RFFI Biochar Demonstration Project Presentation to NCRP 10.15.15

RFFI
ecology, economy, equity

RFFI North Coast BIOCHAR
SUPPORTING FOREST RESTORATION
REDWOOD FOREST FOUNDATION, INC.

DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

The Joseph & Vera Long Foundation

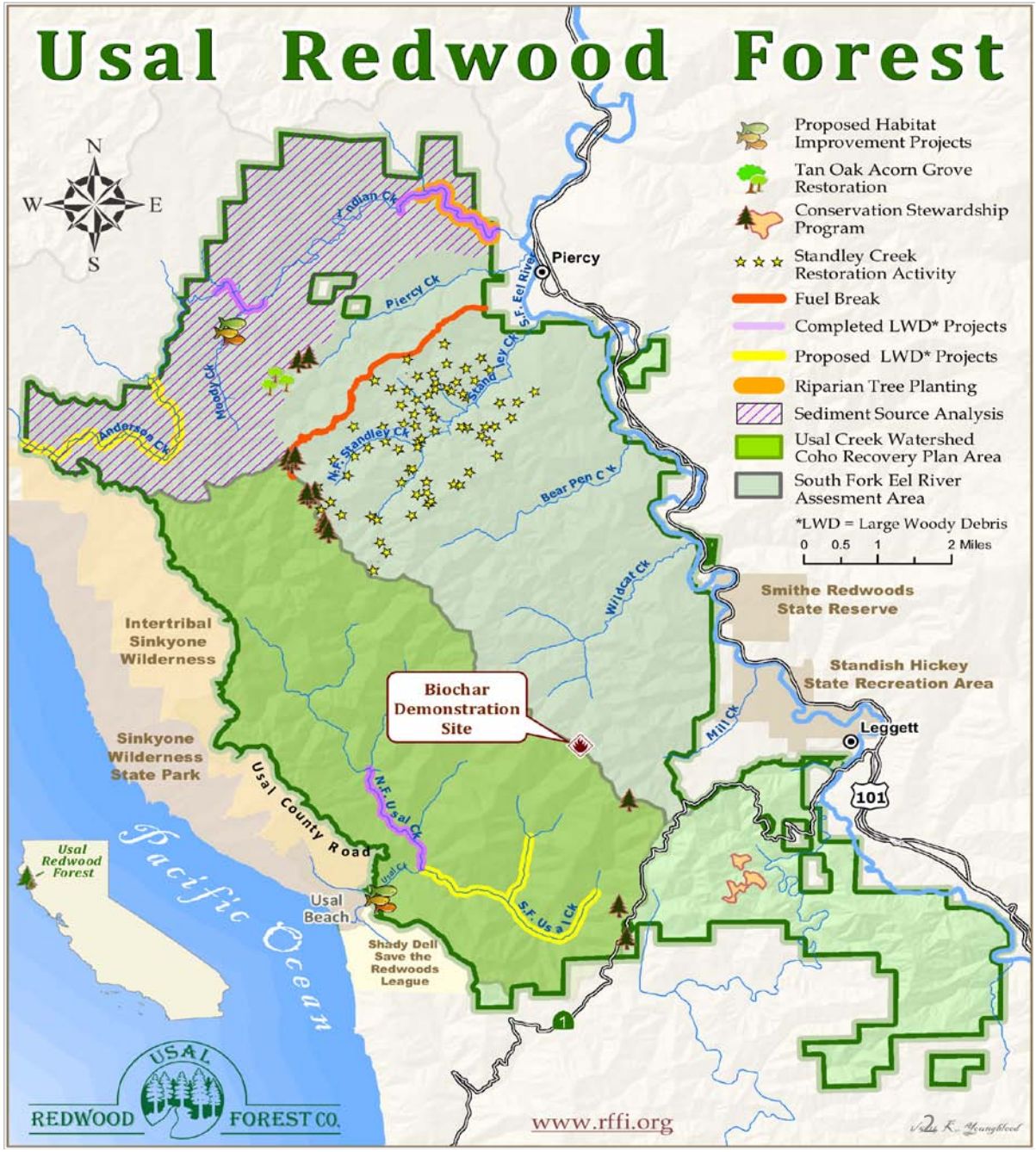
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

THE COMMUNITY FOUNDATION OF MENDOCINO COUNTY

NORTH COAST RESOURCE PARTNERSHIP

About RFFI

- RFFI is a 501c3 non-profit
- Owns 50,000 acres of cut-over timber land
- Manages the forest as a "Working Community Forest"
- Major issues with excess woody biomass (tanoak)



