New Brunswick Private Woodlot Stumpage Values

Supplementary Analyses and Observations
October 2018 to December 2019

New Brunswick
Forest Products Commission

Commission des produits forestiers
du Nouveau Brunswick

Contents

INTRODUCTION

The value of standing timber is typically referred to as stumpage, which is the value offered to a landowner by another party interested in harvesting the landowner's timber. Since 2016, the New Brunswick Forest Products Commission (the Commission) has conducted annual stumpage studies to provide guidance to the Department of Natural Resources and Energy Development as to the fair market values for standing timber originating on private woodlots in New Brunswick. The methodology and results of the stumpage study for the reporting period between October 2018 and December 2019 is found in the report titled "New Brunswick Private Woodlot Stumpage Values - Stumpage Study Results - October 2018 to December 2019". The purpose of this report is to provide supplementary analyses and observations made by the Commission based on the data collected in the process of the annual stumpage study.

SPECIES / PRODUCTS GROUPS USED

The Commission grouped species and/or products commonly applied in stumpage agreements between a woodlot owner and the person purchasing an owner's trees. Table 1 is a summary of the various species and products grouped and used to analyze stumpage values in the study and in the supplementary analyses.

Table 1. Species and Products groups used in the study.

SPECIES	PRODUCT	GROUP
CEDAR	SAWLOG	CEDSAW
CEDAR	STUD	
CEDAR	SHINGLEWOOD	
CEDAR	TREELENGTH	
POPLAR	CHIPS	HWDPW
HARDWOOD	CHIPS	
HARDWOOD	PULPWOOD	
POPLAR	PULPWOOD	
HARDWOOD	SAWLOG	HWDSL
RED PINE	PULPWOOD	OSRWB**
HEMLOCK	PULPWOOD	
WHITE PINE	PULPWOOD	
TAMARACK	PULPWOOD	

SPECIES	PRODUCT	GROUP
RED PINE	SAWLOG	OSSL
TAMARACK	SAWLOG	
HEMLOCK	SAWLOG	
WHITE PINE	SAWLOG	PISL
SPF*	RWB**	SPFRWB
SPF*	CHIPS	
SPF*	PULPWOOD	
SPF*	SAWLOG	SPFSL
SPF*	STUD	SPFST
SPF*	TREELENGTH	SPFTL

** SPF = Spruce, Fir, Jack Pine, ** RWB = Round wood biomass, including pulpwood and chips produced at the harvest site.*

VOLUME OF DATA CURRENT STUDY VS. PREVIOUS STUDIES

The level of detail in the current submitted data was such that the Commission was able to determine prices paid for the species/product groups within each woodlot. By assuming that each woodlot represents a stumpage agreement, combined with the species/product pricing associated within each agreement, the Commission was able to align the study data with metrics that were used in past surveys. This enabled the Commission to conduct a direct comparison between the current study response level and those of previous surveys. Table 2 provides a comparison of the response level from the current study to the previous six (6) surveys where stumpage agreements and price points were used as the metrics.
Table 2. Response levels: current study vs. previous six (6) studies completed.

Report Period	Stumpage Agreements	Price Points
Oct 2018 to Dec 2019	*677*	*3,160**
Oct 2017 to Sept 2018	567	3,872
Oct 2016 to Sept 2017	509	3,383
Oct 2015 to Sept 2016	655	5,167
Oct 2014 to Sept 2015	461	2,650
December 2013	102	741
June 2011	156	716

** Number of stumpage agreements and price points are affected by the size of harvest jobs, number of participants who purchased or administered stumpage agreements, and overall production levels.*

PROVINCIAL RESULTS

For each year that the Commission has conducted the stumpage study, the provincial results have been published in its report. The following table 3 compares the Provincial Stumpage Study Results by year that the study has been conducted by the Commission.

Table 3. Comparison of Provincial average stumpage rates determined by the Commission by species/product group and year.

