BUCKING FOR VALUE PROCESSOR TECHNOLOGY

(Don Gsell- Weyerhaeuser Western Timberlands, Value Optimization Functional Lead)

Timber Measurement Society Meeting
April 9-11, 2019

Tree falling is just the beginning of the value process

Mechanical tree felling can save out the trees with minimal breakage and bunch the trees for more efficient yarding

Get the trees to the landing with as little breakage and mechanical damage as possible

Let's Talk Log Values

Log values are determined by length, diameter, surface characteristics (knot size, knot frequency, shape and taper) and internal characteristics (rot, breaks, etc.). Any specific combination of the above criteria is called a LOG SORT.

Sawmills have preferred length and trim requirements and place higher value on getting those preferred lengths and/or a higher average length.

Sawmills also have preferred diameters. Most sawmills are geared to cut specific diameters to optimize production of certain products and pay more for those diameter ranges.

A log supplier's goal is to buck the highest value out of every tree by knowing the markets and customer's needs and training their people how to meet them.

So…, which bucking method will capture the most value/margin and why?

Log sort specifications example

Sorts		Bucking Instructions (All lengths in order of preference)
Poles		See Pole Card: 45' with 8-11" top & 12.5-16" butt, 50' with 8-12" top & 13-18" butt, 55' with 8-12" top & 14-19" butt. All have minimum of 12-24" trim
Export Quality Doug Fir	X	12"-19" Top, 32" Max Butt: (Preferred) 41'3, 37'3", 27'3" 40'12", 39'12", 36'12", 34'12", 33'12", 30'12", 26'12"
	X	9'-11" Top: (Preferred) 41'3, 37'3", 27'3" 40'12", 39'12", 36'12", 34'12", 33'12", 30'12"
Face Grade DF		Preferred: 40'12", 34'12", 26'12", 20'12", 18'12" Accept 2' multiples. Avoid 22' & 24' lengths
		Preferred: 40'12", 36'12", 32'12", 24'12", 20'12", 16'12" Accept: 26'12"
		12" Top, 45" Max Butt, Peeler lengths ONLY: 34'12", 26'12", 17'12"

Domestic **Oversize** Doug Fir		6"+SED, 55" Max Butt: 40'-16' in 2' mults
		15"+SED, No Max Butt dia., Preferred lengths: 32-40', 2' multiples with 12" trim, acceptable lengths: 12-30', 2' multiples with 12" trim
		12"+SED, 55" Max Butt dia. Preferred Lengths: 40'12", 32'12", 36'12", 20'12", 16'12" Acceptable Lengths: 34'12", 24'12"
	X	16"+SED, 58" Max Butt: 40'12",38'12",36'12",32'12",30'12",28'12",24'12",20'12",16'12"
		8" +SED 48" Max Butt: Pref. 40'12",39'12",36'12",34'12",33'12",30'12",26'12" 3 Mill & Better, sound green logs only. No more than 15% defect
		8-22"+SED, 45" Max Butt, Peeler lengths ONLY: 34'12", 26'12", 17'12"

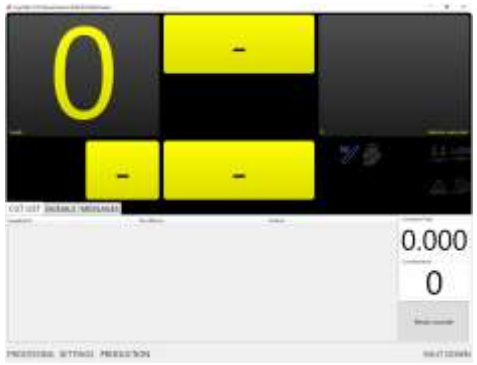
Domestic Doug Fir	X	8"-15" Top, 22" Max Butt: (Preferred) 40'12",36'12",32'12",20'12"16'12" 38'12",34'12",28"12',26'12"18'12"
		5"-7" Top: 32'-40' and 48' 14" Only
		7"-15" Top, 26" Max Butt: 40'12",36'12",32'12",24'12",20'12",18'12",16'12" NO 30'12",28'12",26'12"
		5"-14" Top, 22" Max Butt. Preferred: 48'16", 40'12", 36'12", 32'12" Acceptable: 38'12,34'12",20'12",18'12",16'12" 12'8" min Length
		6"+Top, 55" Max Butt: 34'12",26'12",17'12" ONLY
		7"+SED, 23" Max Butt Pref. 40'12",36'12",26'12" Accept: 34'12",32'12",24'12", 20'12", 18'12", 17'12" Other 2' multiples to minimum of 16'
		6"+Top, 26" Max Butt. Preferred: 40'12", 36'12", 35'12", 32'12", 28'12", 26'12", 24'12", 18'12", 17'12", 16'12"
		6"+Top, 28" Max Butt: 34'12", 26'12", 17'12"
		6"-15" Top, 23" Max Butt: Preferred: 36'12",27'12",18'12" Accept: 40'12",34'12",32'12"24'12",16'12"
		8-22"+SED, 45" Max Butt, Peeler lengths ONLY: 34'12", 26'12", 17'12"
		5"+SED, Preferred lengths: 32-40' with 12" trim. Acceptable 2' multiples, minimum length 12'. Logs with sweep and/or defect buck peeler lengths: 17', 26', 34' with 12" trim
	X	5-7" Top, 17" Max Butt: Pref: 40'12",32'12",24'12",16'12" Accept other 2' multiples to minimum 16'
	X	5-7" Top, 17" Max Butt: Pref: 20'12",18'12",16'12" Accept other 2' multiples to minimum 12'
	X	3-4" Top: Pref: 20'12",18'12",16'12" Accept other 2' multiples to minimum 12'

