

"The Carbon Link in Watershed Ecosystem Services"  
Chase Center on the Riverfront - Wilmington, Delaware

# Personal Impressions

- 
- ▶ **Environmental Remediation**
  - ▶ **Agriculture**
  - ▶ **Policy, Markets & Standards**
  - ▶ **Urban Landscapes**
  - ▶ **Commercial & Production**



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Biochar, it's what we do.

Years, tons, acres and lots of people.  
However you measure our experience  
of all things biochar, it adds up  
to something of great value  
for us to share with you.



## Production and trade of **high-quality biochar**.

Since 2013, we have been producing quality biochar in Dörth/Hunsrück using local wood and wood residues. Our production is licensed and follows strict EBC regulation. Our biochar is approved as a soil additive.

As a founding member of the [German Biochar Association](#), we promote biochar as a sustainable and clean additive in agricultural and other industries.





CARBONIZERS ▾

USED EQUIPMENT

SERVICES ▾

MARKETS

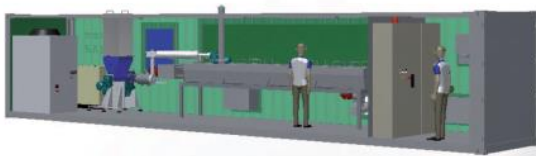


## The Future of Wood and Vegetative Debris Conversion

The mobile and stationary ENVIROSAVER™ 350 is the most advanced, cost-effective and environment-friendly wood debris conversion systems ever built, converting wood and other suitable biomass into a high-quality biochar at high throughput rates. Designed to accept trees, brush, stumps and other wood debris as well as C&D and MSW, without grinding or chipping.

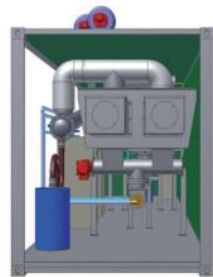
## BIOGREEN CM600

Mobile containerised torrefaction and pyrolysis module

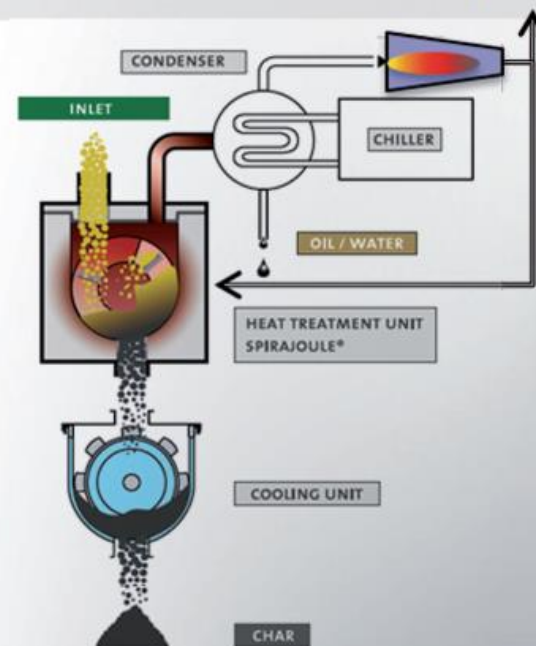


BIOGREEN Technology

**Biogreen**<sup>®</sup>  
Process



## BIOGREEN CM Modular plant



**Convert up to 16 tons per day all biomass waste into biochar and energy**

- Compact and ready to use
- No installation, building or civil works
- Use where the biomass is, save transport