Species/ Product Group	Oct 2014 - Sep 2015	Oct 2015 - Sep 2016	Oct 2016 - Sep 2017	Oct 2017 - Sep 2018	Oct 2018 - Dec 2019
CEDSAW	$ 19.62	$ 17.60	$ 16.93	$ 17.52	$ 17.52
HWDPW	$ 10.00	$ 12.24	$ 10.13	$ 9.94	$ 9.93
HWDSL	$ 19.69	$ 30.65	$ 20.47	$ 21.06	$ 33.72
OSRWB	$ 4.40	$ 5.33	$ 5.21	$ 2.04	$ 3.89
OSSL	$ 9.19	$ 8.16	$ 10.61	$ 9.93	$ 10.25
PISL	$ 15.23	$ 16.95	$ 16.77	$ 15.68	$ 17.92
SPFRWB	$ 5.98	$ 5.41	$ 4.51	$ 4.07	$ 4.29
SPFSL	$ 19.01	$ 20.17	$ 19.06	$ 17.82	$ 20.64
SPFST	$ 15.93	$ 16.68	$ 16.77	$ 15.42	$ 16.89
SPFTL	$ 12.29	$ 16.50	$ 13.77	*$ 17.92	*$ 20.72

** - SPFTL stumpage data is limited to data from one Board region and reflects specialized transactions and demand during the study period. For this reason, the Commission does not recommend using this figure as a basis for SPF treelength FMV on Crown land where treelength rates are used.*

COMPARISONS BETWEEN STUMPAGE PURCHASE METHODS

The current study included data collected for transaction-based and lump-sum-based stumpage purchases. One practical comparison of the data formats would be to simply calculate the overall average stumpage value per cubic meter for each dataset. The average values per cubic meter that resulted from those calculations are compared in Table 4 below.

Table 4. Comparison of average lump-sum stumpage value per cubic meter ($/m3) from each data format.

Transaction Based (avg.)	Lump-sum Based (avg.)
$ 13.10 / m3	$ 15.20 / m3

A similar type of comparison could be made by species/product group for each of the two methods stumpage is purchased (transaction-based vs lump-sum-based). Table 5 summarizes the provincial average stumpage rate by stumpage purchase method and species/product group compared to the Provincial result from the Commission's stumpage study.

Table 5. Average stumpage rates by stumpage purchase method and by species/product group compared to Provincial stumpage study results.

	Average $/m3 by Data Format		
Species/ Product Group	Transaction Based	Lump-sum Based	Provincial Results
CEDSAW	$ 16.80	$ 17.59	$ 17.52
HWDPW	$ 10.41	$ 11.85	$ 9.93
HWDSL	$ 23.34	$ 48.32	$ 33.72
OSRWB	$ 3.65	$ 6.51	$ 3.89
OSSL	$ 10.37	$ 8.01	$ 10.25
PISL	$ 17.73	$ 19.32	$ 17.92
SPFRWB	$ 4.35	$ 4.91	$ 4.29
SPFSL	$ 19.75	$ 21.88	$ 20.64
SPFST	$ 16.63	$ 17.64	$ 16.89
SPFTL	$ 20.72	*No Data*	*$ 20.72

MILL-PURCHASED AND CONTRACTOR-PURCHASED STUMPAGE VALUES

Because the Commission collects data for all (100%) of the private woodlot stumpage purchased by mills, it is known that mill-purchased stumpage represents approximately 15% of all of the stumpage purchased from private woodlots in New Brunswick and 85% is purchased from woodlot owners by independent contractors. The data allows the Commission to conduct a comparison of the two stumpage purchase methods. Table 6 compares the arithmetic mean of stumpage values paid by mills and by independent contractors.

Table 6. Comparison of values between mill purchased and contractor purchased stumpage data.

Species/ Product Group	Mill Purchased Stumpage ($/m3)	Mill Purchased Volume (m3) (= Data Volume)	Contractor Purchased Stumpage ($/m3)	Contractor Stumpage Data Volume (m3)	Contractor Purchased Volume* (m3)	Contractor Data % of Contractor Volume
CEDSAW	$ 15.47	3,664	$ 17.44	7,242	13,609	53%
HWDPW	$ 8.60	76,822	$ 11.55	121,527	380,182	32%
HWDSL	$ 24.56	728	$ 24.35	2,206	26,959	8%
OSRWB	$ 2.90	595	$ 5.68	902	1,635	55%
OSSL	$ 6.58	1,653	$ 11.55	5,638	7,568	74%
PISL	$ 14.68	3,489	$ 18.35	9,856	20,474	48%
SPFRWB	$ 3.71	54,088	$ 4.68	78,774	276,011	29%
SPFSL	$ 21.39	34,899	$ 19.11	88,785	221,225	40%
SPFST	$ 17.73	69,095	$ 16.10	140,790	466,355	30%
SPFTL	*No Data*	0	$ 20.72	7,677	21,781	35%
Totals		245,033		463,397	1,435,799	32%

** - Calculated by subtracting mill purchased stumpage volumes from total estimated stumpage purchases.*

SPECIES PRODUCT GROUPS VS INDIVIDUAL SPECIES PRODUCTS

Within the more commonly produced species product groups, and where sufficient data was collected, the species product groups of CEDSAW, HWDPW, and SPFRWB can be separated. Because of the relatively small volume of production of the groups OSRWB and OSSL, there is insufficient data to provide a statistically reliable breakdown of the individual species product combinations.

