

# Stewardship Contract to Produce Biochar using Simple Kilns

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is done is done

**Umpqua  
Biochar  
Education  
Team**

***South  
Umpqua  
Rural  
Community  
Partnership***





17 acres of old growth Mixed Conifer forest after commercial thinning



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Google earth

1994

Imagery Date: 7/15/2015 42°51'57.35" N 122°51'51.93" W elev 2189 ft eye alt 4125 ft







































Project Name.: \_\_\_\_\_

**Stewardship Agreement Financial Plan**

**Financial Plan Matrix:**

Note: All columns may not be used. Use depends on source and type of contribution(s).

COST ELEMENTS (Direct Costs)	FS CONTRIBUTIONS		PARTNER CONTRIBUTIONS (1)			(f) TOTAL
	(a) Noncash	(b) Cash to Partner	(c) Noncash (2)	(d) In-Kind	(e) Other Federal	
Salaries/Labor	\$4,750.00	\$3,400.09	\$4,760.00	\$5,760.00	\$0.00	\$18,670.09
Travel	\$0.00	\$0.00	\$600.00	\$960.00	\$0.00	\$1,560.00
Equipment		.00	\$4,200.00		1.00	\$10,000.00
Supplies/Materials		.00			1.00	\$520.00
Printing		.00			1.00	\$0.00
Other	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Contracted Stewardship Work	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Subtotal</b>	<b>\$5,270.00</b>	<b>\$9,000.09</b>	<b>\$9,760.00</b>	<b>\$6,720.00</b>	<b>\$0.00</b>	<b>\$30,750.09</b>
Partner Indirect Costs		\$999.91	\$0.00			\$999.91
FS Overhead Assessment	\$0.00					\$0.00
<b>Total</b>	<b>\$5,270.00</b>	<b>\$10,000.00</b>	<b>\$9,760.00</b>	<b>\$6,720.00</b>	<b>\$0.00</b>	<b>\$31,750.00</b>

**48% FS      52% Partner**

Matching Costs Determination	
Total Forest Service Share = (a+b)/(f) = (g)	0.480944841
Other Federal Contribution = (e)/(f) = (h)	0.00%
Total Federal Share = (g+h) = (i)	48.09%
Total Partner Share (c+d)/(f) = (j)	51.91%
Total (i+j) = (k)	100.00%

Value of Goods for Services	\$12.80
Project Grand Total	\$31,762.80 (3)

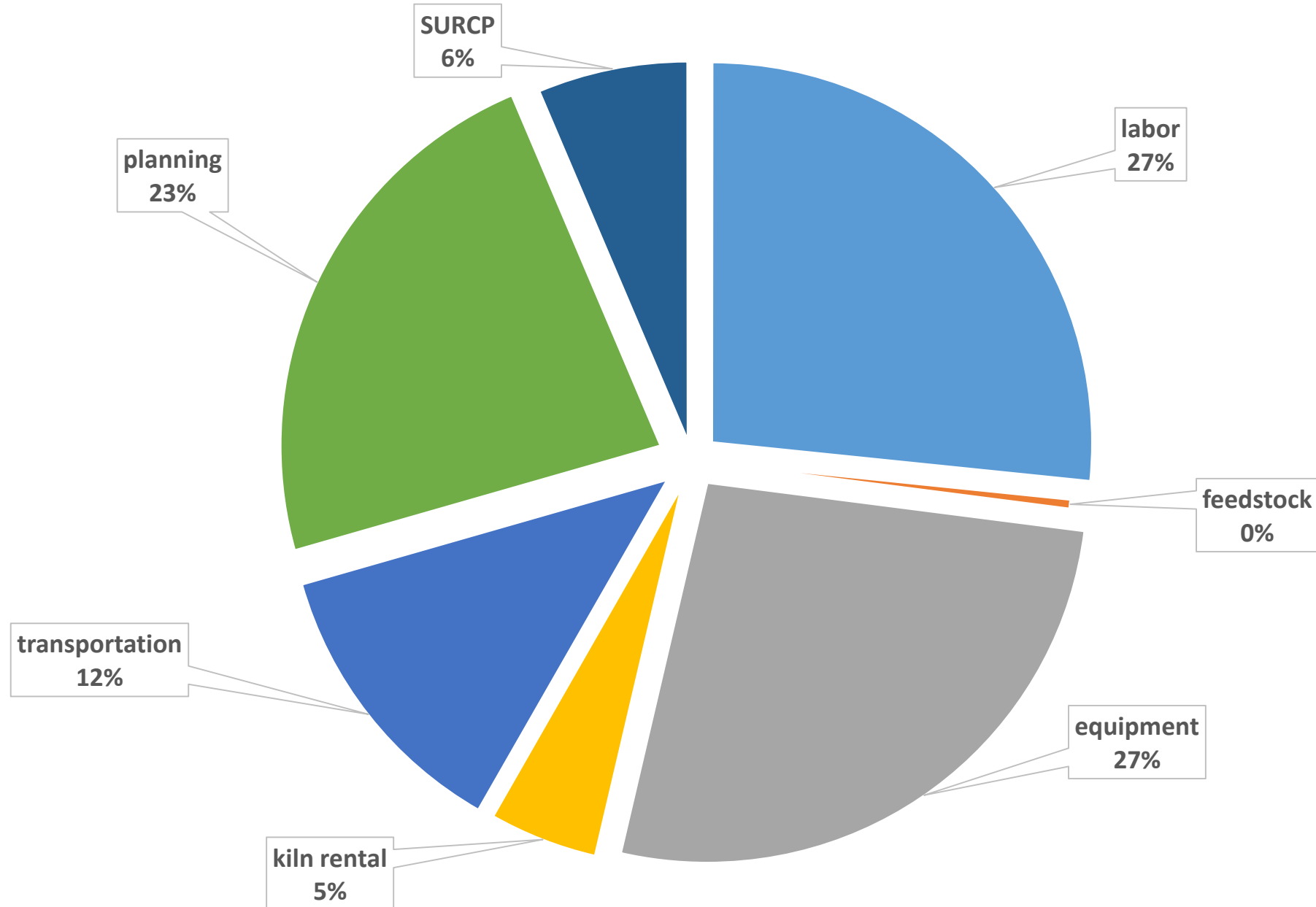
**Value of Goods - \$13**  
**Volunteer labor/travel - \$5760**  
**Partner's costs - \$9760**  
**Cash to Partners - \$10,000**  
**Project Grand Total - \$31,762**