the *energy* of innovation™

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**Björn Embrén**

Tree Officer



Street Department, Stockholm, Sweden

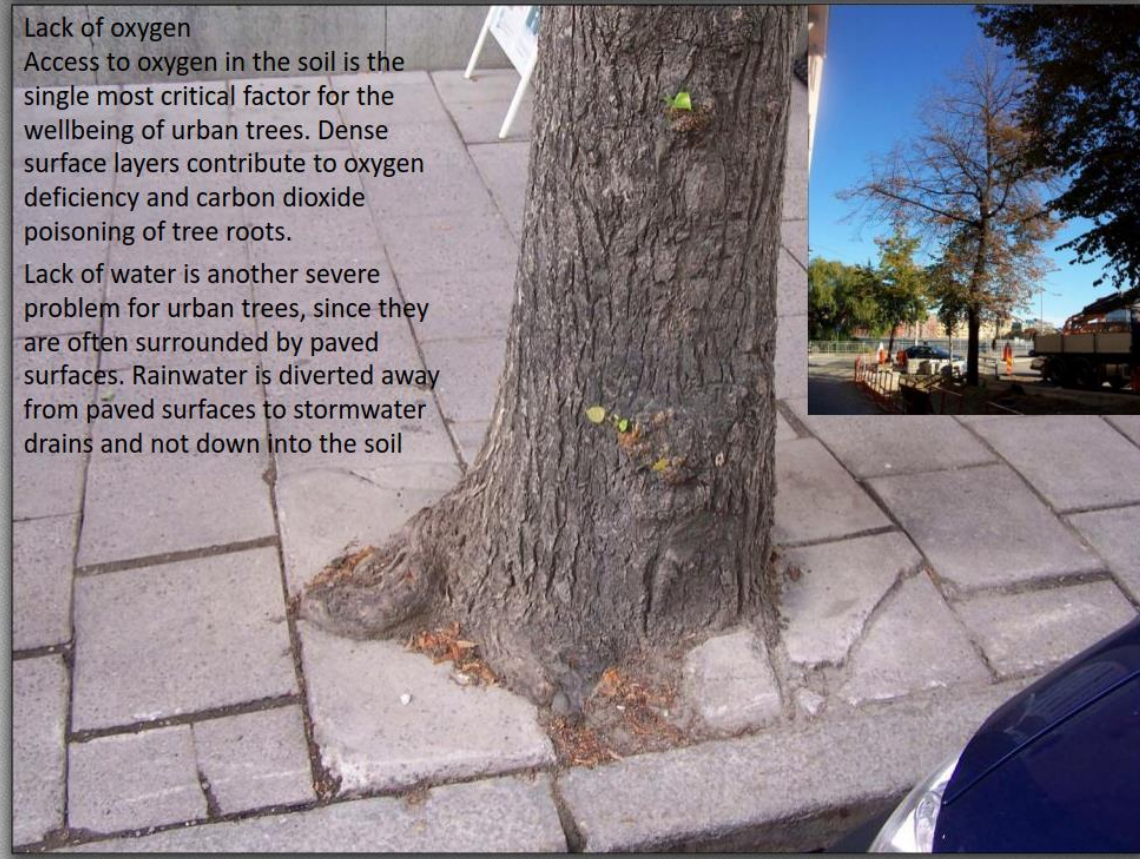
***Trees and Stormwater Management  
– The Stockholm solution –***



### Lack of oxygen

Access to oxygen in the soil is the single most critical factor for the wellbeing of urban trees. Dense surface layers contribute to oxygen deficiency and carbon dioxide poisoning of tree roots.

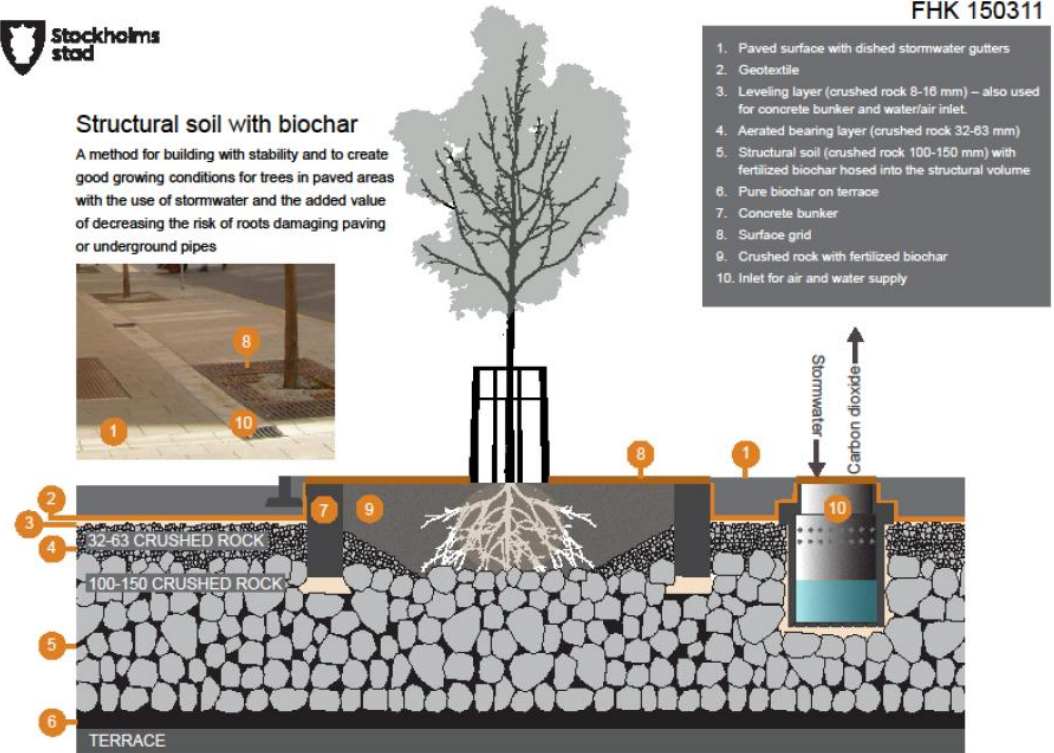
Lack of water is another severe problem for urban trees, since they are often surrounded by paved surfaces. Rainwater is diverted away from paved surfaces to stormwater drains and not down into the soil



