Charborn

Promoting Sustainable Agriculture Through Biochar

Interviews	#
Biochar Experts	16
Practicing Agriculturalists	24
Agriculture Experts	8
Agriculture Supply	4
Regulatory Experts	2
Waste Experts	10
Carbon Market Experts	2
Total	**66**

Noelle Phares
Project Manager

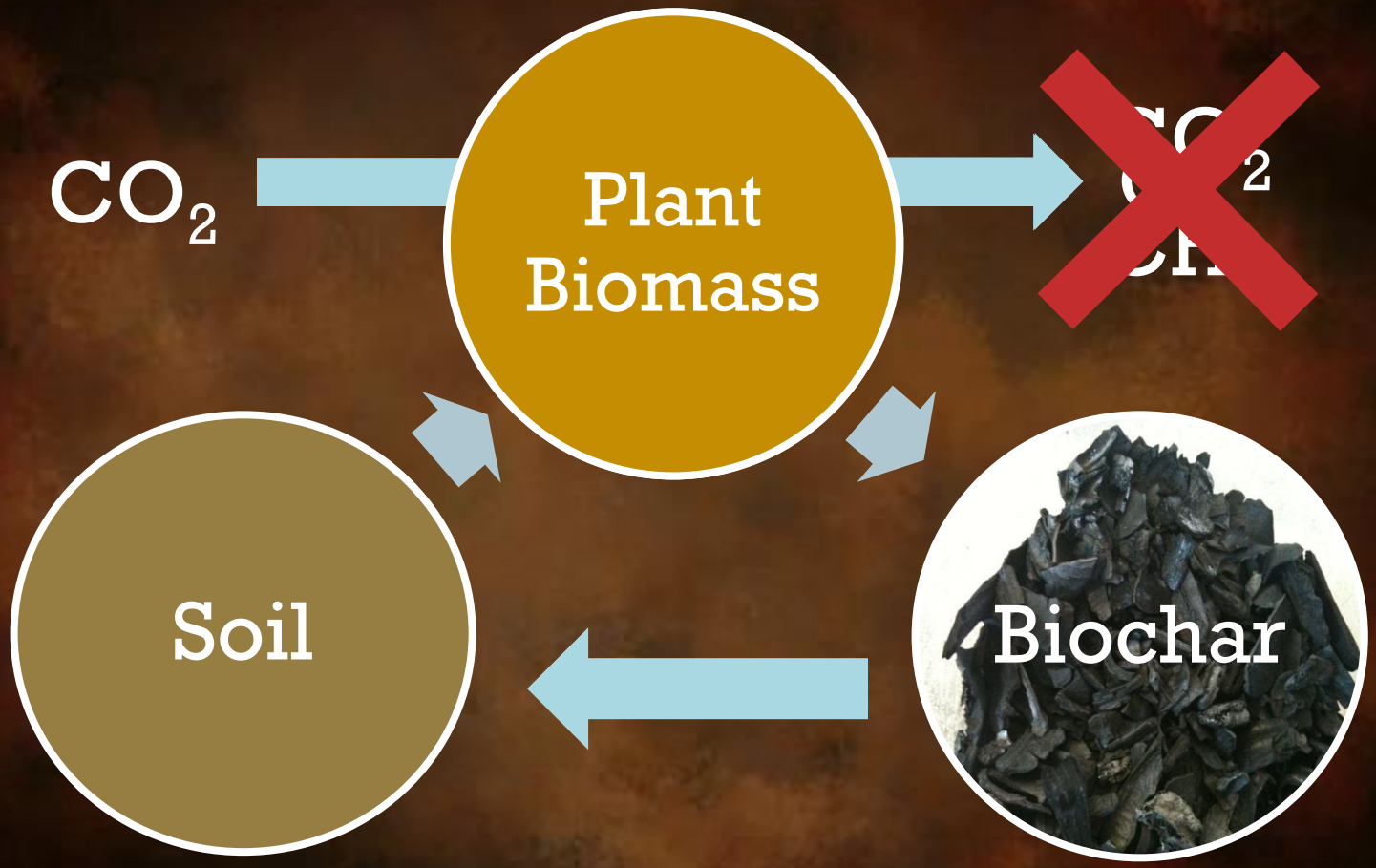
Niles Brinton
Communications Manager

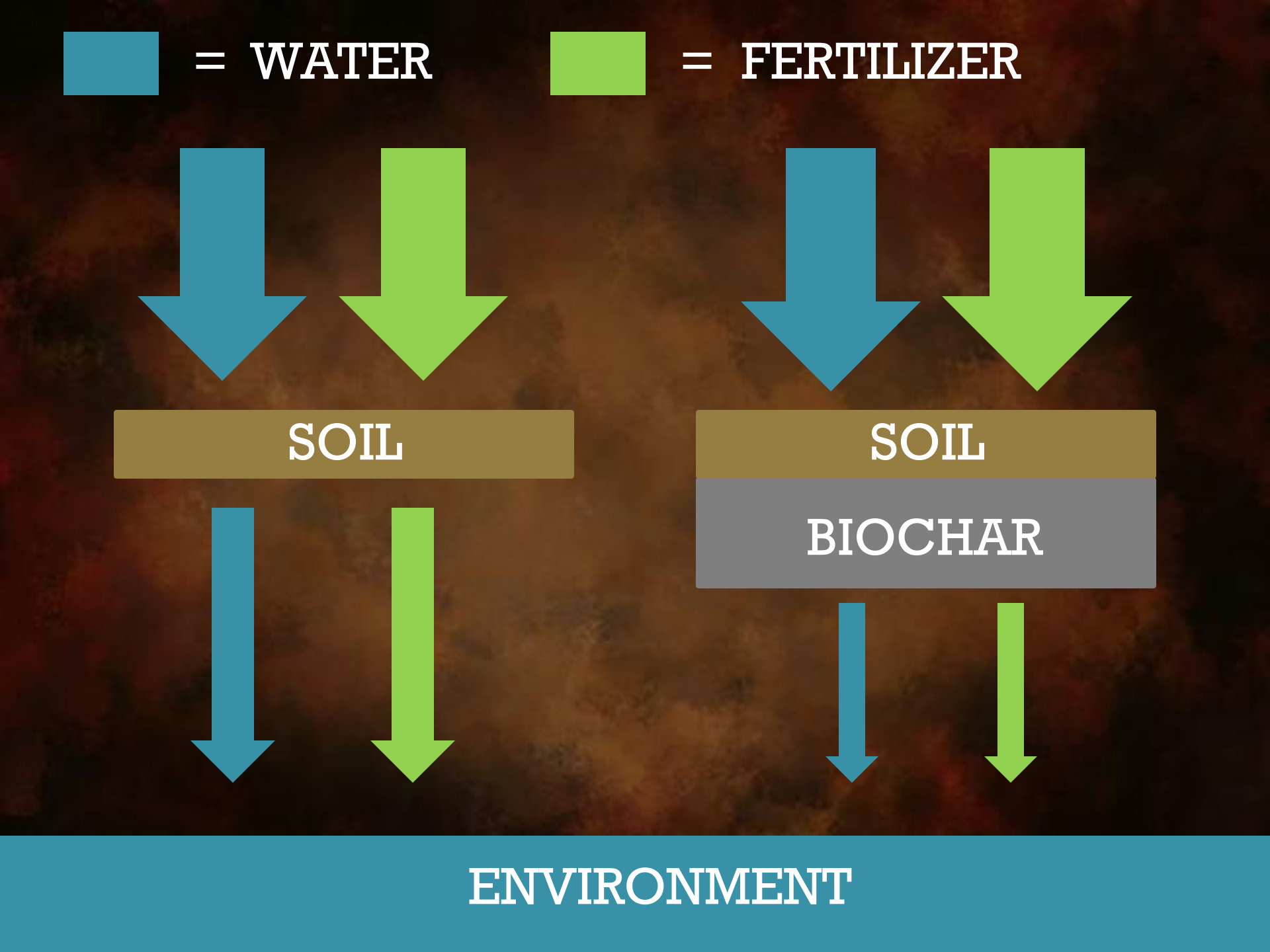
Debbie Pierce
Financial Manager

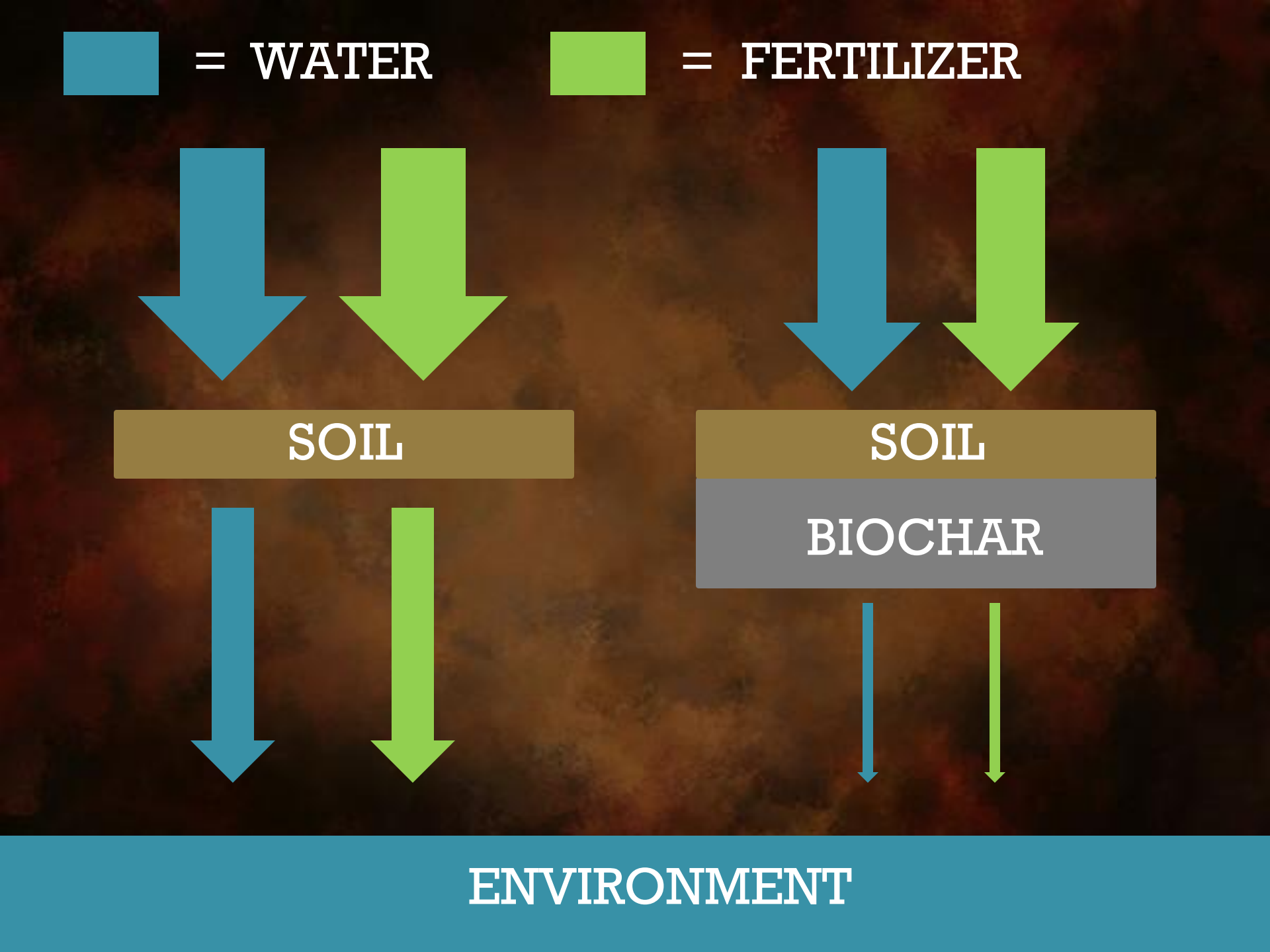
Ryan Wilson
Web Manager

Allison Rowe
Resources Manager/ Farmer Charmer

Charborn is a biochar sales, distribution and consulting company that provides farmers with healthy soils and increased yields while decreasing long-term input costs.