Comparisons can be made between the Provincial stumpage study result for the group and individual components of the group. However, because the Provincial result is calculated using the impact of regional rates and production, the Commission calculated a regional weighting factor to be applied to the arithmetic averages of the individual species products within the groups listed below. The Commission wanted to ensure consistency between the individual species product level rates and the Provincial weighted average rate for each group. Table 7 provides the regional weighting factor that was used for each species product group and is calculated as the ratio between the Provincial weighted average and the arithmetic average of each species product. Table 8 is a summary of the arithmetic mean (adjusted with regional weighting factor) for various individual species product categories within the species product groups.

Table 7. Regional weighting factors applied to arithmetic means of individual species product categories within a species product group.

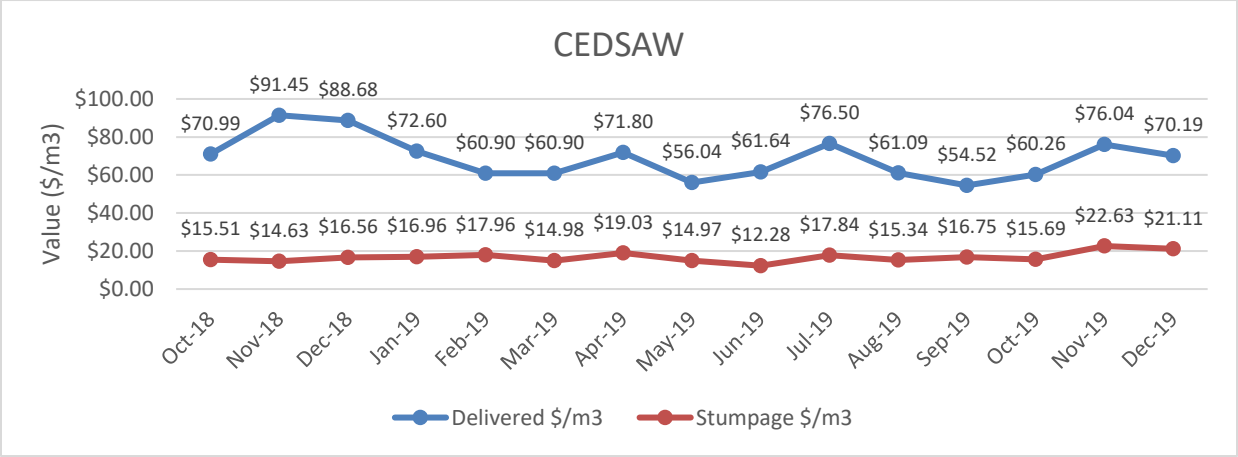
Species Product Group	Provincial Weighted Average ($/m3)	Provincial Arithmetic Average ($/m3)	Regional Weighting Factor Applied
CEDSAW	$ 17.97	$ 16.34	1.0998
HWDPW	$ 10.03	$ 10.47	0.9580
SPFRWB	$ 4.69	$ 4.62	1.0152

