

// C & C'S FERTILIZER · PRODUCT DESIGN & VISUAL GUIDE v2.0

# PRODUCT DESIGN & VISUAL GUIDE

AirFeed™ · BoltBrew™ · Science & Technology · Process Architecture

"The Voice of Nature's Nutrients™" · May 2026 · Surprise, Arizona

**AirFeed™**  
**Catalyst Mesh · Target: ~\$199**

**BoltBrew™**  
**Plasma Reactor · Target: ~\$399**

■ **IMPORTANT:** All device concepts shown in this guide are in pre-prototype development. Specifications, prices, margins, and chemistry descriptions represent design targets and intended pathways — not validated prototype results. Two USPTO provisional patent applications are on file. Patent pending — not issued patents.

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PRODUCT DESIGN DOCUMENT · MAY 2026 · CONFIDENTIAL · NOT LEGAL ADVICE

// MODEL A - AIRFEED™ · CATALYST MESH TECHNOLOGY

# AirFeed™

"Fertilizer From Thin Air" · Zero Electricity · Patent Pending

Intended design pathway. All specifications are targets based on current design estimates. Not validated prototype data.

Specification	Target Value	Notes	
Target Retail Price	\$149 – \$249	Based on current BOM estimate	
Target Gross Margin	~77%	At ~\$199 retail · BOM estimate only	
Power Source	Zero electricity	Passive wind/convection design target	
Target Climate	Humid (>40% RH)	SE, TX coast, Midwest — intended use	
Catalyst (intended)	Fe <sub>3</sub> O <sub>4</sub> + Nafion polymer on graphite	Intended design — not finalized	
Target Output	NH <sub>3</sub> /NO <sub>3</sub> solution	Intended design pathway	
Reservoir	2 Gallon BPA-free HDPE	Component	Description
Est. Unit BOM	~\$45.70 at 10K volume	Air Intake Grille	Filtered ambient air entry · Wind or passive
Maintenance	Monthly rinse (target)	Catalyst Mesh (Core)	Fe <sub>3</sub> O <sub>4</sub> + Nafion polymer on graphite subs
Recurring Revenue	~\$29/yr mesh replacement	Condensation Plate	Aluminum + hydrophilic coating target · De
Device Size	18" x 12" x 8" (target)	2-Gallon Reservoir	BPA-free HDPE · Designed for NH <sub>3</sub> -enrich
Patent Status	<b>Patent Pending</b>	Hose Adapter	Standard garden hose fitting target · Drip in

// HOW IT WORKS - INTENDED DESIGN PATHWAY

#	Step	Intended Design Description
1	<b>Air Intake</b>	Wind or convection designed to draw humid air through top grille
2	<b>Catalyst Reaction (Intended)</b>	N <sub>2</sub> + H <sub>2</sub> O designed to react on Fe <sub>3</sub> O <sub>4</sub> /Nafion mesh at room temp, 1 atm
3	<b>NH<sub>3</sub> Formation (Intended)</b>	Ammonia intended to form in water microdroplets on catalyst surface
4	<b>Condensation</b>	NH <sub>3</sub> -enriched droplets designed to condense on aluminum collection plate
5	<b>Collection</b>	Liquid designed to collect in 2-gallon BPA-free reservoir below
6	<b>Delivery</b>	Garden hose adapter connects reservoir to soil or irrigation system

Chemistry target: N<sub>2</sub> + H<sub>2</sub>O (vapor) → NH<sub>3</sub> + O<sub>2</sub> · Intended design pathway — room temp, 1 atm — not validated at consumer scale

// MODEL B - BOLT BREW™ · PLASMA REACTOR TECHNOLOGY

# BoltBrew™

"Lightning In A Box" · Solar-Powered · All Climates · Patent Pending

Intended design pathway. All specifications are targets based on current design estimates. Not validated prototype data.