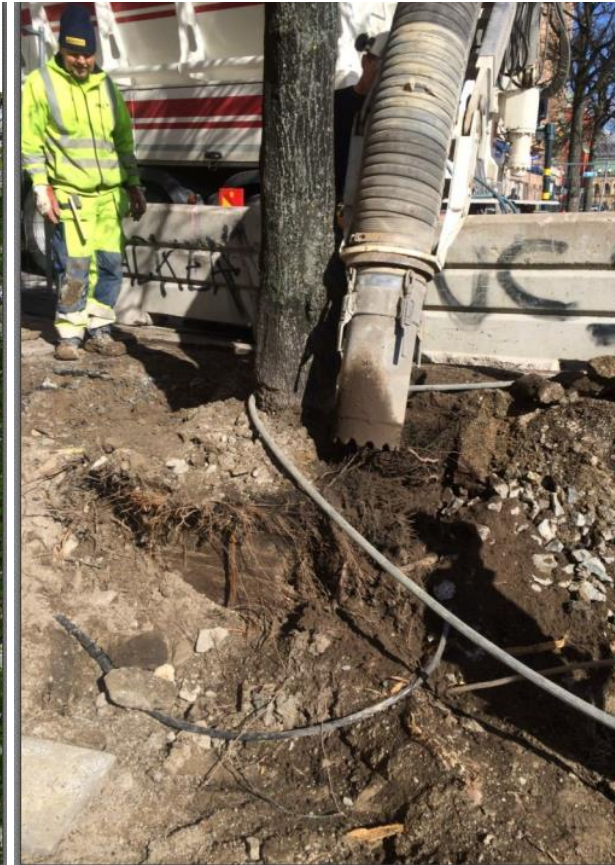
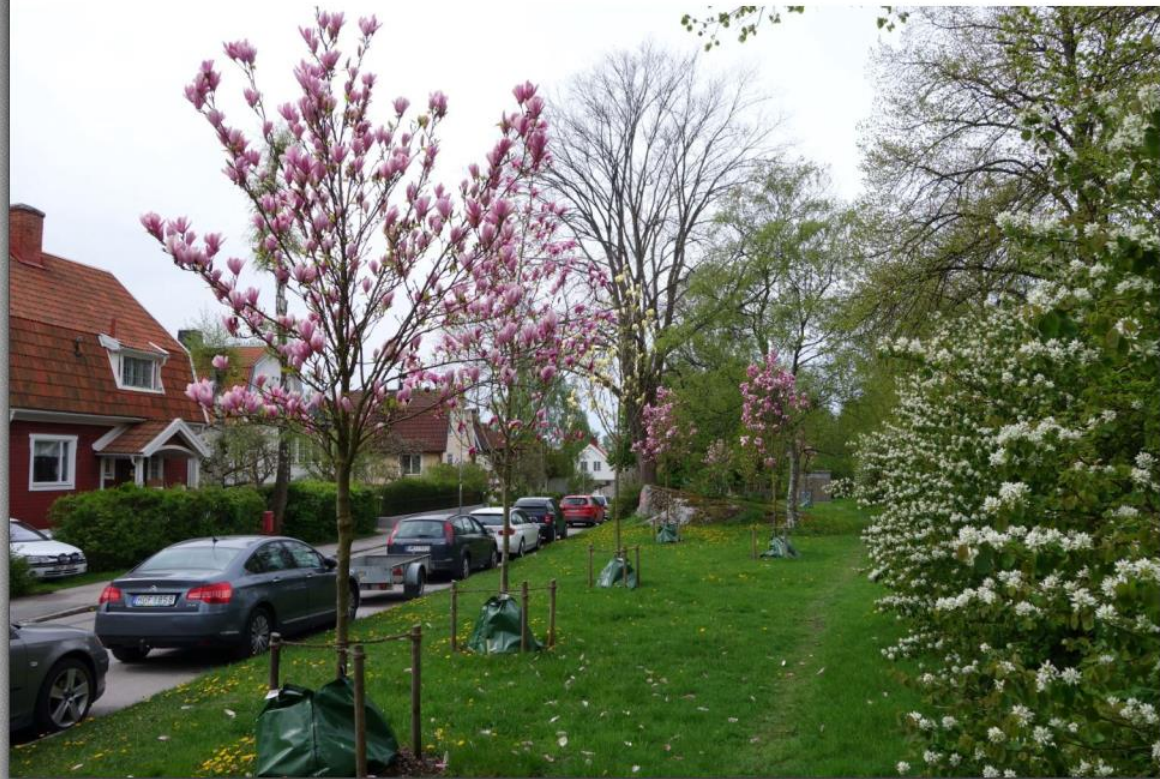