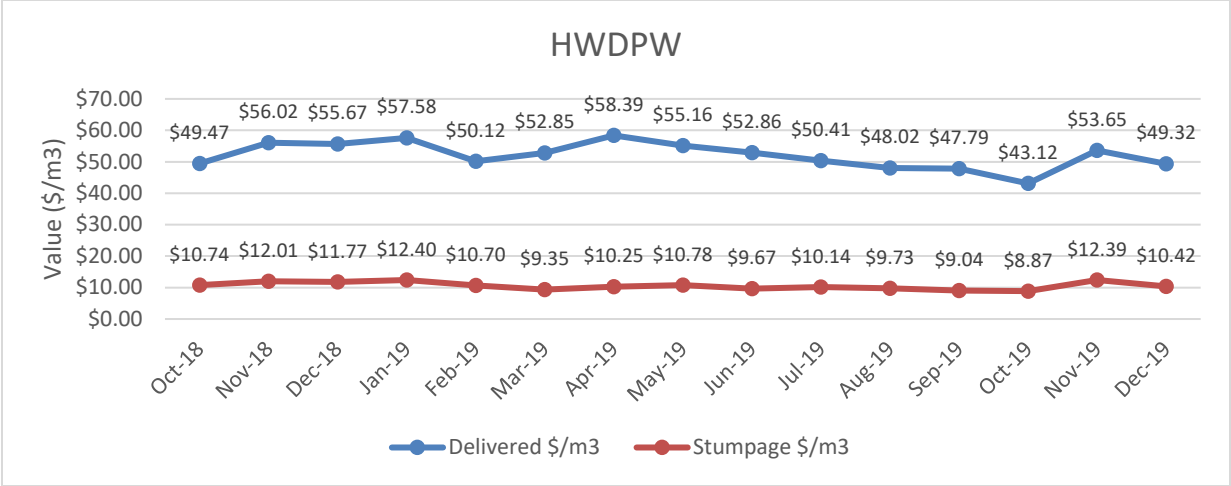
Table 8. Summary of the arithmetic mean (adjusted with regional weighting factor) for various individual species product categories within the species product groups and comparison to Provincial stumpage study result for the group.

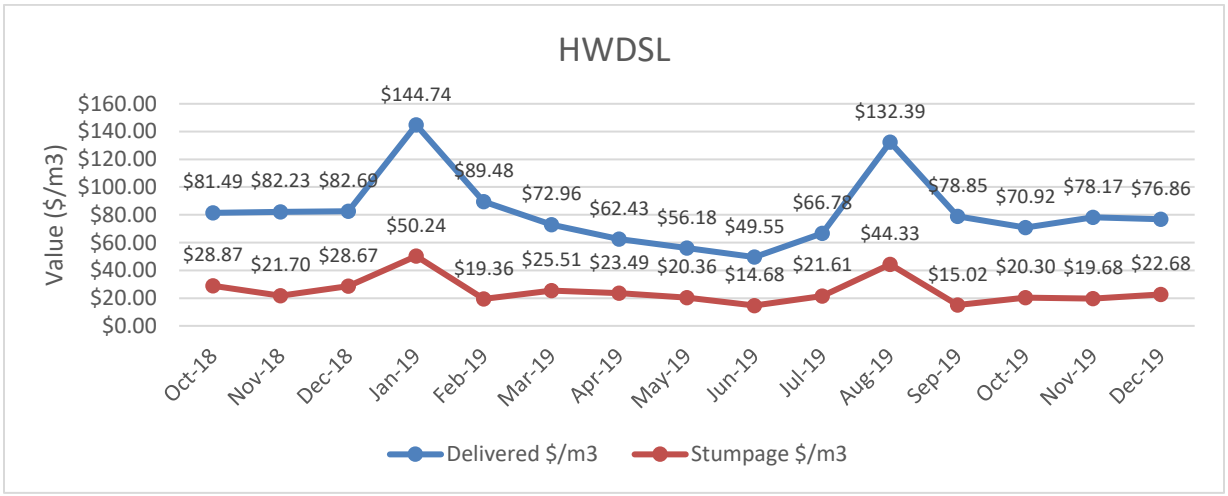
Species Product Group	Species	Product	Adjusted Average Stumpage ($/m3)	Provincial Weighted Average ($/m3)
CEDSAW	CEDAR	Sawlog	$ 18.05	$ 17.52
	CEDAR	Studwood	$ 17.74	
	CEDAR	Shinglewood	$ 15.05	
	CEDAR	Treelength	$ 20.83	
HWDPW	MIXED HARDWOOD	Pulpwood	$ 11.24	$ 9.93
	MIXED HARDWOOD	Full-tree chips	$ 7.05	
	POPLAR	Pulpwood	$ 9.61	
SPFRWB	Spruce / Fir, J. Pine	Pulpwood	$ 4.33	$ 4.29
	Spruce / Fir, J. Pine	Full-tree chips	$ 5.04	