Impacts of Excess Biomass

Demonstration Project Purpose

$1775/ acre

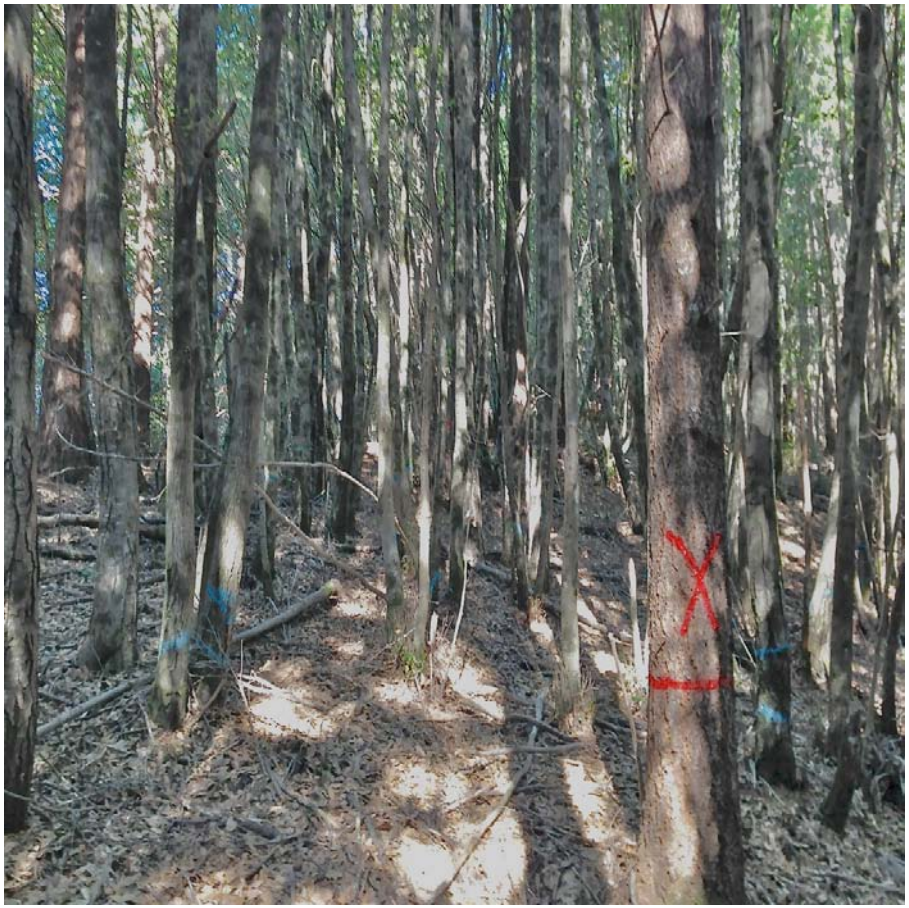
$

$

Forest Thinning

- Guidelines for biomass removal created by Greg Giusti of the U.C. Cooperative Extension to maximize biodiversity in the stand
- Pre-Harvest 532 trees/ acre
- Post-Harvest 286 trees/ acre
- 66% reduction in 8-10 inch tanoak