### Structural soil with biochar

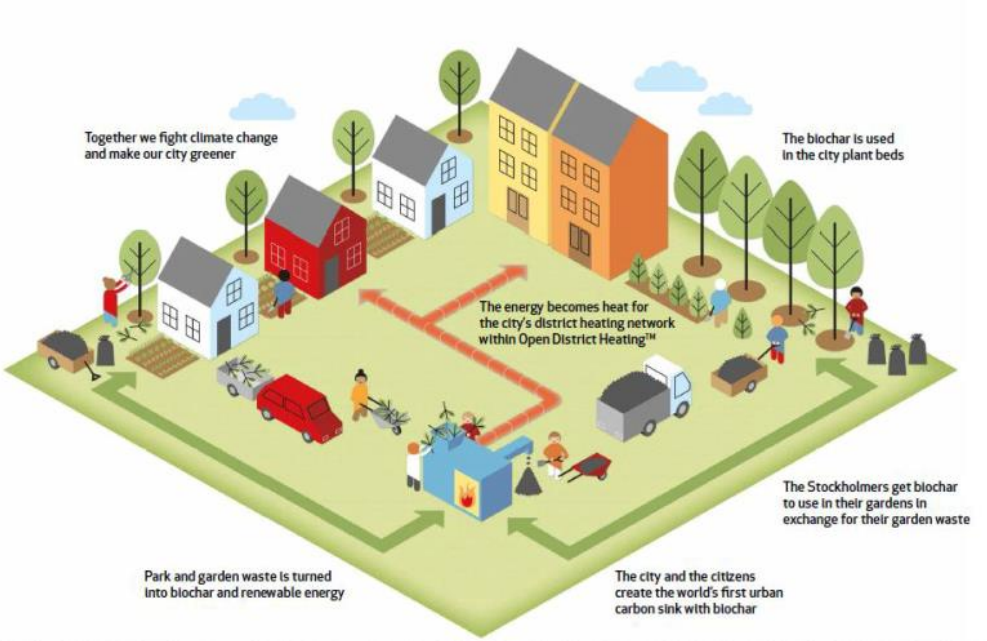
A method for building with stability and to create good growing conditions for trees in paved areas with the use of stormwater and the added value of decreasing the risk of roots damaging paving or underground pipes



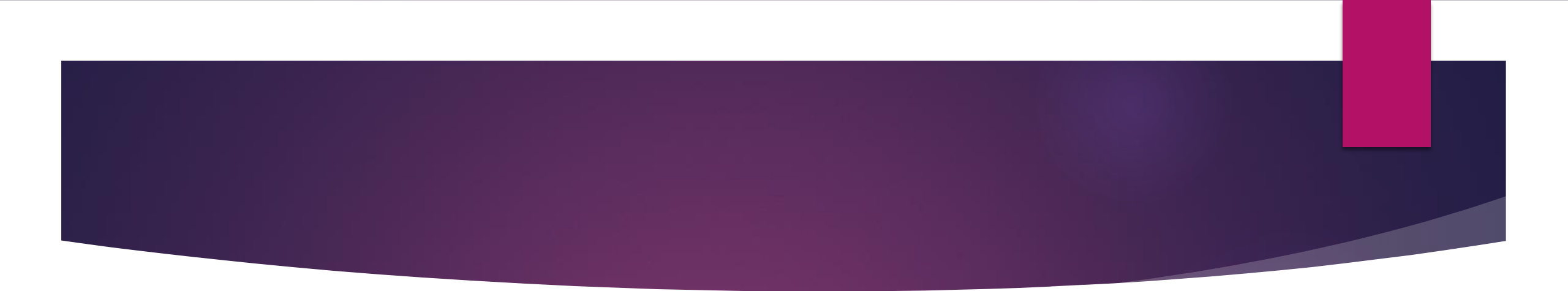
flowering after the first growing season planted in 50/50 biochar crushed granite