Log sort specifications example

Export White Wood		8"+ SED 48" Max Butt: Pref. 40'12",39'12",36'12",34'12",33'12",30'12",26'12" 3 Mill & Better, sound green logs only, No more than 15% defect No Freeze Crack
	X	8" + SED 48" Max Butt: Pref. 40'12",39'12",36'12",34'12",33'12",30'12",26'12" 3 Mill & Better, sound green logs only, No more than 15% defect No Freeze Crack
Domestic White Wood		6"-15" SED, 23" Max Butt: Pref. 36'12",28'12",18'12" Acceptable: 40'12",38'12",32'12",26'12",24'12",16'12" Stud lengths, 2 ft. Multiples to break, 16' min length
		8-22"+ SED, 45" Max Butt, Peeler lengths ONLY: 34'12", 26'12", 17'12"
		6"+, peeler lengths: 17', 26', 34' with 12" trim.
		6"+ SED, 23" Max Butt: Pref. 36'12",27'12",18'12"
	X	6"+ SED, 26" Max Butt: Pref.
Hardwood	X	5" SED, 36" Max Butt: 40'16", 38'16", 30'12", 28'12", 20'12", 18'12" pref;
		Alder, 6"+, 10' multiples: 10', 20', 30', 40' with 12" trim
		5"+ SED Preferred: 36'15", 30'15", 24'12", 18'12" Accept 2' multiples. 15" Trim for logs over 30'

Conifer Fiber		3"+ SED, 12' minimum length with Random lengths
		3"+ SED, 12' minimum length with Random lengths
		3"+ SED, 12' minimum length with Random lengths
	X	3"+ SED, 12' minimum length with Random lengths
		3"+ SED, 12' minimum length with Random lengths
Hardwood Fiber	X	3"+ SED, 12' minimum length with Random lengths
		3"+ SED, 12' minimum length with Random lengths
		3"+ SED, 12' minimum length with Random lengths
		3"+ SED, 12' minimum length with Random lengths
		3" + SED Myrtle, Maple, Chinquapin, Tan Oak, Madrone Pulp
Cedar	X	6"+ SED: 41'3",33'3",24'12",16'12" WRC & Incense 12" trim thru 30', 15" trim 32'+
		8"+ SED, Preferred lengths: 40', 36', 32', 26', 20', 16' with 12" trim. 2' multiples for utilization are acceptable
		6"+ SED, 45" Max Butt: 40'12",38'12",36'12",34'12",32'12",24'12",20'12",16'12" POC and Incense
		6"+ SED: Pref. 41'3",33'3",24'12",16'12" WRC ONLY Solid No Butt Rot