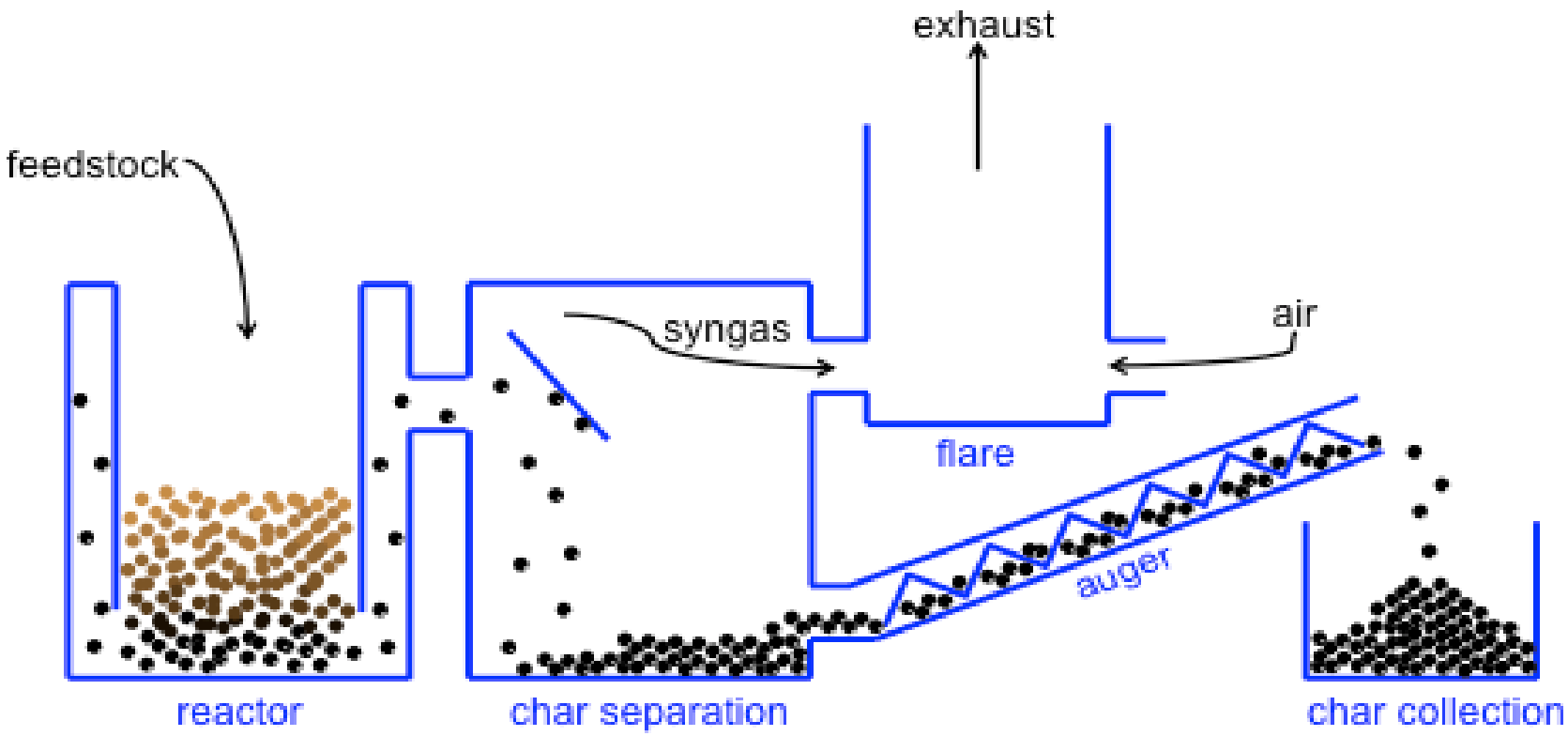
What does the harvest look like?



T-1000 Biochar Conversion Unit

Biochar Conversion Unit

Biomass is converted into biochar through thermal decomposition in an oxygen limited environment.



Machine produced by Biochar Solutions, Inc.

Equipment Specifications Processing Tanoak:

- 25% or less feedstock moisture content
- Average Char Production at full Operation: 161 lbs/hr
- Average Biomass Throughput at full Operation: .75 BDT/hr.
- Biomass to Biochar Efficiency: 9.31 BDT Biomass: 1 BDT biochar
- Labor Requirement: 1 Full Time Equivalent (FTE)

