



**National Carbon Technologies**

- Developer and producer of renewable carbon from biomass
- Products have performance and environmental benefits in global markets
- Operate the largest advanced biocarbon production facility in North America since 2012
- Holds leading global biocarbon intellectual property portfolio with over 200 issued and pending patents
- Technology designed for beneficial conversion of agricultural co-products to biocarbon
- Actively building >500,000 TPY of production capacity that will use agricultural residues as feedstock



## Leading Edge Process



- Developed by bioproduct industry thought-leaders
- Uses high temperature pyrolysis and patented control of thermochemical reactions
- Process completely breaks down biomass allowing use of broad range of feedstock
- Mechanical and catalytic ash reduction technologies reduce unwanted constituents
- Creates high fixed carbon and low ash products to replace fossil-based products
- Use of self-generated energy reduces costs and life-cycle environmental footprint



**NCT's Michigan USA Production Facility**



**Biocarbon Pellets Produced from Ag Residues**

# Conversion of Agricultural Residues to High Value Carbons



- Produced and patented carbons from more than 50 different types of agricultural residues and crops

- Tailor products to achieve different specifications and performance objectives:

- Fixed carbon content
- Reactivity
- Calorific value
- Form and size
- Durability
- Grindability
- Ash content and composition
- pH
- Moisture content
- Inclusion of beneficial additives

- Demonstrated achievement of customer specifications using agricultural residues
- Excited to keep advancing with new feedstocks and partners

## Biomass Feedstocks Used by NCT and Included in NCT's Patents

corn stover  
wheat  
wheat straw  
rice straw  
sugarcane bagasse  
sugarcane straw  
energy cane  
sugar beet pulp  
sunflowers  
sorghum  
canola  
algae  
miscanthus  
alfalfa  
animal manure  
switchgrass

fruit shells  
fruit stalks  
fruit peel  
fruit pits  
vegetable shells  
vegetable stalks  
vegetable peels  
vegetable pits  
grape pumice  
almond shells  
pecan shells  
coconut shells  
coffee grounds  
food waste  
grass pellets  
hay pellets