CO_2
Plant Biomass
Soil
Biochar


= WATER
= FERTILIZER
SOIL
SOIL
BIOCHAR
ENVIRONMENT


= WATER
= FERTILIZER
SOIL
SOIL
BIOCHAR
ENVIRONMENT

Idea Evolution

Original Iteration

Hypothesis: Small scale biochar production from municipal yard waste is a viable business model

Assumptions	
Municipal yard waste as a feedstock	
Production at small scale is practical	
Organic farms as target market	
Farmers have soil fertility and water use issues	
Biochar improves soil fertility and sequesters carbon	

Getting Out of the Building

Tests:

Interviews (n=29):

- Farmers (n = 14)
- Agricultural Experts (n = 3)
- Biochar Experts (n = 9)
- Green Waste Experts (n = 3)

Research:

- Articles (~20), Reports, Web research

Visits:

- Waste/Transfer Station
- Agricultural Supply Stores
- Educational Garden

Assumptions	
Municipal yard waste as a feedstock	X
Production at small scale is practical/efficient	X
Organic farms as target market	~
Farmers have soil fertility and water use issues	√
Biochar improves soil fertility and sequesters carbon	√

"You want a clean, consistent, readily available feedstock, to be able to turn it into a consistent char. "

-Biochar Producer

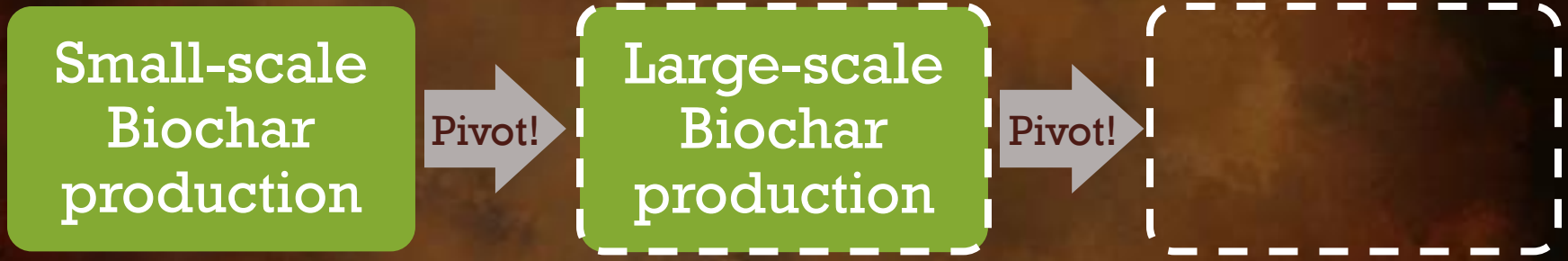
"It is complex to produce and guarantee a reliable source of feedstock"

–Biomass industry expert

"Someone needs to start making biochar at large quantities with an affordable price."

–Biochar Producer

Idea Evolution



Second Iteration

Hypothesis: Large scale/regional biochar production from forestry waste is a viable business model

Assumption	
Forestry/Wood products as a feedstock	
Production at large scale is practical	
Resource-intensive specialty crops as target market	

Getting Out of the Building

Tests:

Interviews (n=25):

- Farmers (n = 4)
- Agriculture Experts (n=4)
- Carbon Market Experts (n = 2)
- Biochar Experts (n = 10)
- Green Waste Experts (n = 5)

Research:

- Articles (n = 30), Reports, Web research

Visits:

- Blue Sky Biochar
- Santa Barbara County Planning Dept.