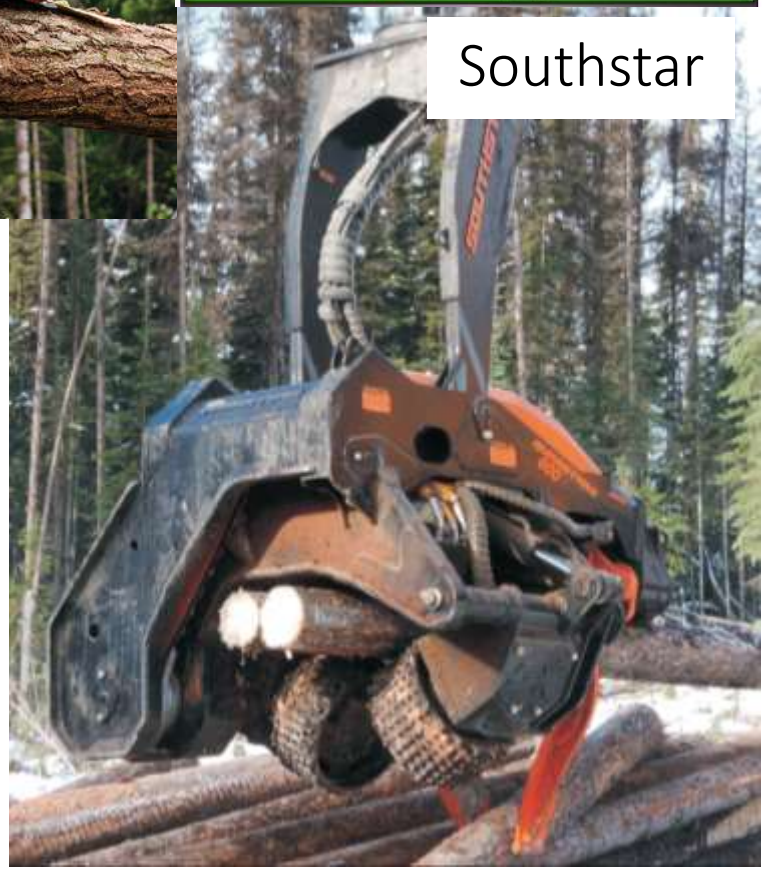
Types and Brands of Processors



Log Max

Waratah

Southstar



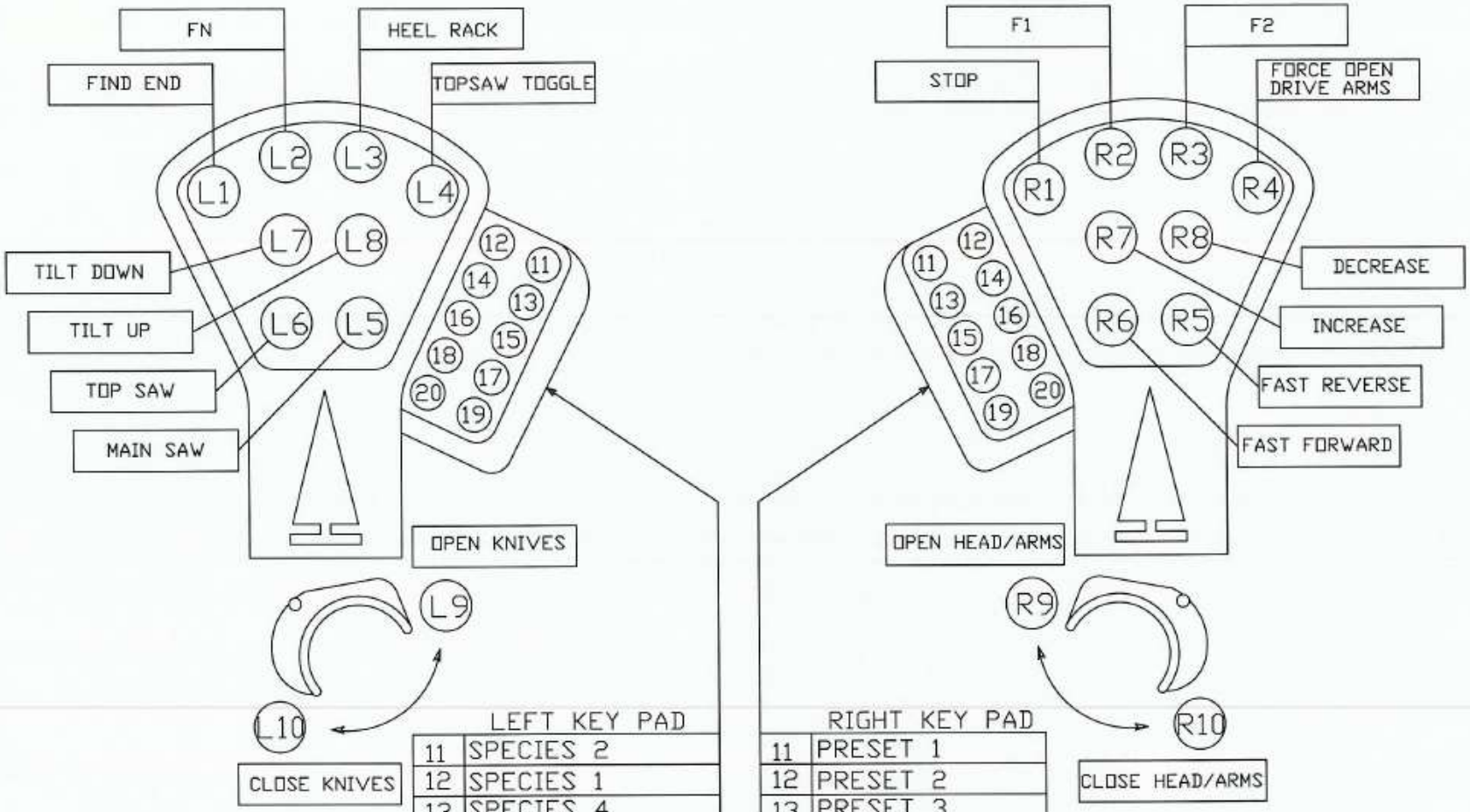
Types and Brands of Processors

Keto

Ponsee

Pierce

Processor Controls (Sure Grip Type)