# The world's first urban carbon sink with biochar. This is how it works!

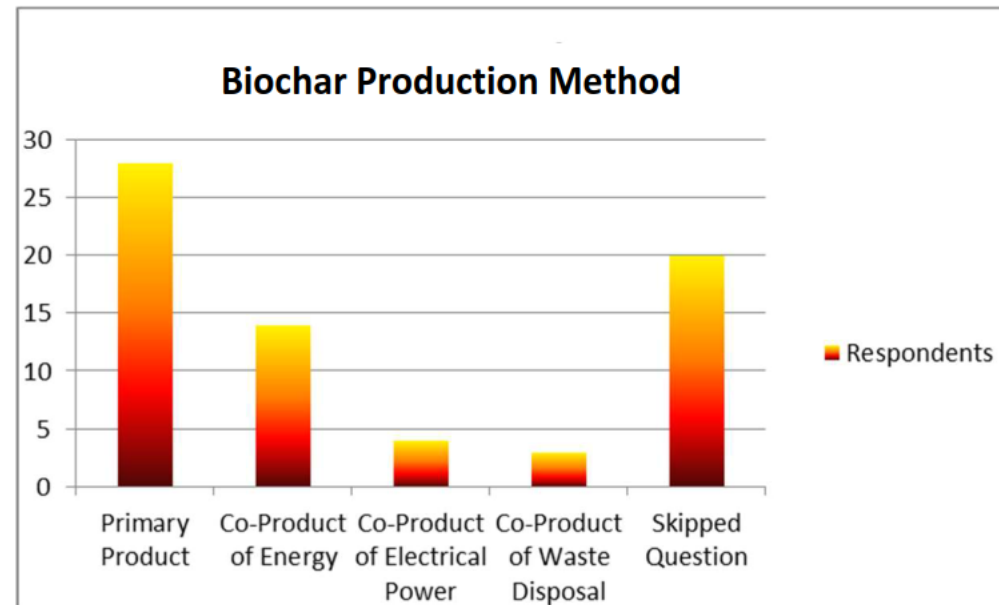
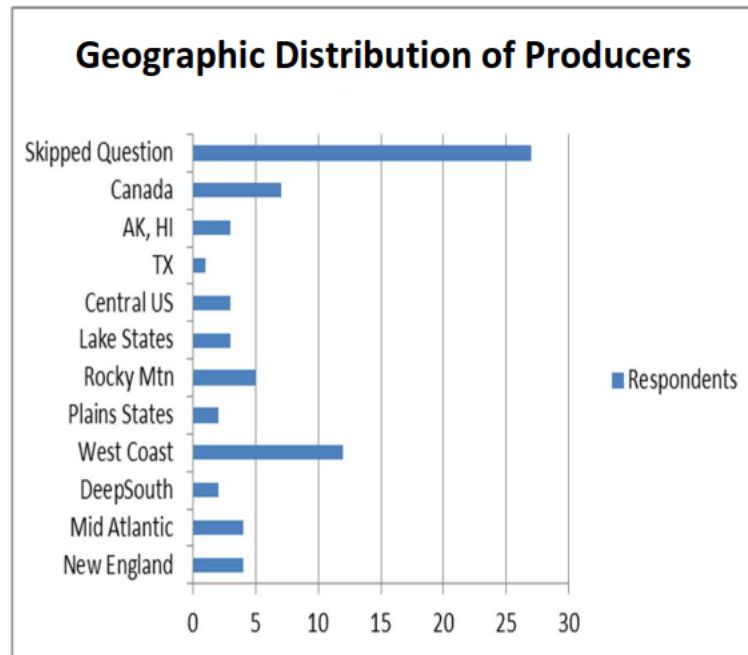