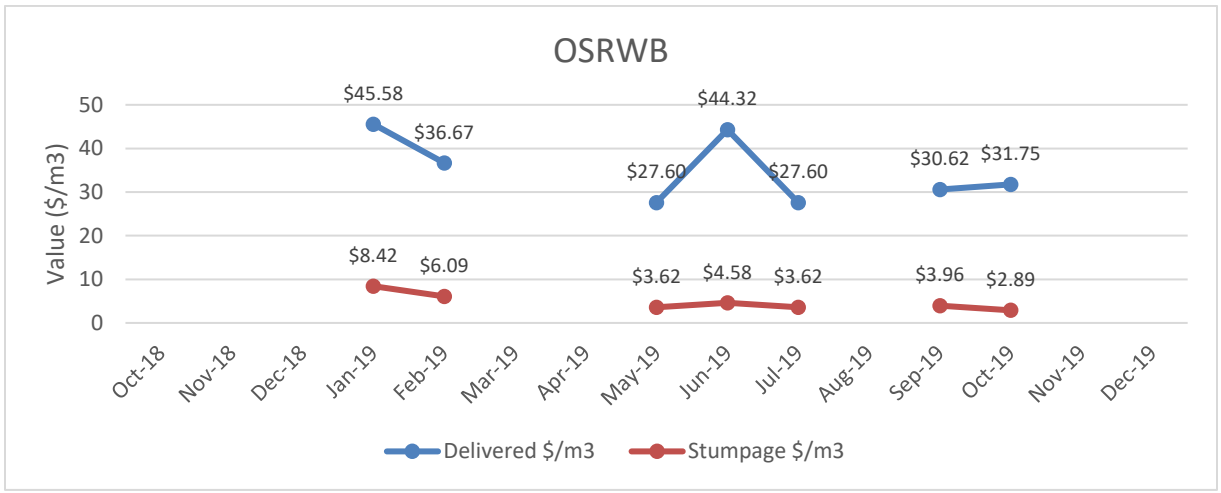
AVERAGE STUMPAGE VALUE COMPARED TO AVERAGE DELIVERED VALUE

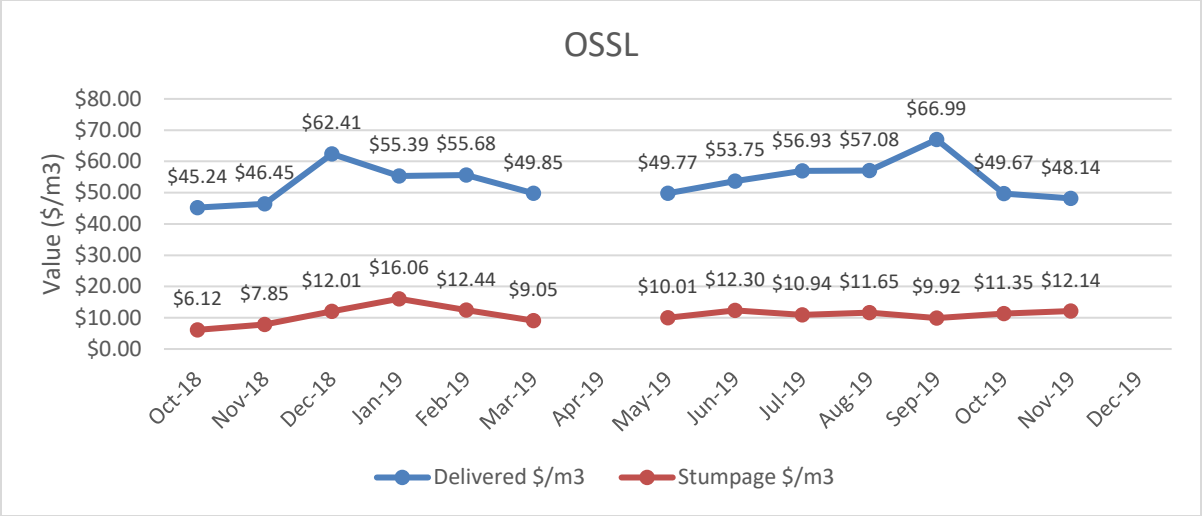
Mean Delivered Value ($/m3) compared to Mean Stumpage Value ($/m3) by Month (delivered value on top, stumpage value on bottom for each month). Broken lines denote months with no data.