Biochar Sales

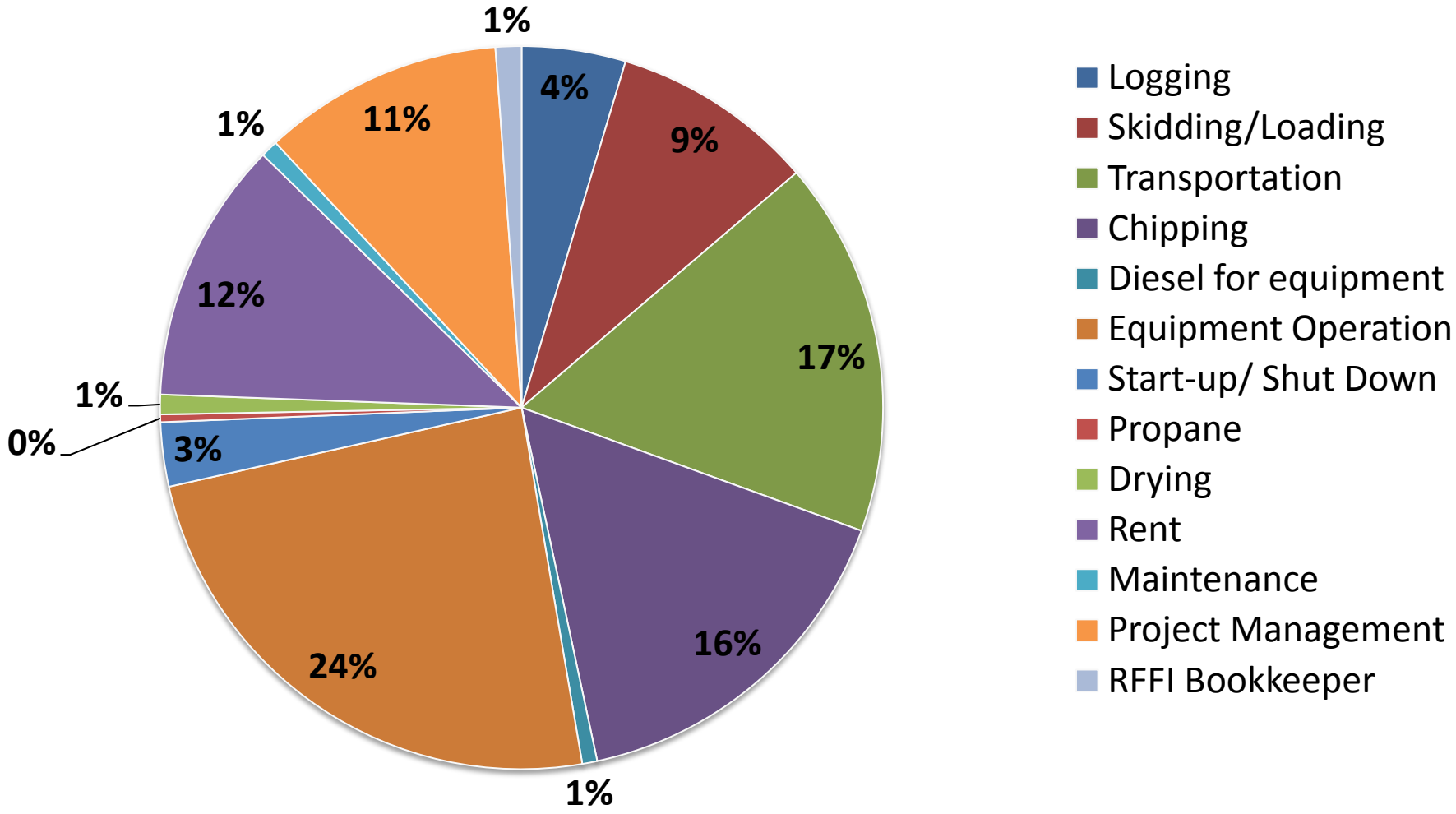
- Raymond Baltar of the Sonoma Biochar Initiative completed a market study for the project
  - Interviewed 52 composter, landscape stores, garden stores & nurseries in Mendocino, Humboldt and Sonoma Counties to gauge interest in biochar
  - 64.7% had heard of biochar
  - 63.6% had customer inquiries about it
  - Only 6% actually carry biochar in blended products at this time
  - 98% of those who carry biochar expressed interest in carrying RFFI's North Coast Biochar depending on price and quality
  - Willits Soil Co and Dirt Cheap from Ft. Bragg expressed the most interest in purchasing North Coast Biochar in large quantities

- RFFI is selling North Coast Biochar bulk for $1.50 /lb most is going to Willits Soil Co. for soil blends that are then re-sold
- RFFI is also selling some bulk directly from the Branscomb Production site

Cost of Production

- Tracked all costs from the woods to the shelf
- Used Branscomb as a baseline to see if commercial operations could be profitable
- Operated for 32 days and processed all of the material taken from the 2.5 acre demo site