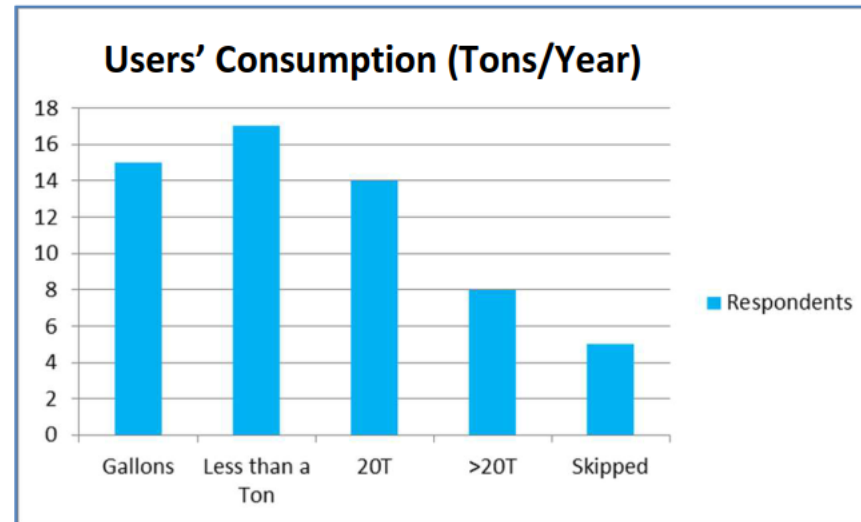
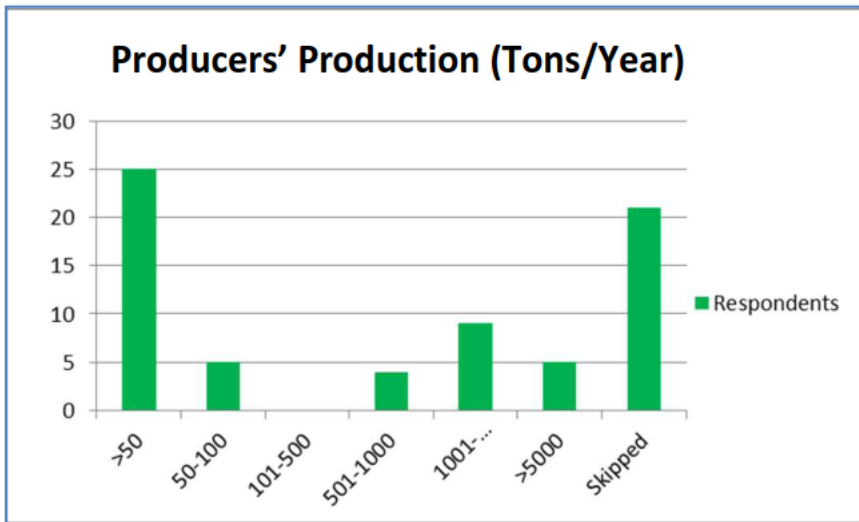


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- ▶ Lems Ridge Timber Company, Arcata, CA
  - ▶ NRCS CSP E384135Z - Biochar production from woody residue
  - ▶ The payment for this enhancement is currently \$4,694.06/acre

## Highlights of the 2018 US Biochar Industry Survey

*69 (45%) of Identified Producers and 58 Users took the Survey.*

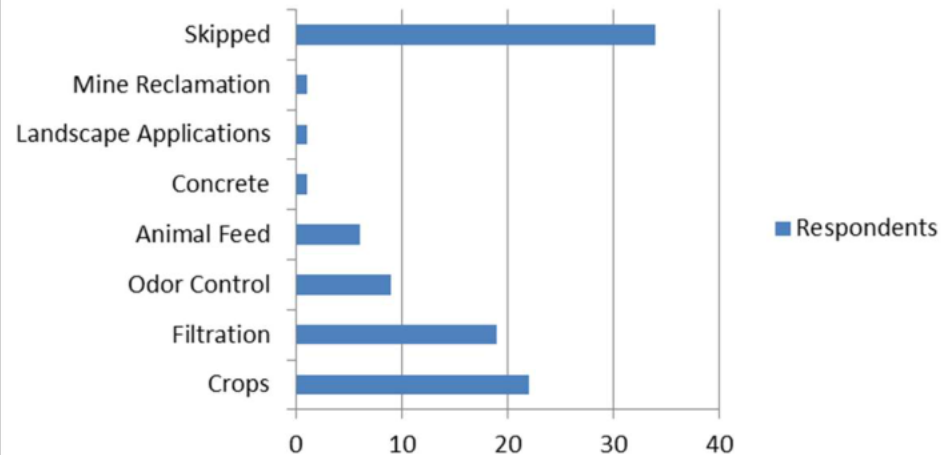




**94% of Producers feel they have adequate access to feedstock to supply their anticipated increased demand—many from Federal lands woody biomass.**



