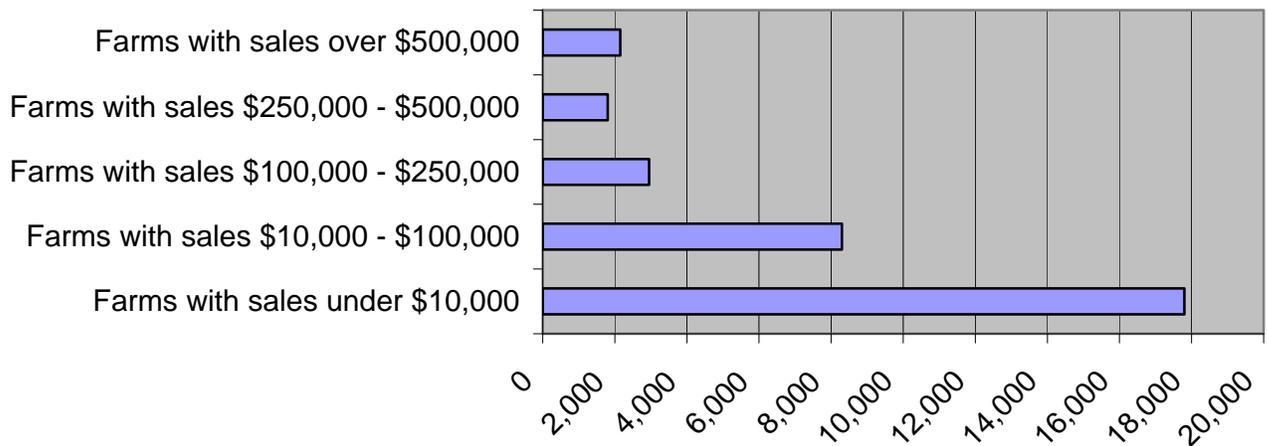
Of the approximately 15.1 million acres reported in agriculture in 2007 in Washington, there were about:⁷

- 17,800 farms occupying 1 million acres (for an average farm size of 56 acres) engaged in farming operations with annual sales averaging less than \$10,000;
- 8,300 farms occupying 2.6 million acres (for an average farm size of 313 acres) engaged in operations with annual sales averaging between \$10,000 and \$100,000;

⁷ USDA Farms and Land in Farms and Livestock Operations 2007 (February 2008), p.9-13, http://usda.mannlib.cornell.edu/usda/current/FarmLandIn/FarmLandIn-02-01-2008_revision.pdf. Average acreage is derived from the table

- 2,950 farms occupying 3.2 million acres (for an average farm size of 1,085 acres) engaged in operations with annual sales averaging between \$100,000 and \$250,000;
- 1,800 farms occupying 2.55 million acres (for an average farm size of 1,417 acres) engaged in operations with annual sales averaging between \$250,000 and \$500,000; and,
- 2,150 farms occupying 5.75 million acres (for an average farm size of 2,674 acres) engaged in operations with annual sales averaging over \$500,000.

**Numbers of farms by total \$ value of annual sales in Washington
(Total number of farms = 36,000)**



Analysis: While there are obviously a great many farms that provide marginal income from agriculture, one notable feature of this data is that the vast majority of Washington’s farm acreage (about 76.5%) is engaged in agricultural activities that are earning the farm owners gross revenue of over \$100,000 per farm per year. And a majority of our farm acreage (about 54%) is earning its owners revenue of over \$250,000 per farm per year. The greater the acreage, the greater the average sales (as one might expect), but the larger acreages do not produce sales proportionate to their size compared to the smaller – probably reflecting the more land extensive nature of some crops, like dry-land wheat or range cattle.

- **Farm operators by primary occupation:** According to the 2002 Census of Agriculture, of the 35,939 principal farm operators in Washington, farming was the:⁸
 - Primary occupation for 21,013
 - Not the primary occupation for 14,926.