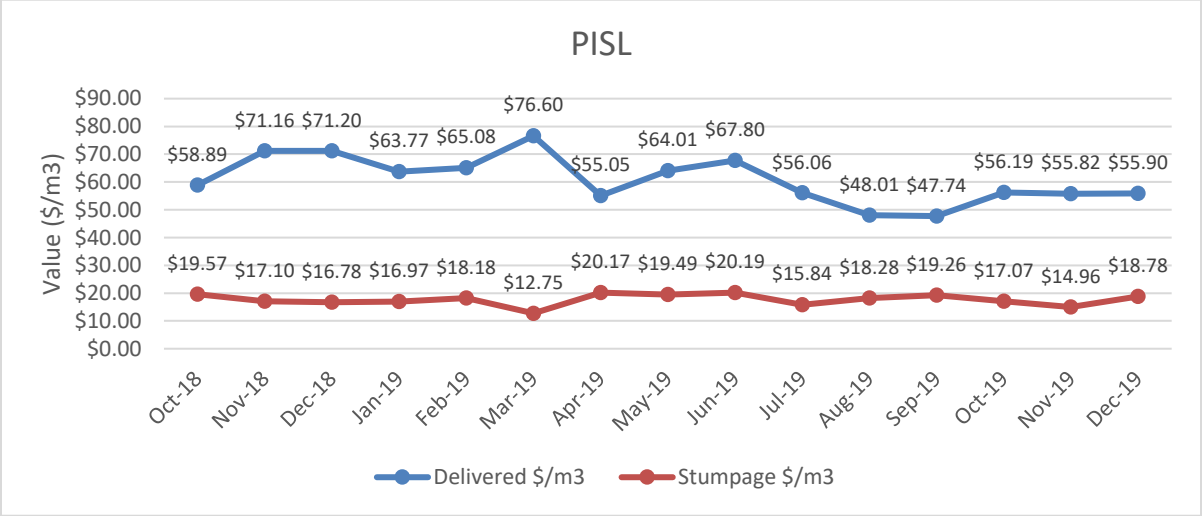


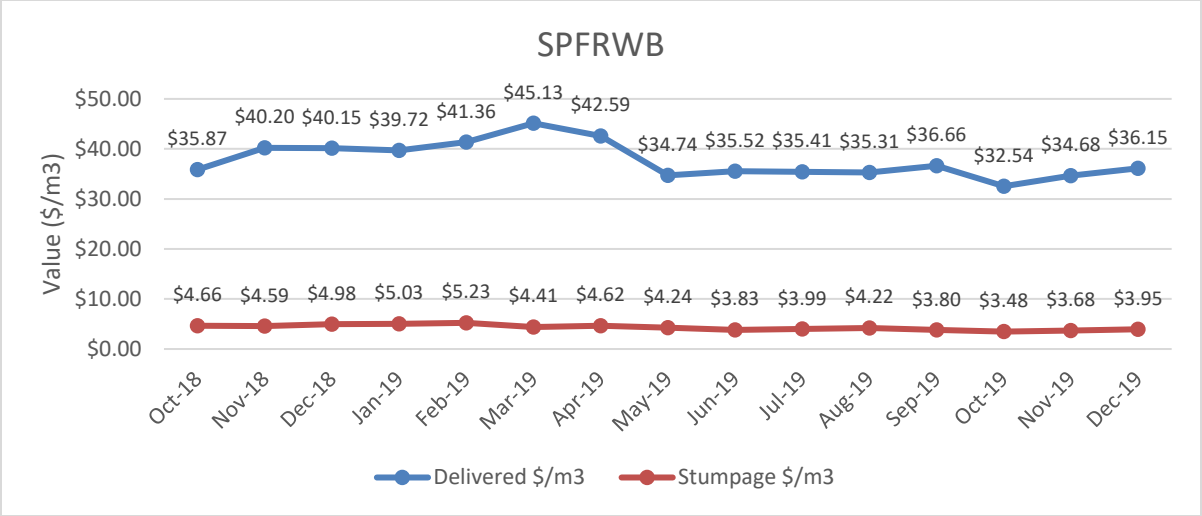

HWDPW
Value ($/m3)
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$49.47 $56.02 $55.67 $57.58 $50.12 $52.85 $58.39 $55.16 $52.86 $50.41 $48.02 $47.79 $43.12 $53.65 $49.32
$10.74 $12.01 $11.77 $12.40 $10.70 $9.35 $10.25 $10.78 $9.67 $10.14 $9.73 $9.04 $8.87 $12.39 $10.42
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3