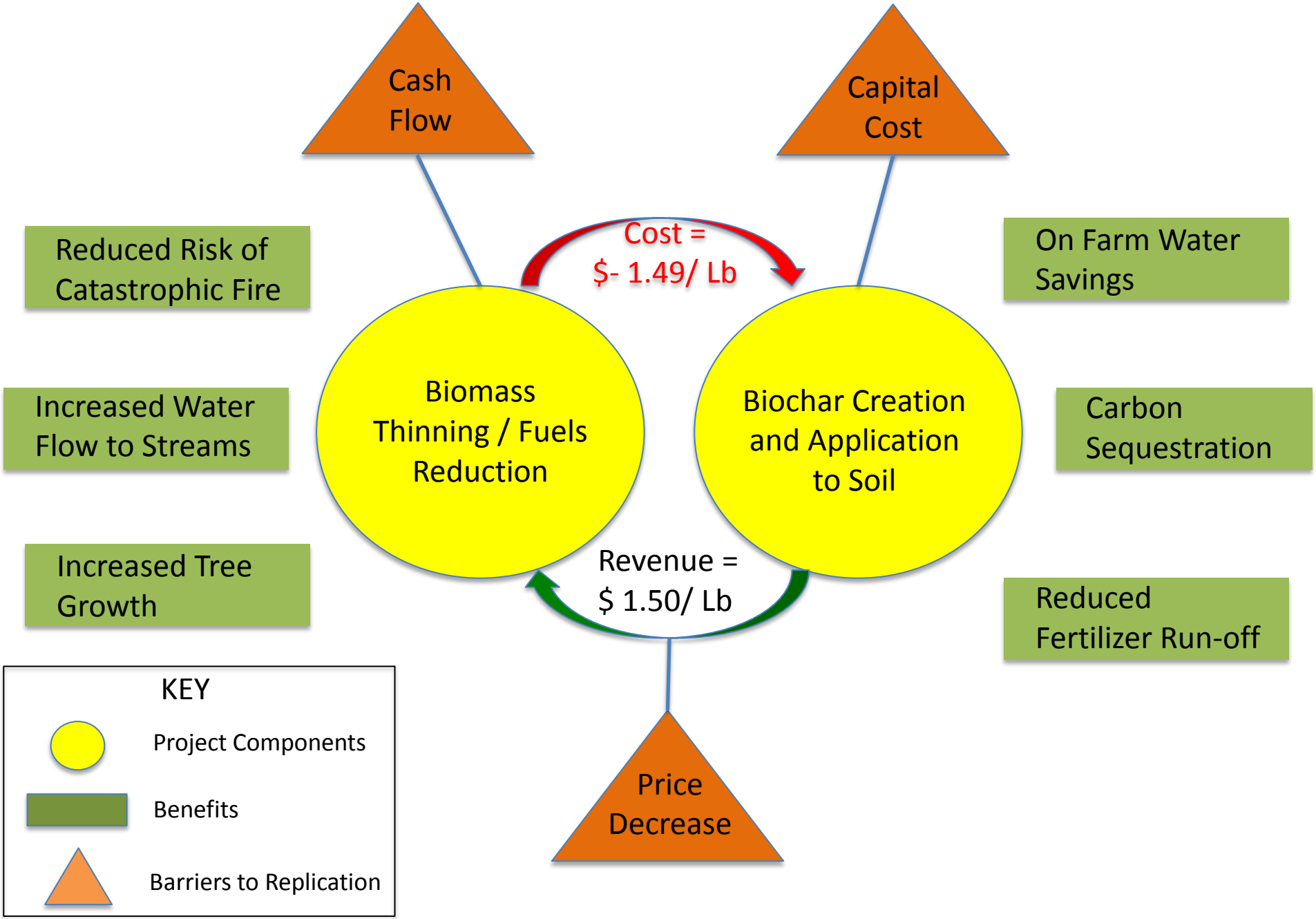
Total Costs as a Percent by Type- June Operations



Economic Results

- June Best Day Cost/ lb. of Biochar Produced: $1.18
- June Average Cost/ lb. of Biochar Produced: $1.49
- Price per /lb. received for Biochar: $1.50
- 1 BDT =214 lbs of biochar x $1.50/lb = $321/ BDT of biomass.
- 1 BDT converted to electricity, which even with a subsidized market price of $ .124/ kWh will gross $124/BDT

ISSUES OF OUR TIME: CATESTROPHIC FIRE, DROUGHT, CLIMATE CHANGE



$ 75 Million/ yr. Fire Prevention Fund + $43 M Unspent

$24 Million Green House Gas Reduction Fund (GGRF)

$ 7.45 Billion Proposition 1 Water Bond

$900 Million Green House Gas Reduction Fund (GGRF)

Policy Question?

What is the best use of California tax payer money? One time fuels reduction projects or purchasing biochar units that can continuously reduce fuels and simultaneously reduce on farm water use and sequester carbon?

Questions?