LEFT KEY PAD	
11	SPECIES 2
12	SPECIES 1
13	SPECIES 4
14	SPECIES 3
15	
16	
17	F2
18	
19	TOPSAW TOGGLE
20	FIND END

RIGHT KEY PAD	
11	PRESET 1
12	PRESET 2
13	PRESET 3
14	PRESET 4
15	PRESET 5
16	PRESET 6
17	PRESET 7
18	PRESET 8
19	PRESET 9
20	PRESET 10

KEYBOARD HOT KEYS *

* RUN MODE FUNCTIONS *

STOP BUTTON (2sec) = SETTING MODE
FN + F2 = SETTING MODE TO RUN MODE
FN + PRESELECT 1-10 = PRESELECT 11-20
FN + F1 = CHANGES PRESELECT TO 21-40
FN + TILT DOWN = TopToButt MODE
FN + INC OR DEC = PRODUCTION COUNTER

Typical set up for control using “presets”

Tree species Species1 < >

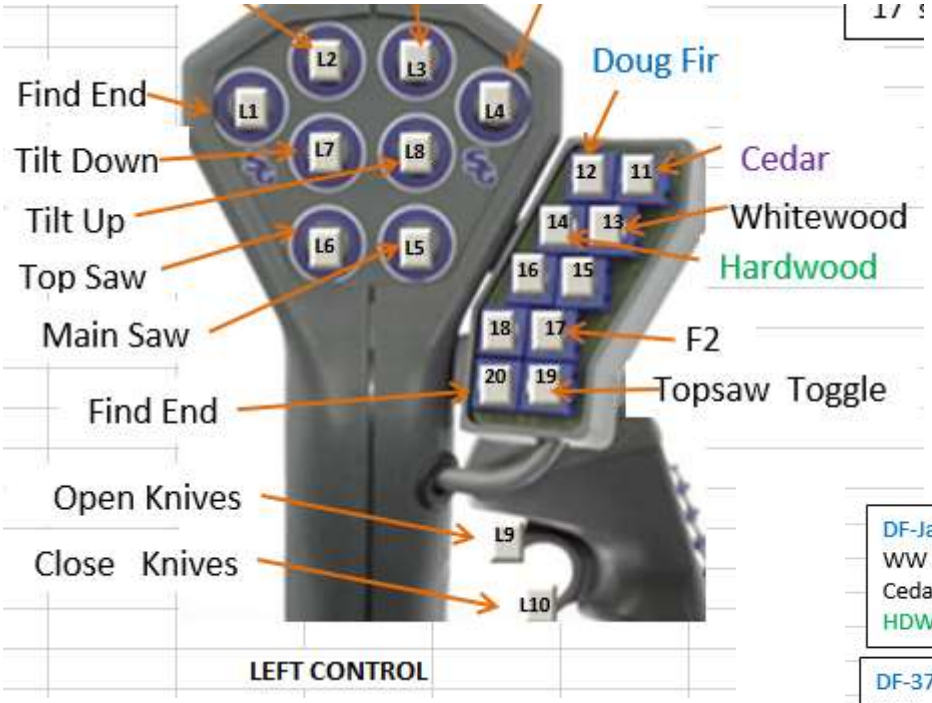
	In use	Button	Product	Target length	SED Min	SED Max	LED Max	Go to
1	✓	1	Product 1	41'0.0"	5.0"	39.0"	39.0"	-
2	✓	2	Product 1	39'0.0"	5.0"	39.0"	39.0"	-
3	✓	3	Product 1	37'0.0"	5.0"	39.0"	39.0"	-
4	✓	4	Product 1	35'0.0"	5.0"	39.0"	39.0"	-
5	✓	5	Product 1	33'0.0"	5.0"	39.0"	39.0"	-
6	✓	6	Product 1	31'0.0"	5.0"	39.0"	39.0"	-
7	✓	7	Product 1	27'0.0"	5.0"	39.0"	39.0"	-
8	✓	8	Product 1	25'0.0"	5.0"	39.0"	39.0"	-
9	✓	9	Product 1	21'0.0"	5.0"	39.0"	39.0"	-
10	✓	0	Product 1	17'0.0"	5.0"	39.0"	39.0"	-