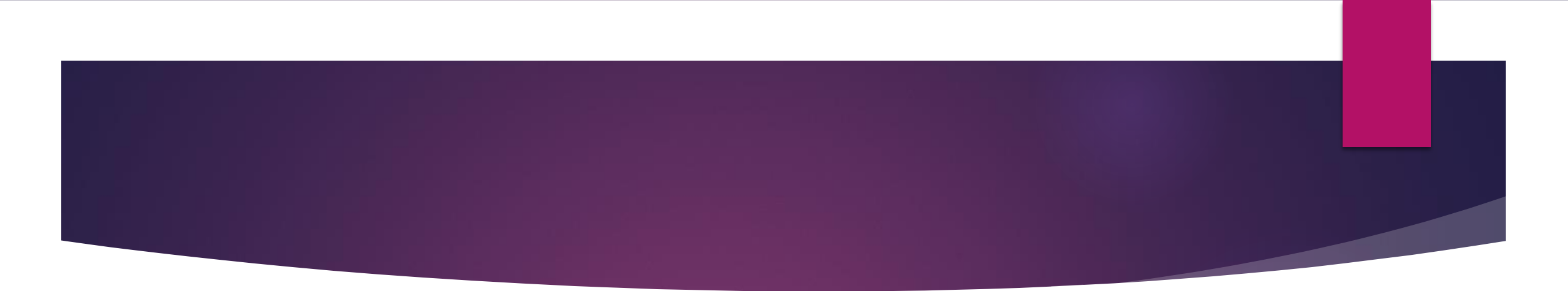
### Producers Expectation of market growth over the next 5 years

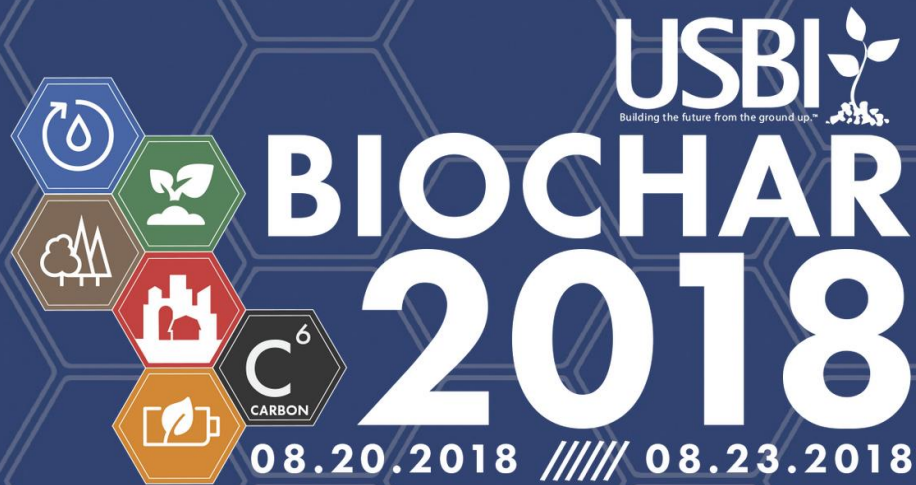


Look for updates and links to more in-depth reporting by visiting <http://biochar-us.org/news/us-biochar-market-survey-0> or scan the QR code:



Alternatively, contact:  
Kathleen Draper,  
Harry Groot,  
Tom Miles, or  
Martin Twer.

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- ▶ Funding for thermo-chemical conversion (via gasification or pyrolysis) is held up by the lack of well established price points and recurring end market for specific types of biochar.
  - ▶ Growing interest in non-agricultural uses of biochar.
  - ▶ Frustration with the fact that in the US biochar cannot be sold as a feed additive.
  - ▶ Buyers being unhappy with the lack of consistency with biochars being delivered for repeat purchases.
  - ▶ A need for standards that address different end uses of biochar.
  - ▶ A need for more laboratories that can perform biochar analysis.



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