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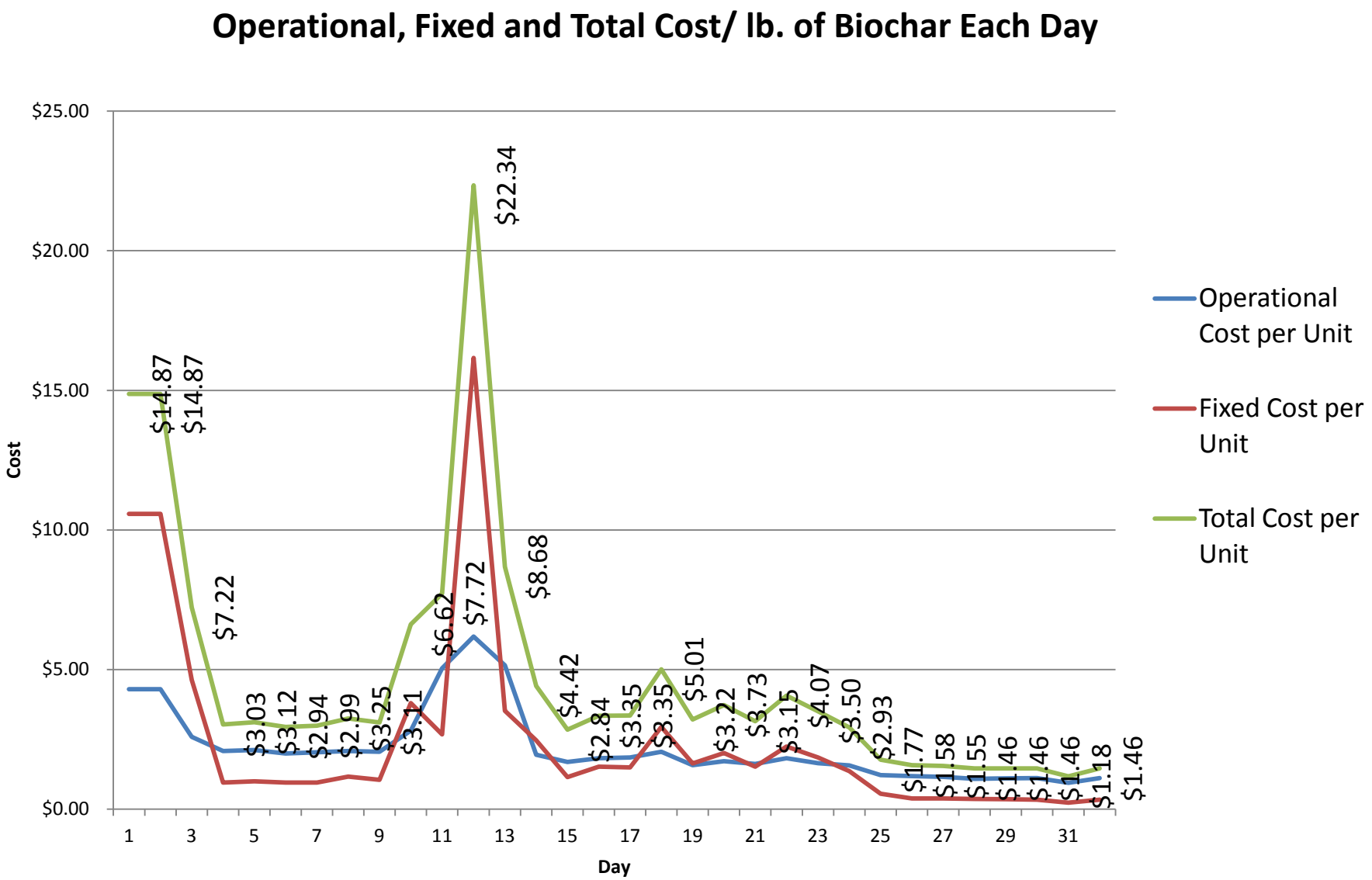
http://www.rffi.org/Biochar.html

Potential Policies

- Use state money to purchase biochar conversion units across the state
- Set up a no interest loan fund for waste woody biomass to biochar projects
- Include biochar in farm certification programs that focus on water conservation
- Subsidize small farmers to purchase biochar at a price that covers the cost biochar of production.

One Possible Stategy

- Identify watershed groups throughout the region who want to oversee biochar projects in their watershed
- Prioritize watersheds based on severe fire risk
- Solicit funds using the issue paper created as a result of RFFI's project to purchase biomass to biochar machines for as many watersheds as possible
- Create a cooperative in charge of marketing and selling all biochar that comes from forest restoration projects on the north coast.
- Work with farm certification programs like Fish Friendly Farming to include biochar and potentially create new water based programs

Cost of Production