Assumption	√
Forestry/Wood pro ducts as a feedstock	√
Production at la e is practiced	√
Resource intensive specialty crops as target market	~

LARGE PYROLYSIS SYSTEM = $7 – 100 MILLION

"Developing a bio production scheme that is cost effective takes years, and takes a lot of resou
- Biochar Produ

"The Achilles heel of biochar application on a farm level basis is the availability of a financially reliable charring u that is realistically priced
- Biochar Field Researcher

"The problem is the inability to find bioch
- Farmer

“Bio-*what*?!”

-Farmer

Agriculture Industry

- Farmers face pressures to increase crop yields.
- The $$ of Inputs are high and rising.

"Soil fertility is a major concern for all farmers"
-Organic Farmers

Biochar is underutilized in agriculture.

Biochar Industry

- Young & growing: 100 Biochar companies worldwide.
- Engineer/Tech-Heavy.

"My business is growing by 3 – 10 times per year"
-Biochar Producer

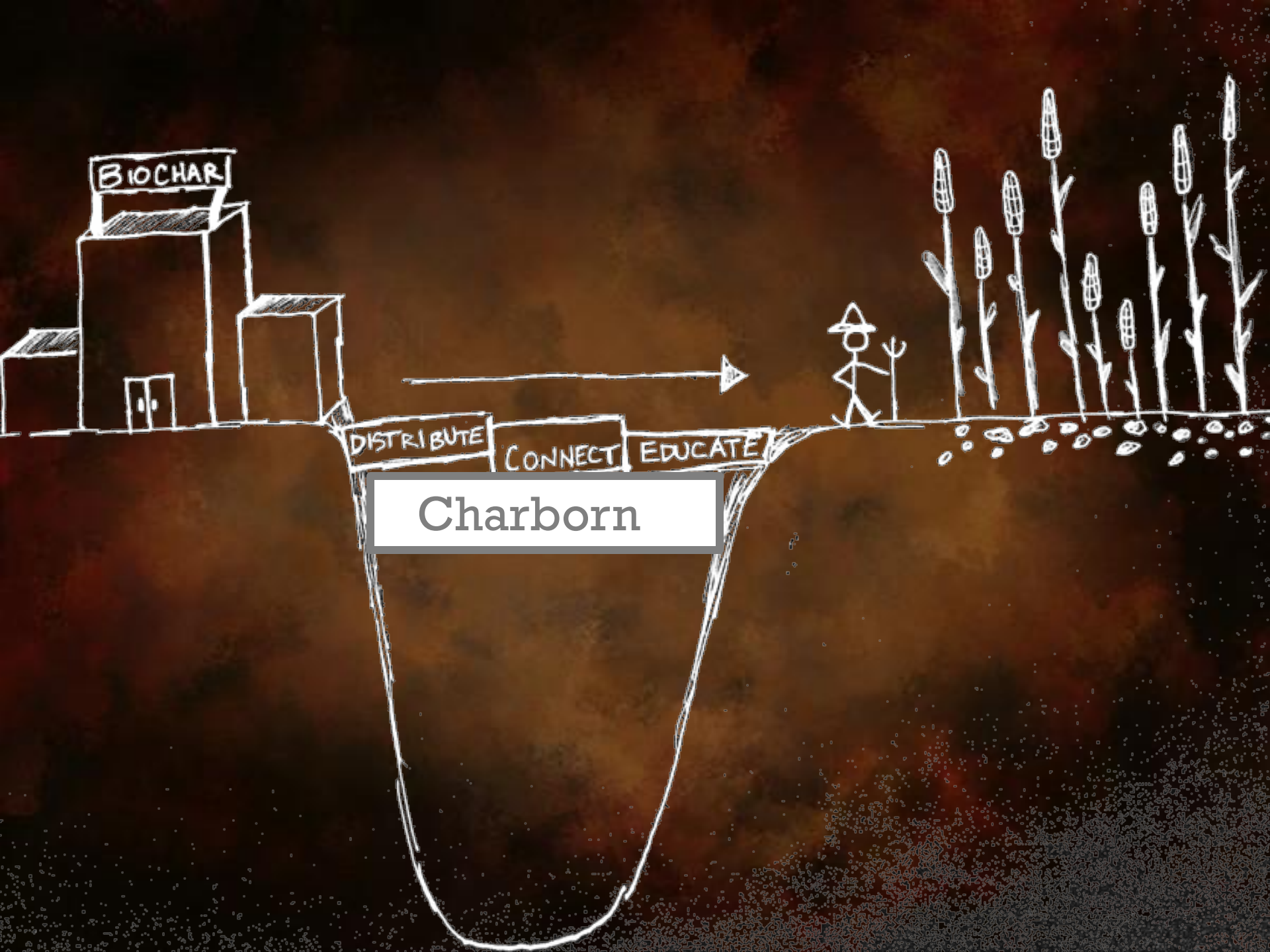
Lacking effective customer outreach.