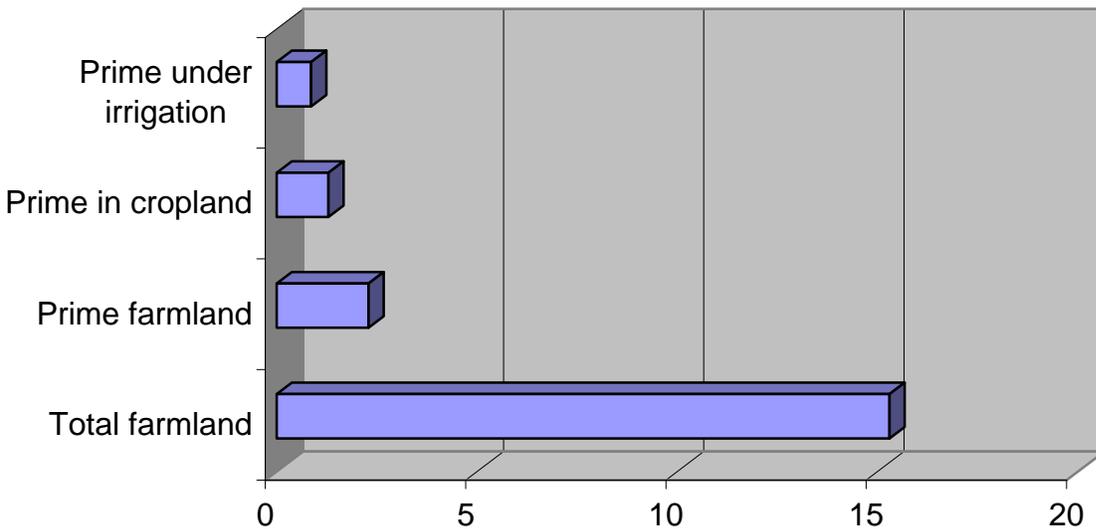
Analysis: Understanding the previous table of sales vs. acreage becomes more complete by also considering how many of Washington’s farmers consider agriculture their primary occupation. Many of the smaller farms are located in areas where land values are high, so it may not be possible to justify owning this land purely based upon its agricultural production. These are

⁸ NASS 2002 Census of Agriculture, Washington State Profile, http://www.agcensus.usda.gov/Publications/2002/County_Profiles/Washington/cp99053.PDF

also areas where the farm’s owner is likely to be close to centers of other employment. Income from another occupation may make it possible for this owner to continue to own and farm this land. Without that supplemental income, the owner might have had no choice but to sell the land for development.

- **Prime farmlands:** While there are about 15.3 million acres in agriculture, generally, as if 1997, there were only about 2.29 million acres of prime farmland in Washington. Of this sum, there were:⁹
 - About 1.29 million acres were in cropland (the balance was in pasture, CRP, Rangeland, other rural land, and forest land)
 - About 855,000 acres of prime farmland were under irrigation

**Agricultural acres in various soil and use types
(In million acres)**



Of the acreage of Washington’s farmland that is considered prime, the following pertain:

- Most of the prime farmland in Western Washington is forested with a low likelihood that forest will be removed for crop production
- There are about 140,000 acres of pasture on prime farmland in Lewis, Clark, King, and Skagit Counties that could be converted to crop production, but there is little expectation that this change will occur
- There are many soils in Washington that could be prime given availability of water – so the amount of prime farmland could increase or decrease depending on supplies of water