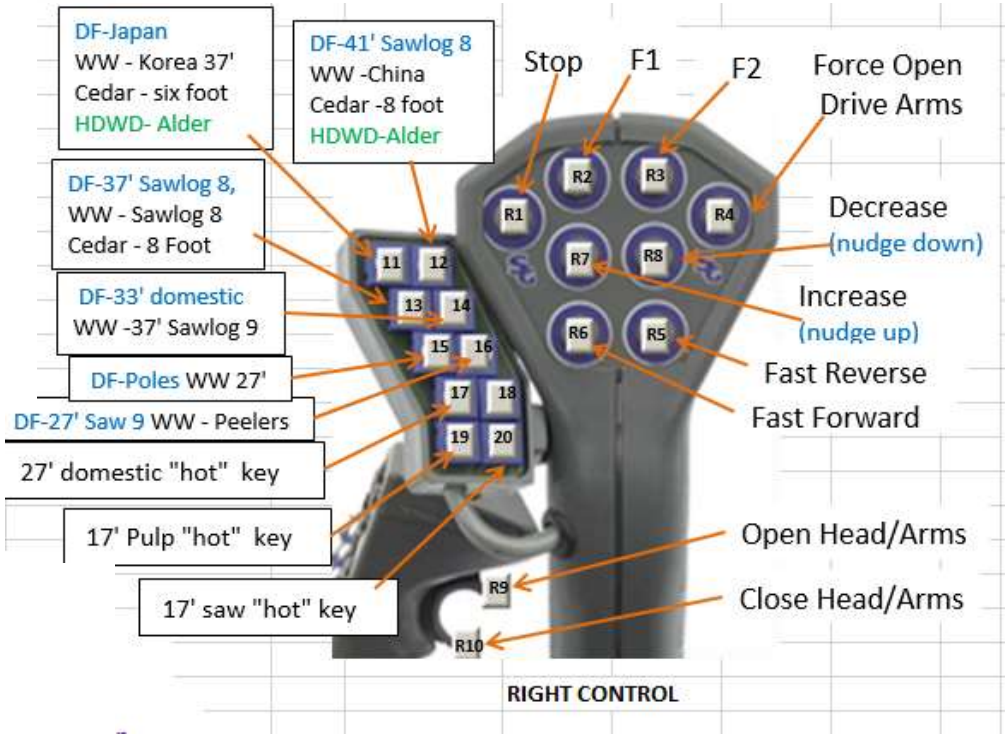
Tree species Fir < >

	In use	Button	Product	Target length	SED Min	SED Max	LED Max	Go to
1	✓	1	Japan	41'3.0"	12.0"	39.0"	39.0"	2
2	✓	-	Japan	37'3.0"	12.0"	39.0"	39.0"	3
3	✓	-	Japan	35'0.0"	12.0"	39.0"	39.0"	5
4	✓	-	Japan	34'0.0"	12.0"	39.0"	39.0"	-
5	✓	-	Japan	31'0.0"	12.0"	39.0"	39.0"	7
6	✓	-	Japan	27'3.0"	12.0"	39.0"	39.0"	-
7	✓	-	Japan	41'3.0"	9.0"	39.0"	39.0"	9
8	✓	-	Japan	40'3.0"	9.0"	39.0"	39.0"	-
9	✓	-	Japan	37'3.0"	9.0"	39.0"	39.0"	10
10	✓	-	Japan	35'0.0"	9.0"	39.0"	39.0"	12
11	✓	-	Japan	34'0.0"	9.0"	39.0"	39.0"	-
12	✓	-	Japan	31'0.0"	9.0"	39.0"	39.0"	13
13	✓	-	Japan	27'3.0"	9.0"	39.0"	39.0"	14
14	✓	2	Sawlogs 8	41'0.0"	6.1"	39.0"	39.0"	15
15	✓	3	Sawlogs 8	37'0.0"	6.1"	39.0"	39.0"	16
16	✓	4	Sawlogs 8	33'0.0"	6.1"	39.0"	39.0"	17
17	✓	-	Sawlogs 8	41'0.0"	5.1"	39.0"	39.0"	18
18	✓	-	Sawlogs 8	37'0.0"	5.1"	39.0"	39.0"	19
19	✓	-	Sawlogs 8	33'0.0"	5.1"	39.0"	39.0"	20
20	✓	-	Sawlogs 8	31'0.0"	5.1"	39.0"	39.0"	21
21	✓	7	Sawlogs 8	27'0.0"	5.1"	39.0"	39.0"	22
22	✓	-	Sawlogs 8	25'0.0"	5.1"	39.0"	39.0"	23
23	✓	-	Sawlogs 8	21'0.0"	5.1"	39.0"	39.0"	24
24	✓	-	Sawlogs 8	19'0.0"	5.1"	39.0"	39.0"	25
25	✓	0	Sawlogs 8	17'0.0"	5.1"	39.0"	39.0"	40
26	✓	-	Sawlogs 8	35'0.0"	5.1"	39.0"	39.0"	-