REGULATION

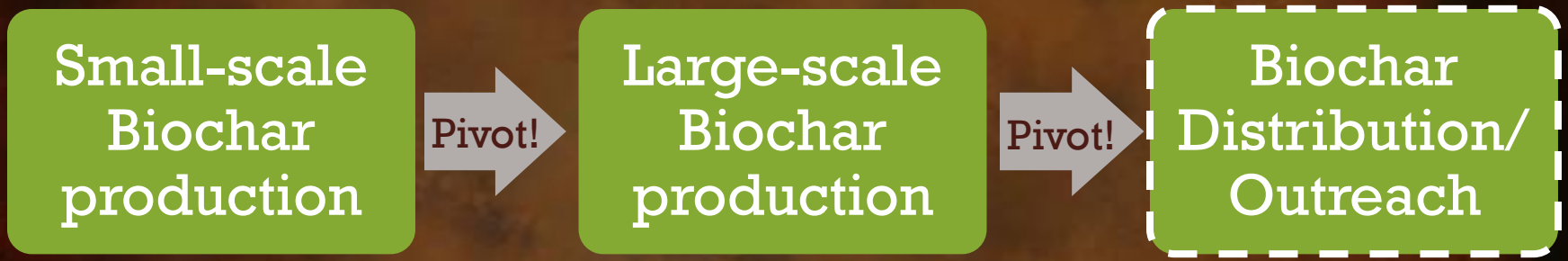
BUSINESS OPPORTUNITY

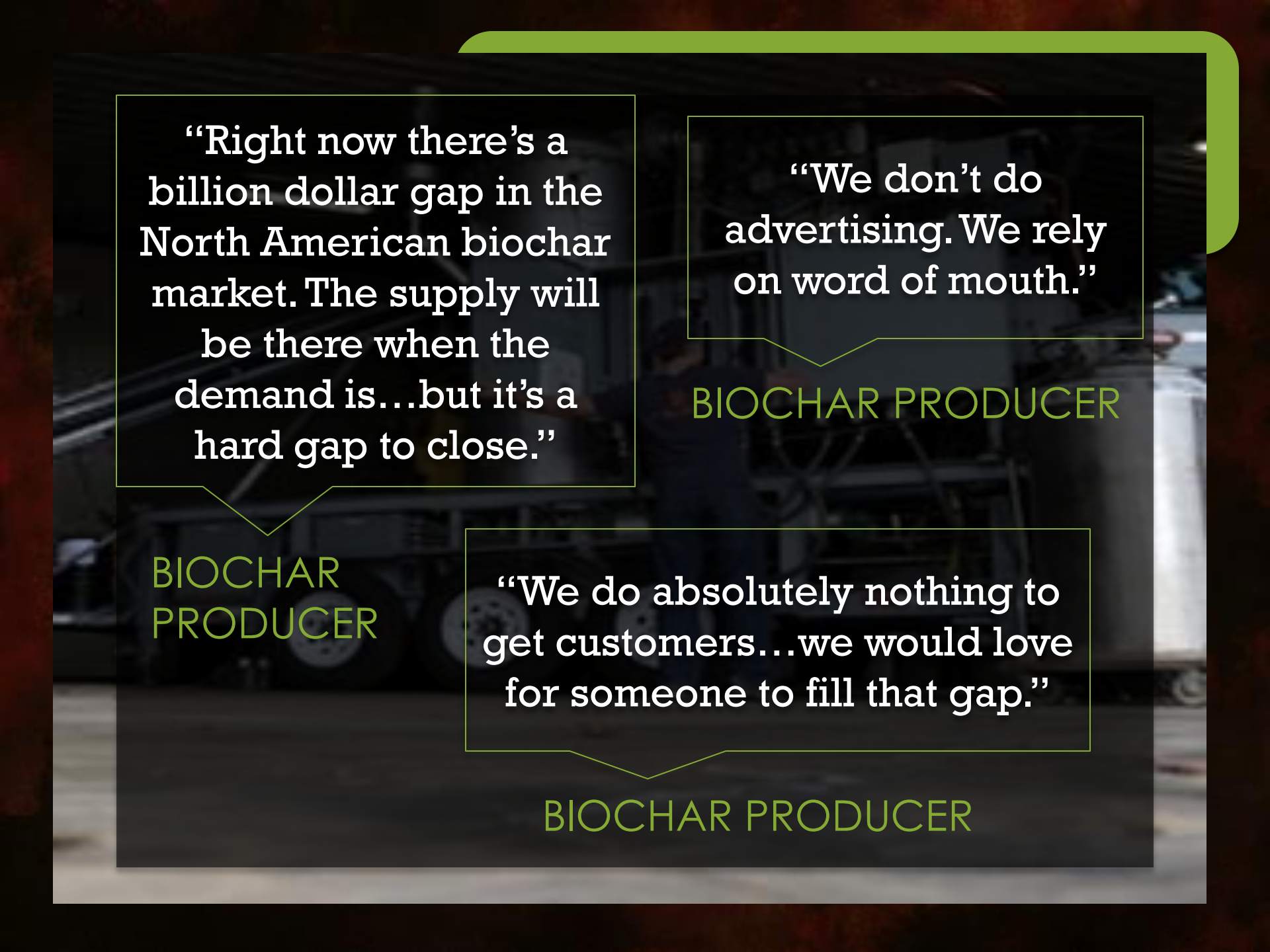
CARBON MARKET


BIOCHAR
"Biochar is not idiot-proof."
DISTRIBUTE
EDUCATE
CONNECT

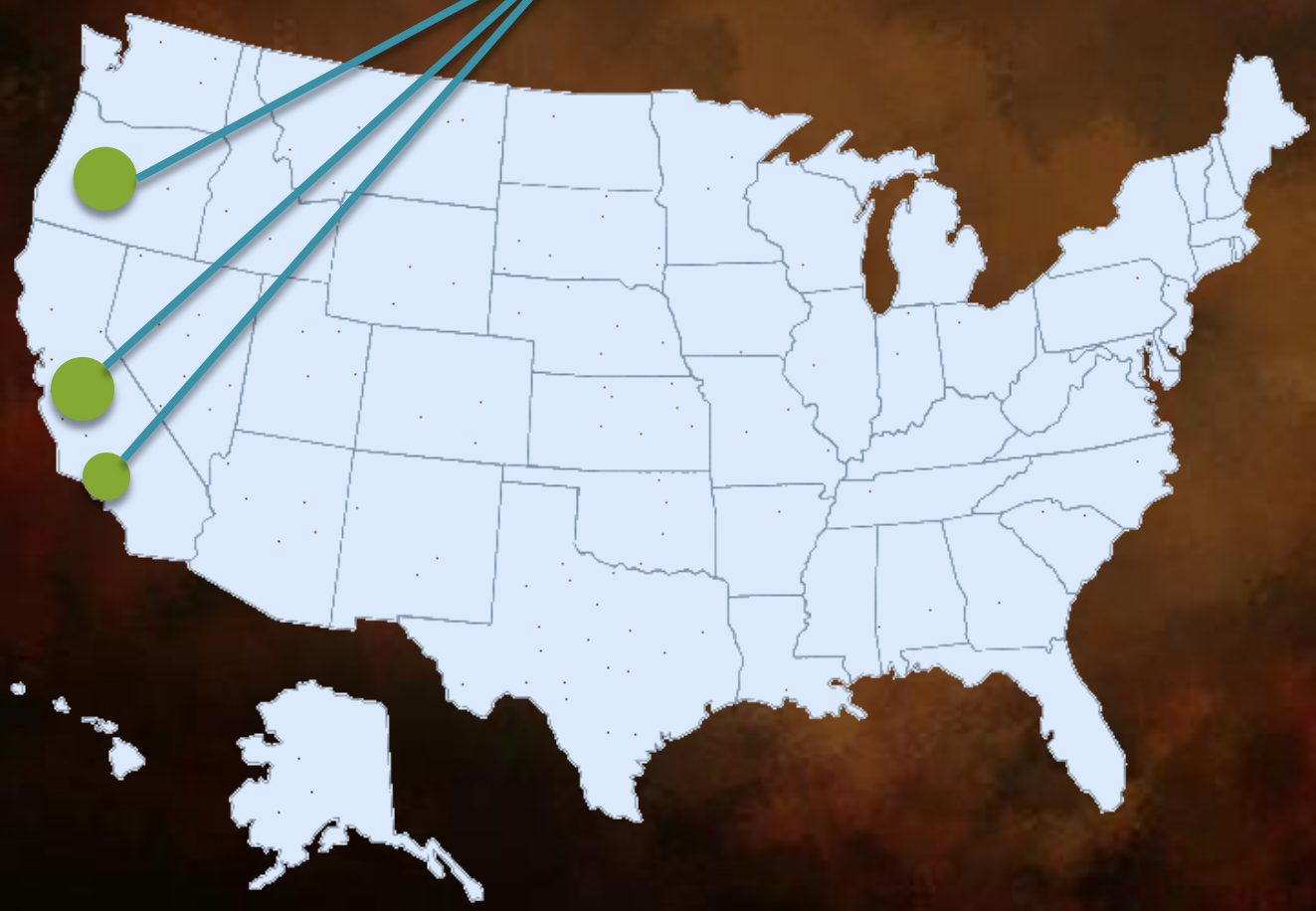

BIOCHAR
DISTRIBUTE
CONNECT
EDUCATE
Charborn

Idea Evolution




"Right now there's a billion dollar gap in the North American biochar market. The supply will be there when the demand is…but it's a hard gap to close."
BIOCHAR PRODUCER
"We don't do advertising. We rely on word of mouth."
BIOCHAR PRODUCER
"We do absolutely nothing to get customers…we would love for someone to fill that gap."
BIOCHAR PRODUCER

MAJOR BIOCHAR producers
interested in working with
Charborn



Lessons Learned

Small scale production is not feasible

Large scale production *is* feasible

(but not for us)

Untapped demand for biochar

Gap between producers and consumers

Information deficiency

What's Next?

Further Testing & Research

- Financial Model
- Target Customers
- Channels to reach customers

Pilot Projects

- Producer Partnerships
- Farm Partnerships
- Biochar in our gardens

Field Trial

- Large scale
- Grants and Partnerships

Summer 2013 Internships

- Alli: EDF Climate and Agriculture
- Ryan: Cradle to Cradle
- Niles: UCSB supply chain management
- Noelle: Equinox Agriculture Assessment
- Debbie: CI Ecosystem based Adaptation

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www.Charborn.com