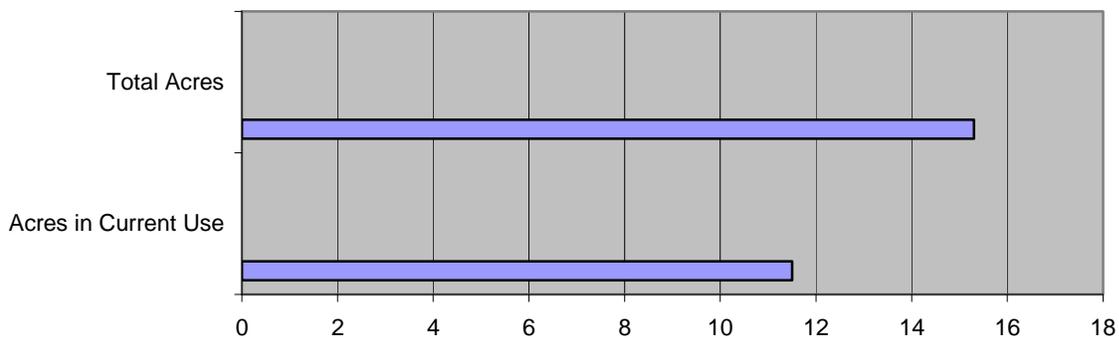
⁹ Derived from statistic reported in USDA National Resources Inventory, NRCS Washington State Office, Prime Farmland in Washington, 1982-1997, http://ftp-fc.sc.egov.usda.gov/WA/NRI_PDF/fs_pdfs/Primeland_May01.pdf

Between 1982 and 1997, prime farmland soils used for agriculture declined from 1.76 million acres to 1.62 million acres or by about 140,300 acres (about an 8% loss of prime soils in agriculture over 15 years). This was mostly as a result of development. This would amount to an average loss of 9,353 acres per year or nearly 40% of the total 23,720 acres of agricultural land lost to development annually in Washington but only about 1.4% of total losses.¹⁰

Analysis: In considering the severity of farmland losses, especially those losses to development, one might ask which acres are predominantly being lost. The above statistics indicate that, during the 15 years between 1982 and 1997, we lost about 9,353 acres of prime farmland, annually. But, because there are not clear statistics on how much of prime vs. non-prime farmland is lost, we are left to surmise that more of this loss may have been prime land owing to where we believe most of the prime land to be.

- **Agricultural value vs. fair market value:** One of the immediate problems faced by individual farmers is affordability of farmland. Participation in Washington’s Current Use taxation program can serve as a rough measure of how much land has acquired a market value that exceeds its value as an agricultural business asset.¹¹
 - As of 2006, there were 11,515,175 acres enrolled in Current Use agriculture designation.
 - By comparison, there are 15,318,008 acres shown in active agriculture by the 2002 Census of Agriculture.
 - This comparison would suggest that roughly 75% of the active agricultural land in the State of Washington now has a fair market value that exceeds its value for agriculture.

**Acres of Washington Farmland enrolled in the Current Use taxation program
(In million acres)**



Analysis: The reason landowners enroll their farmland in current use is to save taxes. This only happens if the land has a market value higher than its agricultural value. So the above statistic suggests that roughly 75% of Washington’s farm businesses own land that is worth more on the market than it is as a productive business asset.

¹⁰ See bullet above for loss of land due to development.

¹¹ Washington State Department of Revenue, Property Tax Statistics, Valuation of Current Use Land by County, 2006 – State Total: http://dor.wa.gov/docs/reports/2007/Property_Tax_Statistics_2007/Table_19.pdf

Business investments have an annual carrying cost. That cost is measured by how much the invested money could have earned in an alternative investment (say, 6% in secure mutual fund investments, for example). Thus a \$100,000 investment has an annual carrying cost of roughly \$6,000. And a \$1 million investment costs \$60,000 annually. To pencil out, the increased productivity of the business resulting from this investment must be great enough to cover and, hopefully, exceed that carrying cost. If it isn't, the investment will simply further burden the enterprise and, from a purely farm business perspective, should probably not be made.

Of course the land may be appreciating and have a market growth investment value independent of any increased earnings of the farm business. But this, of course, assumes that the land will, at some point, be sold for non-farm purposes. From the farm business perspective, when such investments in “overvalued” land are made (or when the land already in the business acquires such a value) they indicate, with some certainty, that the end of the farm – at least on that land – is in sight.