Example of cutting card using the computer's ability to search for what is specified. PRIORITY BUCKING for optimization

Processor Controls (Sure Grip Type)





Value Bucking (Waratah)

Common | Tree species | Assortments

Name (Code)	Length classes	Diameter classes	Price matrix
Fir			
Poles(001)	36'0.5",41'1.5",46'2.5",51'3",56'3.5",61'4" (67'0.5")	7.5",8.5",9.5",10.5" (39")	0...900
Export 12"+(002)	27'3",31'0",34'0",35'0",37'3",40'3",41'3" (42'0.5")	12" (39")	800...860
Export 9"-11"()	27'3",31'3",34'0",35'0",37'3",40'3",41'3" (42'8")	9",10",11" (11.9")	700...770
Domestic()	17'0",19'0",21'0",25'0",27'0",31'0",33'0",35'0",37'0",39'0",41'0" (42'8")	5",6",7",8" (39")	400...660
Pulp()	21'0" (42'8")	2" (39")	50...50
Whitewood			
Korea()	37'0" (42'8")	10" (39")	700...700
China()	27'0",31'0",33'0",35'0",37'0",39'0",41'0" (42'8")	8" (39")	500...560
Sawlog 8()	17'0",19'0",21'0",25'0",27'0",31'0",33'0",35'0",37'0",41'0" (42'8")	5",6" (39")	220...460
Sawlog 9()	17'0",19'0",21'0",25'0",27'0",31'0",35'0",37'0",41'0" (42'8")	5",6" (39")	400...400
Pulp()	21'0" (42'8")	2" (39")	50...50
Hardwood			
Domestic()	17'0",19'0",21'0",25'0",29'0",31'0",33'6",37'6",39'6",41'6" (42'8")	6",7",8" (39")	500...500
Pulp()	21'0" (41'8")	2" (39")	50...50
Cedar			
Six Foot()	13'0",17'2",19'2",21'2",25'2",27'2",29'2",31'6",33'6",35'6",37'6" (42'8")	6" (39")	700...700
Eight Ft()	13'0",17'2",19'2",21'2",25'2",27'2",29'2",31'6",33'6",35'6",37'6",39'6",41'6" (42'8")	6" (39")	600...600
Pulp()	21'0" (41'8")	2" (39")	50...50

Value Bucking (Waratah)

Price matrix

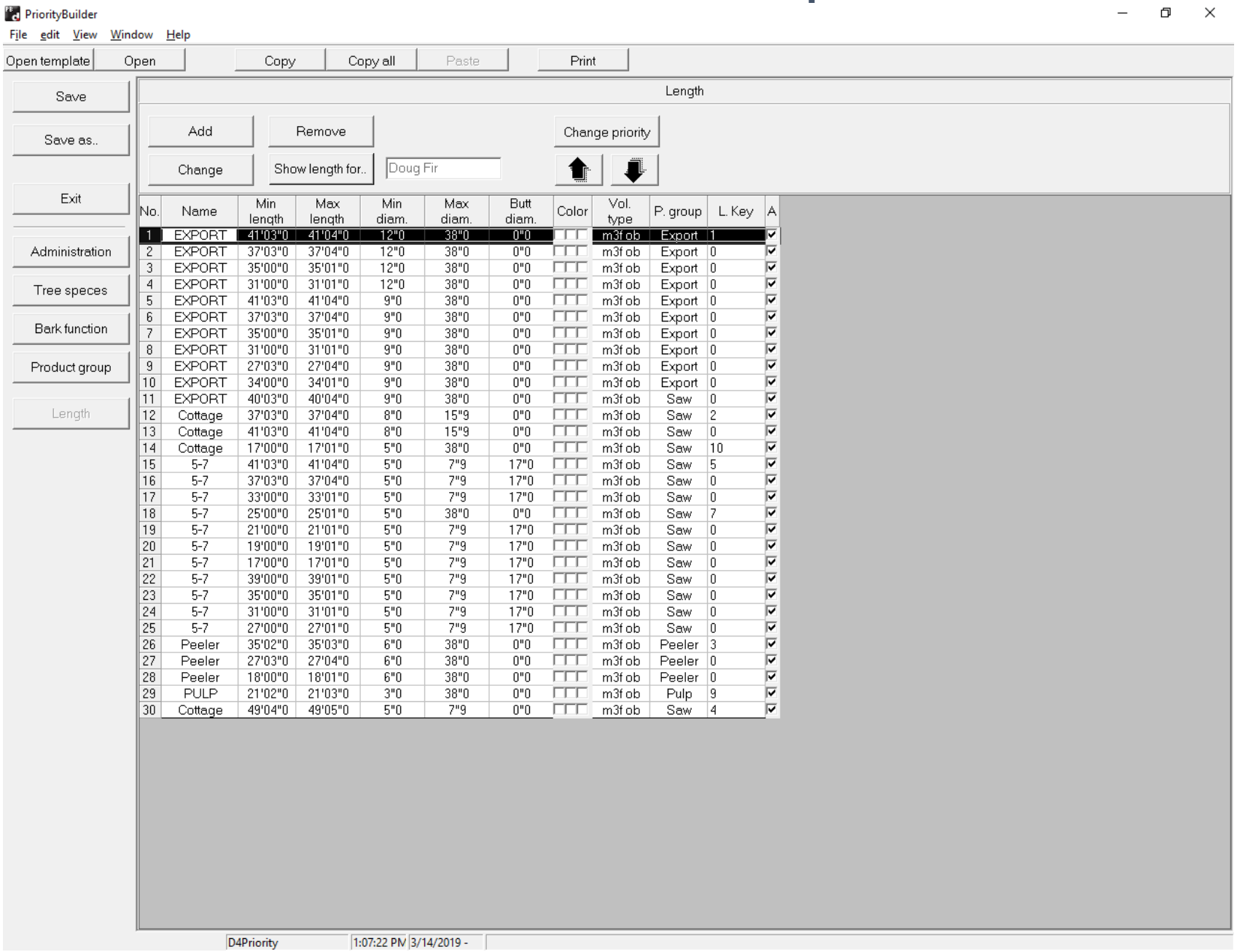
Min top diameter 5.0"