(1) Partner contributions should be documented in the initial financial plan and can be revised as actual costs are incurred towards project completion (which can be the same or less than the initial rate- never more). Partner invoices should always be based on actual costs.



# Biochar Production Cost Estimate - \$194/CY

## Including costs to log, yard, prepare and charcoal feedstock





### Drew Veg Biochar Volume Calculator

plot #	6"(>5.5"dbh)	5"(4.5to5.5"dbh)	4"	3"	2"	<2"			
1						2		15.39= standev of 2-6"numbers	
2	1	1	7	10	7	6			
3	1	1	9	8	8	23			
4									
5	<b>941 2-6" diameter trees per acre</b>								
6									
7				4	8	38			
8	3	1	4	1		16			
9	4	2	1	3	4	21			
10	1	3	1	6	8	29			
11	2	1			1	3			
12	5	2		1		3			
avg_1-12	2.43	1.50	4.00	4.44	6.44	20.42			
tpa	121	75	200	222	322	1021	941	sum 2"-6"trees	
							619	sum 3"-6"trees	
r1	<b>483 cubic yards of feedstock</b>								lower radius r1
r2									upper radius r2=(0.7)r1
h	25	22	20	18	15			height h (length of 1st log)	
CF vol/tree	3.62	2.25	1.32	0.68	0.26			use volume formula for truncated cone	
CF vol/ac	439.04	168.47	264.94	151.48	83.98		482.7	CY trees=(sum CF vol/ac for 2-6" trees)(10ac)/(.85)(85% of CF tree vol in first log)/27(27CFperCY)	
							72.4	CY charcoal=(.15)CY trees	

**73 cubic yards of charcoal**













Smaller  
welds  
please

$\frac{3}{32}$   $\frac{3}{32}$   $\frac{3}{32}$   $\frac{3}{32}$

REVIEW  
ORP?











**Biochar** is used to improve your soil by storing nutrients and water, which the plants take up by their roots, as they need them

## Soil with nutrient enriched Biochar

- is a nutrient bank that remains fertile and productive for centuries
- as the Biochar does not break down it remains highly adsorbent, thus reduces nutrient loss due to watering, leads to fertilizer efficiency
- simultaneously increases soil water holding capacity – therefore helps plants survive dry conditions better
- no stress fosters smooth, continuous growth
- encourages strong early flowering and fruit set
- helps plants resist diseases

For detailed and wide ranging information visit the Biochar Journal:  
[www.biochar-journal.org](http://www.biochar-journal.org)

