USDA 2017 Ag Outlook

Cool Planet and Cool Terra
Engineered Biocarbon
Addressing key markets globally, diverse product suite

Converting non-food biomass into hydrocarbons and engineered biocarbons

Addressing key markets globally...

Diverse product suite

- **Fuels**
  - High octane gasoline, jet fuel, diesel

- **Chemicals**
  - PX/PET feedstocks, others

- **Specialties**
  - Lubricants, others

- **Cool Terra®**
  - Engineered Biocarbon
  - TN&O, Production Agriculture

- **Animal Nutrition**
  - Chicken, bovine, others

- **Purification**
  - Water treatment, air purification, activated carbon
Society demands more food grown more sustainably
How can we feed a growing population?

A nearly 50% increase in food production is required worldwide...

...at a time when agriculture is under stress globally

- Limited arable land
- Degraded soil
- Water scarcity
- Fertilizer runoff

New technologies are critical to address this challenge

Source: Food and Agriculture Organization (FAO) of the United Nations, 2009; Context NA Retailer Study, April 2015. Projected increase in food through 2050
Cool Planet sits at the confluence of three megatrends in agriculture:

- **Food Security**: Higher crop yield
- **Soil Health**: Enhanced soil microbiome, microbial delivery system
- **Sustainability**: Carbon sequestration, clean water, less fertilizer

**A healthy planet feeding more people with higher grower profitability**
Production of Cool Terra® engineered biocarbon

Pyrolysis expertise and patented ‘Demetra’ process maximize consistency & effectiveness

Biomass (e.g., Pine) → Pyrolysis → Raw Biocarbon → Demetra Process (Patented)

- **Balance pH** – Optimizing pH to maximize germination and growth
- **Detoxify Raw Biocarbon** – Micropores cleaned to eliminate toxicity
- **Maximize Capacity** – Improves input holding capacity in pores
- **Size for soil** – Consistent particle sizes designed for consistent results

40,000 yd³ capacity in Camarillo, CA
The Cool Terra® engineered biocarbon platform
Physical structure enables improvement in yield, microbial life, and sustainability

1. Adsorptive / Desorptive
   - Improves water holding
   - Retains nutrients

2. Porous
   - Anchors micro-roots
   - Promotes microbial growth
   - Delivery system

3. Aerating
   - Structure clears pathway for water and oxygen

4. Sequesters Carbon
   - Chemically stable

Cool Terra® structure under a scanning electron microscope
Different forms of soil carbon have varying properties
Similar end results shaped by different mechanisms

### Different forms of Carbon in Soil

<table>
<thead>
<tr>
<th>Plant Nutrition</th>
<th>Microbial Nutrition</th>
<th>Microbial Habitat</th>
<th>Soil Persistence</th>
<th>Application Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compost</td>
<td>Humic Substance*</td>
<td>Cool Terra®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, Macro (N) and Micro Nutrients</td>
<td>To a degree, some micro nutrients</td>
<td>To a degree, small levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, various stages of decay, readily digestible for rapid breakdown</td>
<td>Yes, humic acid portion particularly, humin portion more recalcitrant</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To a degree, has structure and food, but limited air space</td>
<td>No for humic acid. To a small degree for humin portion</td>
<td>Yes, pore and surface area optimal for water, air, microbial life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low persistence through rapid biological de-composition</td>
<td>Low persistence through chemical and biological reactivity, soluble leaching in soil</td>
<td>Highly persistent. Some migration, but generally stable and consistent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Dosage (multiple tons/acre) Re-application needed seasonally</td>
<td>Low Dosage (gallons/acre) Re-application needed seasonally</td>
<td>Medium Dosage (&lt;1000 lbs/acre) Can be one-time application</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research suggests Cool Terra® can be complementary with both compost and humic*

*Humic substance includes Humic Acid, Fulvic Acid, Humin
**Zhang, Sun, Tian, Gong, Scientia Horticulturae, Volume 176, 11 September 2014, Pages 70–78,
**Bakhry, Ibrahim, Eid, Badr, Agricultural Sciences, Volume 05 No.14(2014), Article ID:52357
Multi-dimensional ecosystem vital for thriving soil biome
Each part can have impact, but the full system can be very powerful for soil health

- Mycorrhizae
- Beneficial microbe package
- Proprietary “bugs in a jug”