Diameter classes	Length classes	Edit matrix	Edit restrictions	Edit cell values
Min 2.0"	Min 1'07.5"			
Max 39.0"	Max 42'08.0"			

Length classes →

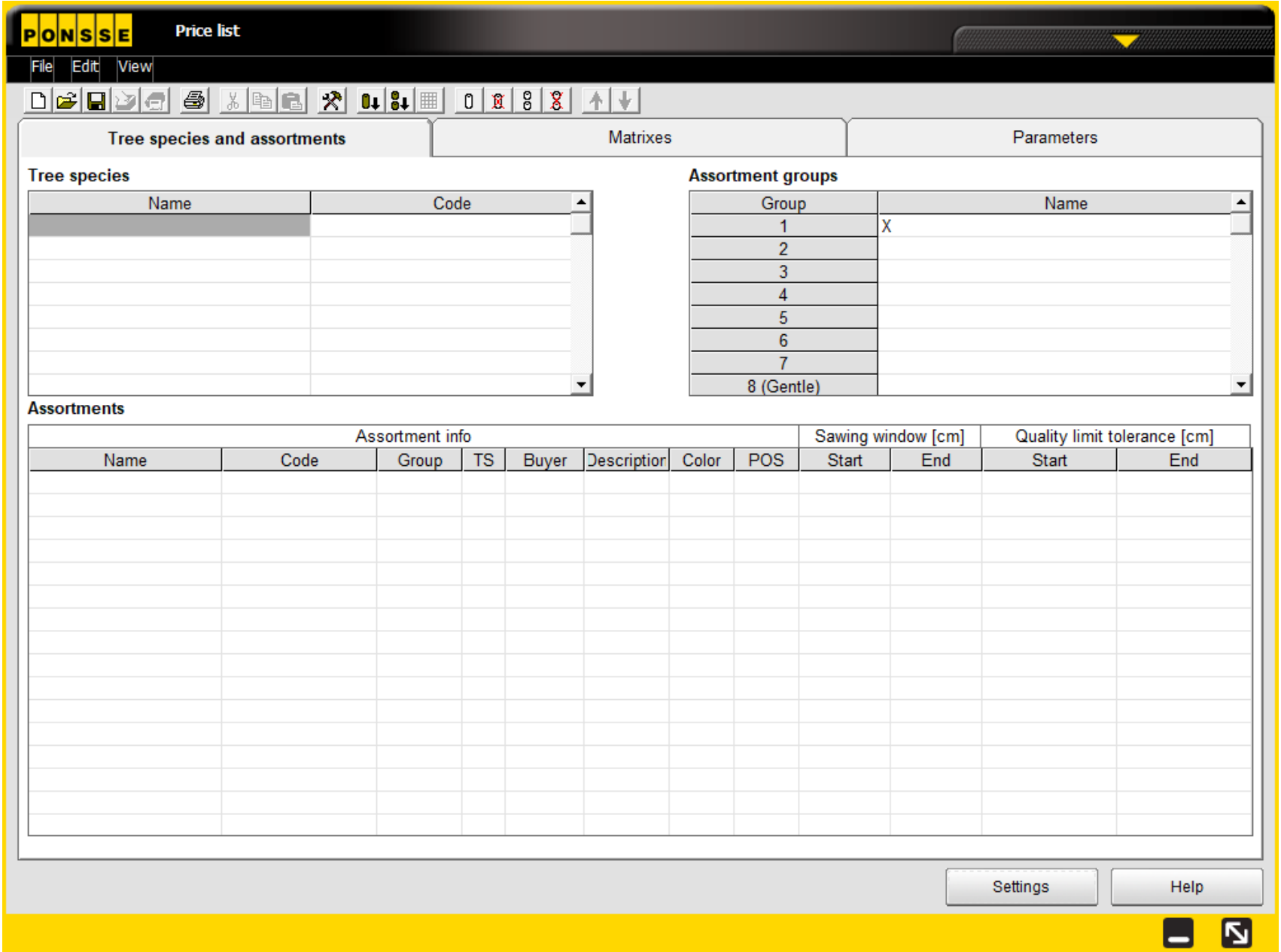
← Diameter classes	17'0.0"	19'0.0"	21'0.0"	25'0.0"	27'0.0"	31'0.0"	33'0.0"	35'0.0"	37'0.0"
5.0"	400	410	420	430	440	450	600	610	620
6.0"	475	480	485	490	495	500	610	620	630
7.0"	475	475	485	490	495	500	610	620	630
8.0"	560	570	580	590	600	610	620	630	640