There is also a secondary impact of farm ownership of overvalued land. Many, if not most investments farmers make the competitiveness of their businesses are in fixtures to land (e.g. fencing, farm structures, irrigation systems, waste management, etc.). Once the landowner realizes that the land has acquired a market value for non-farm uses that is greater than its agricultural value, the inclination to invest in these kinds of farm improvements on that land diminishes – the landowner increasingly knows that the ultimate buyer of the land will make no use of those farm improvements and instead may, in fact, pay less for the property because of them. There is, therefore, a cooling effect on agricultural investment caused by increases in non-farm use market value in farmland. This seems likely to be a significant factor in an industry where 75% of the land is overvalued and where, on average, agricultural business value is only about 28% of total market value of the land.

- **Value of development rights on Washington farmland:** The value of development rights is generally measured by the difference between a property's fair market value and its value solely as an agricultural business asset. Washington assessors do a dual appraisal – fair market and agricultural value – on properties enrolled in the current use program. The total of these appraisals are reported to the State Department of Revenue (DOR) annually and rolled up in statistics reported by DOR on line. The 11,515,175 million acres enrolled in current use, statewide, have:¹²
 - A total fair market value of about \$13.9 billion
 - An agricultural current use value of about \$3.9 billion
 - Thus, the total agricultural value of all these enrolled lands is only about 28% of their total fair market value.
 - The total statewide difference in value is about \$10 billion – which would be the approximate current day cost of purchasing development rights on ALL of these lands – were that desired.

¹² Ibid.

Value of development rights in Washington



← Total Fair Market Value of all agricultural lands = \$13.9 Billion →

Analysis: Among the conclusions one might reach from this statistic is that, at today’s prices, the cost of purchasing development rights on ALL of the 11.5 million acres of Washington Farmland that have a market value in excess of farm value would be about \$10 billion. Of course, any effort to purchase these rights would take place over many (perhaps 30-40) years, and would probably target only a strategic portion of the lands. But this approach makes a start at estimating what orders of magnitude the spending for such a project might be.

- **County comparisons of agricultural and fair market value:** The data available at the Washington Department of Revenue also breaks the above information down by county.*

A close look at a few notable counties reveals some interesting insights (and possible surprises) on land cost for farmers:¹³

County*	Acres in Ag ('02 Ag Census)	Acres in Ag Current Use program	% of Ag land enrolled in current use (calculated)	Current use value (in million \$)	Fair market value (in million \$)	Ag value as % of fair market value
King	41,769	40,806	98%	196	813	24%
Snohomish	68,612	62,545	91%	118	678	17%
Pierce	57,224	43,760	76%	98	639	15%
Skagit	113,821	106,143	93%	165	646	26%
Whatcom	148,027	111,446	75%	158	895	18%
Yakima	1,678,984	396,077	24%	241	562	43%
Lincoln	**1,233,377	1,244,496	100%	229	465	49%
Whitman	1,328,337	1,247,422	94%	398	742	54%
Okanogan	1,241,316	568,639	46%	50	595	8%
Adams	**1,067,079	1,075,621	100%	235	453	52%
Grant	1,074,074	1,038,234	97%	417	952	44%
Benton	607,963	592,642	97%	183	472	39%
Statewide	15,318,008	11,515,175	75%	3.900	13.900	28%

[*Note: Each county assessor sets independent, and different policies concerning eligibility to participate in the current use program – some more rigorous than others. These policies are clearly

¹³ Ibid.

reflected in the data. In every county, there are probably farmers who could be in the current use program but are not, and there are probably ones who are in the program who should not be. Moreover, making a percentage comparison between state current use statistics and NRCS Census of Agriculture data, which is based on survey and uses criteria and definitions that almost certainly differ from county assessor practice is inherently risky. Nonetheless, this approach is probably good enough to provide a general approximation of the current vulnerability of farmland to development.]