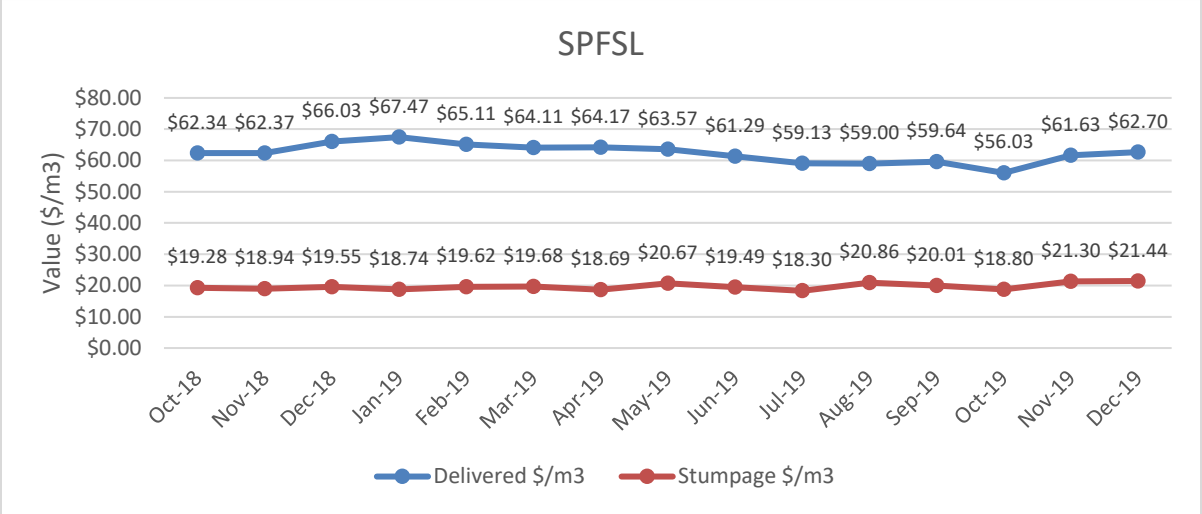

HWDSL
Value ($/m3)
$160.00
$140.00
$120.00
$100.00
$80.00
$60.00
$40.00
$20.00
$0.00
$81.49 $82.23 $82.69 $144.74 $89.48 $72.96 $62.43 $56.18 $49.55 $66.78 $132.39 $78.85 $70.92 $78.17 $76.86
$28.87 $21.70 $28.67 $50.24 $19.36 $25.51 $23.49 $20.36 $14.68 $21.61 $44.33 $15.02 $20.30 $19.68 $22.68
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3

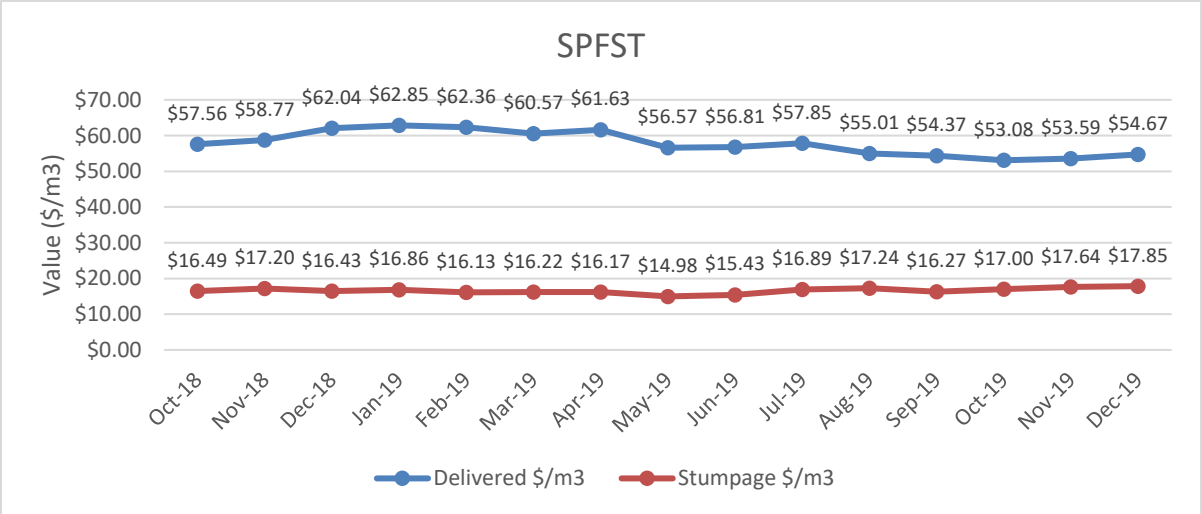

OSRWB
Value ($/m3)
50
40
30
20
10
0
$45.58 $36.67 $27.60 $44.32 $27.60 $30.62 $31.75
$8.42 $6.09 $3.62 $4.58 $3.62 $3.96 $2.89
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3