Southstar card example



No.	Name	Min length	Max length	Min diam.	Max diam.	Butt diam.	Color	Vol. type	P. group	L. Key	A
1	EXPORT	41'03"0	41'04"0	12"0	38"0	0"0		m3f ob	Export	1	☑
2	EXPORT	37'03"0	37'04"0	12"0	38"0	0"0		m3f ob	Export	0	☑
3	EXPORT	35'00"0	35'01"0	12"0	38"0	0"0		m3f ob	Export	0	☑
4	EXPORT	31'00"0	31'01"0	12"0	38"0	0"0		m3f ob	Export	0	☑
5	EXPORT	41'03"0	41'04"0	9"0	38"0	0"0		m3f ob	Export	0	☑
6	EXPORT	37'03"0	37'04"0	9"0	38"0	0"0		m3f ob	Export	0	☑
7	EXPORT	35'00"0	35'01"0	9"0	38"0	0"0		m3f ob	Export	0	☑
8	EXPORT	31'00"0	31'01"0	9"0	38"0	0"0		m3f ob	Export	0	☑
9	EXPORT	27'03"0	27'04"0	9"0	38"0	0"0		m3f ob	Export	0	☑
10	EXPORT	34'00"0	34'01"0	9"0	38"0	0"0		m3f ob	Export	0	☑
11	EXPORT	40'03"0	40'04"0	9"0	38"0	0"0		m3f ob	Saw	0	☑
12	Cottage	37'03"0	37'04"0	8"0	15"9	0"0		m3f ob	Saw	2	☑
13	Cottage	41'03"0	41'04"0	8"0	15"9	0"0		m3f ob	Saw	0	☑
14	Cottage	17'00"0	17'01"0	5"0	38"0	0"0		m3f ob	Saw	10	☑
15	5-7	41'03"0	41'04"0	5"0	7"9	17"0		m3f ob	Saw	5	☑
16	5-7	37'03"0	37'04"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
17	5-7	33'00"0	33'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
18	5-7	25'00"0	25'01"0	5"0	38"0	0"0		m3f ob	Saw	7	☑
19	5-7	21'00"0	21'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
20	5-7	19'00"0	19'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
21	5-7	17'00"0	17'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
22	5-7	39'00"0	39'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
23	5-7	35'00"0	35'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
24	5-7	31'00"0	31'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
25	5-7	27'00"0	27'01"0	5"0	7"9	17"0		m3f ob	Saw	0	☑
26	Peeler	35'02"0	35'03"0	6"0	38"0	0"0		m3f ob	Peeler	3	☑
27	Peeler	27'03"0	27'04"0	6"0	38"0	0"0		m3f ob	Peeler	0	☑
28	Peeler	18'00"0	18'01"0	6"0	38"0	0"0		m3f ob	Peeler	0	☑
29	PULP	21'02"0	21'03"0	3"0	38"0	0"0		m3f ob	Pulp	9	☑
30	Cottage	49'04"0	49'05"0	5"0	7"9	0"0		m3f ob	Saw	4	☑

Ponsee


PONSSE
Price list
File
Edit
View
Tree species and assortments
Matrixes
Parameters
Tree species
Name
Code
Assortment groups
Group
Name
1
X
2
3
4
5
6
7
8 (Gentle)
Assortments
Assortment info
Sawing window [cm]
Quality limit tolerance [cm]
Name
Code
Group
TS
Buyer
Description
Color
POS
Start
End
Start
End
Settings
Help

Questions?

If you want fly like eagles don't hang around with turkeys!