[**Note: Keep in mind that these are approximations – the Ag Census data will not provide a perfect match with the Current Use data. Among other differences, we are using 2002 Ag Census data and 2006 Current Use data. So it should not be surprising that, in some cases, the total shown in agriculture is actually less than that shown in current use.]

Analysis: A county-by-county analysis indicates that current use participants (and substantial differences between agricultural value and market value) are not limited to the more urban counties. In fact, every county in the State reports substantial acreage of farmland in the current use program suggesting that land affordability is a statewide problem. The difference between fair market value and current use/agricultural value is, of course, affected by each. So, for example, in those counties where predominant agricultural lands are range lands, or are non-irrigated wheat lands, the agricultural value may be quite low. In those counties, fair market value may not need to be particularly high to still considerably exceed the agricultural value. Conversely, in counties where the agricultural value is, on average, quite high, this value can still be overwhelmed by fair market prices driven by urban growth.

- **Comparison of land-intensity of agriculture with that of other uses:** It has been said that agriculture is a land-extensive business. That is to say that, per dollar value generated, the acreage required for agriculture is much higher than other uses of land.

The acreage need for land in agriculture as a business asset can be compared with the acreage need, generally by other uses in Washington by comparing the gross agricultural product (as measured by farm gate sales value) with the gross domestic product of the state, and making this comparison in relation to acres in agricultural and other land uses in the state.

- Total 2005 gross domestic product of the State of Washington was \$268.5 billion¹⁴ – this is the total dollar value of all production statewide.
- The 35,939 farms in Washington produced farm/ranch products, in 2002, worth \$5.33 billion.¹⁵
- Agricultural production represents about 2% of the total value of Washington production.
- Agriculture covers about 50% of the private land base of the state.¹⁶

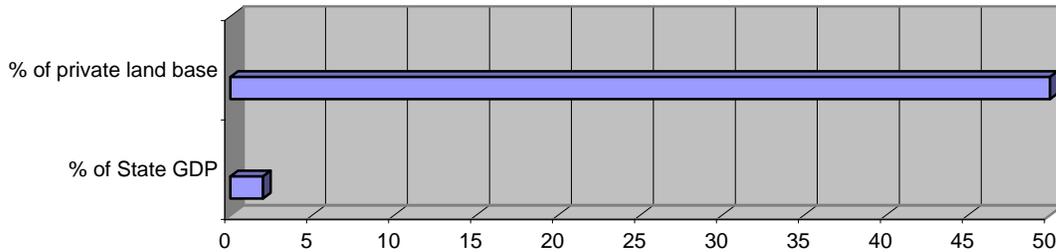
¹⁴ Total domestic product and population figures were taken from Wikipedia on 5/27/08 – Washington: <http://en.wikipedia.org/wiki/Washington>.

¹⁵ 2002 USDA Census of Agriculture – See: http://www.nass.usda.gov/census/census02/volume1/wa/st53_1_002_002.pdf

¹⁶ See above at note 4.

Thus 2% of the State's gross domestic product was produced using roughly 50% of its-privately owned lands (ignoring, for the moment, public land leases).

Percent of Washington's private land base in agriculture compared with percent of gross domestic product produced by Washington agriculture



Analysis: Clearly, agriculture is a land-extensive business activity. Agriculture is one of the top two business activities in Washington. But the business activities and use value of non-farm residential, commercial, and industrial properties in Washington produce much more revenue per acre than does most agricultural use. Of course, the value of land is closely tied to its location, which accounts for the fact that properties in or near to urban development centers have much higher values than those located a much greater distances. This is critically important for some businesses, e.g. for those requiring a nearby labor market or requiring access to infrastructure or markets for their products or services. Nonetheless, to whatever extent the land users that generate the other 98% of our state's production are able or inclined to purchase land in competition with farmers, the likely impact on agriculture seems obvious.

- **Comparison of \$/acre productivity values:**

Some acreage in Washington has a higher productive value for agriculture than does other acreage, considering its capacity to generate farm income. This may be because it has access to irrigation, or because it has higher soil quality, or because of its unique micro-climate, location, or access to markets or to key industry infrastructure. It also may be because the landowner has invested more heavily in business infrastructure on the property.