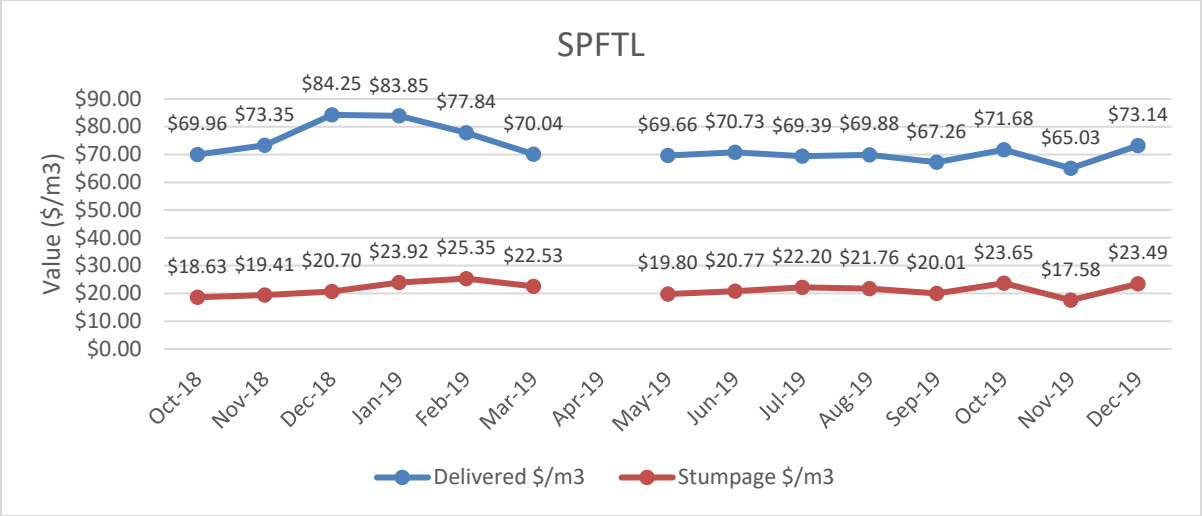

OSSL
Value ($/m3)
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$45.24 $46.45 $62.41 $55.39 $55.68 $49.85
$49.77 $53.75 $56.93 $57.08 $66.99 $49.67 $48.14
$6.12 $7.85 $12.01 $16.06 $12.44 $9.05
$10.01 $12.30 $10.94 $11.65 $9.92 $11.35 $12.14
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3


PISL
Value ($/m3)
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$58.89 $71.16 $71.20 $63.77 $65.08 $76.60 $55.05 $64.01 $67.80 $56.06 $48.01 $47.74 $56.19 $55.82 $55.90
$19.57 $17.10 $16.78 $16.97 $18.18 $12.75 $20.17 $19.49 $20.19 $15.84 $18.28 $19.26 $17.07 $14.96 $18.78
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3


SPFRWB
Value ($/m3)
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$35.87 $40.20 $40.15 $39.72 $41.36 $45.13 $42.59 $34.74 $35.52 $35.41 $35.31 $36.66 $32.54 $34.68 $36.15
$4.66 $4.59 $4.98 $5.03 $5.23 $4.41 $4.62 $4.24 $3.83 $3.99 $4.22 $3.80 $3.48 $3.68 $3.95
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3


SPFSL
Value ($/m3)
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$62.34 $62.37 $66.03 $67.47 $65.11 $64.11 $64.17 $63.57 $61.29 $59.13 $59.00 $59.64 $56.03 $61.63 $62.70
$19.28 $18.94 $19.55 $18.74 $19.62 $19.68 $18.69 $20.67 $19.49 $18.30 $20.86 $20.01 $18.80 $21.30 $21.44
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3


SPFST
Value ($/m3)
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$57.56 $58.77 $62.04 $62.85 $62.36 $60.57 $61.63 $56.57 $56.81 $57.85 $55.01 $54.37 $53.08 $53.59 $54.67
$16.49 $17.20 $16.43 $16.86 $16.13 $16.22 $16.17 $14.98 $15.43 $16.89 $17.24 $16.27 $17.00 $17.64 $17.85
Oct-18 Nov-18 Dec-18 Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19
Delivered $/m3
Stumpage $/m3


SPFTL
Value ($/m3)
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$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$69.96
$73.35
$84.25
$83.85
$77.84
$70.04
$69.66
$70.73
$69.39
$69.88
$67.26
$71.68
$65.03
$73.14
$18.63
$19.41
$20.70
$23.92
$25.35
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Sep-19
Oct-19
Nov-19
Dec-19
Delivered $/m3
Stumpage $/m3