Microbes

Habitat

Energy

- Compost
- Humic
- Plant Symbiosis
- Other

Could you create a program for your customers that is unique and valuable?
Extensive biocarbon field trials delivered yield increases to dramatically improve grower ROI

Selected Trial Results

<table>
<thead>
<tr>
<th>Crop, Location</th>
<th>Yield</th>
<th>Grower ROI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomato (FM), FL</td>
<td>9%</td>
<td>5.1x</td>
</tr>
<tr>
<td>Lettuce, CA</td>
<td>45%</td>
<td>5.8x</td>
</tr>
<tr>
<td>Potato, OR</td>
<td>35%</td>
<td>4.9x</td>
</tr>
<tr>
<td>Corn, KS</td>
<td>15%</td>
<td>8.2x</td>
</tr>
</tbody>
</table>

*Avg 14.9% yield increase

*Each plotted point represents the best performing Cool Terra block for that trial in the grower standard or reduced input program. Removed trials with execution issues that compromised accurate results.
Distribution partners are mobilized; partner list is growing

### Key Channel Partners

<table>
<thead>
<tr>
<th>Established Partners in Production Ag / TNO</th>
</tr>
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<tbody>
<tr>
<td>HELENA</td>
</tr>
<tr>
<td>SImplot</td>
</tr>
<tr>
<td>TRIANGLE.co</td>
</tr>
<tr>
<td>AG RX</td>
</tr>
</tbody>
</table>
Partnerships are the proven path to commercialization
Leverages existing assets, credibility, funding, and expertise of leaders in Ag

Partnerships are the established path to new product adoption in Ag

Potential partnerships that could advance the technology in new areas

- R&D to create new product combinations, formulations, and value capture
- Incorporation of Cool Terra® into new, innovative products
Cool Planet can participate in the new wave of investment in soil health and crop biologicals

Consumers are demanding less chemical use in the production of their food. The challenge is to maintain grower yield while meeting consumer expectations.

As a result, major agriculture companies are investing billions of dollars to develop biological products to achieve the same or improved results.

The porosity and materials science of Cool Terra makes it an ideal substrate for biologicals:
• Potential to serve as the delivery mechanism of the biological industry (what UPS/FedEx is for the online economy)

Cool Planet is working with leading AgTech companies to establish research partnerships that will advance our microbial delivery capabilities.
Cool Terra® makes agriculture more sustainable

**Carbon Sequestration**

Trees **ABSORB** carbon as they grow

Cool Terra production converts and **STABILIZES** carbon

**Water and Fertilizer Efficiency**

Cool Terra acts like a “nano sponge,” holding water and nutrients in the root zone

Cool Terra® use helps plants **THRIVE**

Application in crops **SEQUESTERS** carbon
Sustainability for the entire farm/ranch system

Cool Fauna provides an engineered biocarbon platform that has the potential to improve animal health and nutrition:

- Reduce methane
- Increase natural weight gain
- Reduce animal sickness

Reduced Methane from Enteric Fermentation

Increased Animal Health and Nutrition

Reduce Odor and Increase Nutrient Retention

Increased Crop Productivity

Reduced Methane from Enteric Fermentation

Increased Animal Health and Nutrition

Reduce Odor and Increase Nutrient Retention

Increased Crop Productivity

Increased Pasture Health

More Nitrogen Holding Capacity

Healthier Roots

Prevent Fertilizer Leaching

Cool Terra can help improve soil health, reduce water consumption, and optimize fertilizer use while sequestering substantial amounts of carbon. The highly porous physical structure of Cool Terra also makes it an ideal delivery system for microbials and nutritionals that enhance plant growth and productivity. It can help mitigate:

- Soil degradation
- Water scarcity
- Atmospheric CO₂
Full NEPA Certified site in Alexandria, LA: $10+MM worth of site work and infrastructure complete
Alexandria, Louisiana Capacity and Logistics

• 40,000 – 70,000 cubic yards/year capacity based on feedstock and pyrolysis unit(s) deployed. ($20-$35MM/yr. in revenue potential at $500/cu yd.)
• Ability to bring in “raw biochar” to upgrade via Demetra back-end process
• Ample supply of wood biomass/wood residues in 30-50 mile radius
• Operations center on-site to ensure quality of Cool Terra being shipped
• Significant logistics and transportation cost reduction for Cool Terra delivered to Midwest and Eastern U.S. Markets
• Distributed Model – Easily replicated close to biomass sources and treatable acres.