Whatever the reason, higher agricultural value does not, necessarily, protect this land from development pressure. This can be seen by comparing \$/acre annual sales from farms in Eastern Washington, where land development and price pressures may be somewhat lower, with \$/acre sales from farms in Western Washington where we may assume land prices and development pressures are probably higher.

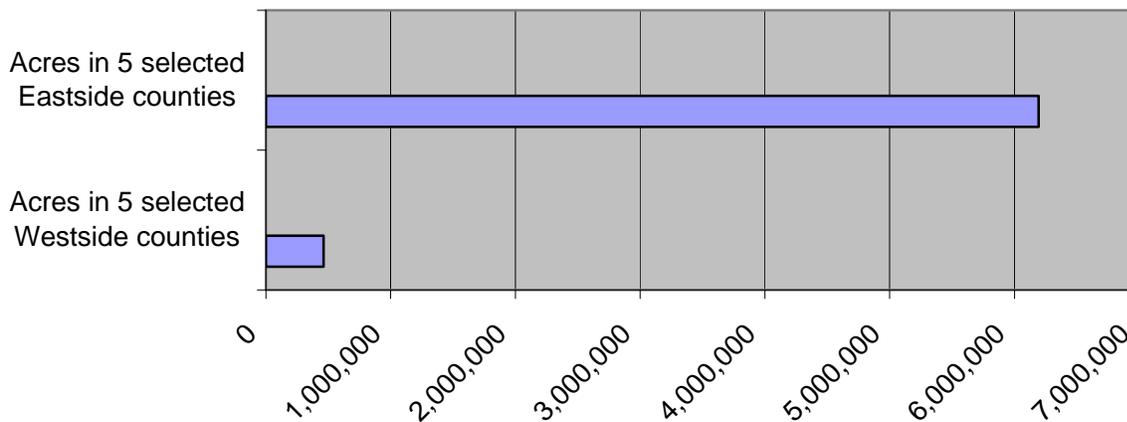
Look for example, at 5 counties on the eastside, and 5 in the urban Westside, as follows:

County	Total acres in agriculture	Total \$ sales	Sales value/acre
Whatcom	148,027	287,860,000	
Skagit	113,821	217,384,000	
Snohomish	68,612	126,947,000	
Pierce	57,224	94,170,000	
Thurston	74,442	114,675,000	
Westside totals:	462,126	841,036,000	\$1,820/acre
Yakima	1,678,984	843,871,000	
Grant	1,074,074	881,756,000	
Douglas	878,867	124,378,000	
Lincoln	1,233,377	93,555,000	
Whitman	1,328,337	162,631,000	
Eastside totals:	6,193,639	2,106,191,000	\$340/acre

[Data for the above table was taken from: USDA Census of Agriculture, 2002 – County Summary Highlights for Washington -

http://www.nass.usda.gov/census/census02/volume1/wa/st53_2_001_001.pdf]

**Total acres in the 5 selected Eastside counties compared with
The 5 selected Westside counties**



Analysis: While there is less agricultural land, overall, on the Westside, and less total production, for every acre lost to agriculture in these Western Washington counties, our State’s agriculture industry loses over 5 times as much in production value as for an acre in the East. Were the statistics available, they would probably, in a similar way, demonstrate the higher value of agricultural production for other categories of acreage that may be vulnerable to development pressure throughout the state.

APPENDICES

- A AFT Farmland Information Center Statistics for Washington State**
- B 2002 Census of Agriculture – Washington State & County Highlights**
- C National Resources Inventory – national and state ag land use data**
- D 2002 Census of Agriculture – Washington State Profile**
- E Prime Farmlands in Washington (NRI)**
- F Washington Department of Revenue Current Use Taxation data**
- G Wikipedia Entry for Washington State Economy**