Specification	Target Value	Notes	
Target Retail Price	\$299 – \$499	Based on current BOM estimate	
Target Gross Margin	~73%	At ~\$399 retail · BOM estimate only	
Power Source	50W solar (included)	Target — monocrystalline Si	
Target Climate	ALL climates	Including AZ/NV desert — design target	
Reactor (intended)	Plasma arc 5–12kV	Intended design — not finalized	
Target Output	HNO <sub>3</sub> (dilute nitric acid)	Intended design pathway	
Reservoir	5 Gallon + 12V pump	Component	Description
Est. Unit BOM	~\$107.50 at 10K volume	Solar Panel (50W target)	Monocrystalline Si target · 12V/5A
Temperature (arc)	150–250°C target	Plasma Chamber (intended)	5–12kV gliding arc target · 150–250°C
Recurring Revenue	~\$19/2yr electrodes	Electrode Assembly	Stainless steel electrodes design · Tar
Device Size	24" x 16" x 14" (target)	Absorption Column	Designed: NO <sub>2</sub> + H <sub>2</sub> O → HNO <sub>3</sub> · Ta
Patent Status	<b>Patent Pending</b>	Digital PPM Display	Target: real-time nitrogen readout · Ac

// HOW IT WORKS - INTENDED DESIGN PATHWAY

#	Step	Intended Design Description
1	<b>Solar Capture</b>	50W panel designed to harvest sunlight and charge capacitor bank
2	<b>Plasma Arc (Intended)</b>	5–12kV discharge designed to ionize air — intended to mimic lightning bolt
3	<b>NO<sub>2</sub> Formation (Intended)</b>	N <sub>2</sub> + O <sub>2</sub> designed to react at 150–250°C forming nitric oxide (NO) + NO <sub>2</sub>
4	<b>Absorption (Intended)</b>	NO <sub>2</sub> gases designed to dissolve through tap water forming dilute HNO <sub>3</sub>
5	<b>Storage</b>	Liquid nitrate fertilizer designed to be stored in 5-gallon HDPE reservoir
6	<b>Delivery</b>	12V pump designed to push diluted HNO <sub>3</sub> to standard hose output

Chemistry target: N<sub>2</sub> + O<sub>2</sub> → 2NO → HNO<sub>3</sub> (in water) · Intended design pathway — 150–250°C · not validated at consumer scale

// PROCESS FLOW — BOTH INTENDED PATHWAYS

## How Air Becomes Fertilizer.

Two Pathways. One Mission. — *Both pathways below are intended design targets, not validated results.*

Both start with free nitrogen from the atmosphere. Both are designed to end with plant-ready fertilizer solution.

### ATMOSPHERE (78% N<sub>2</sub>) FREE · UNLIMITED · EVERYWHERE

#### AIRFEED™ PATHWAY (Intended)

- 1 Wind draws air through grille
- 2 Catalyst mesh: N<sub>2</sub>+H<sub>2</sub>O react (intended)
- 3 NH<sub>3</sub> forms in water droplets (intended)
- 4 Condensation collects liquid
- 5 2-gal reservoir stores NH<sub>3</sub> soln

#### BOLTBREW™ PATHWAY (Intended)

- 1 Solar panel charges arc
- 2 5–12kV plasma arc ionizes air (intended)
- 3 NO<sub>x</sub> formed: N<sub>2</sub>+O<sub>2</sub>→NO+NO<sub>2</sub> (intended)
- 4 Absorption: NO<sub>x</sub>+H<sub>2</sub>O→HNO<sub>3</sub> (intended)
- 5 5-gal reservoir stores HNO<sub>3</sub>

**GARDEN HOSE / DRIP IRRIGATION** Designed to deliver nitrogen solution to plants → intended to support stronger growth

*Both pathways above describe intended design architecture based on established atmospheric chemistry principles. Consumer-scale implementation is in development and has not been validated. The underlying chemistry is established in research settings — consumer-scale commercialization remains to be proven.*

// SIDE-BY-SIDE COMPARISON

## AirFeed™ vs. BoltBrew™

Choose your climate. All values below are design targets and management estimates — not validated prototype data.

Specification	■ AirFeed™ — Model A	■ BoltBrew™ — Model B
Technology (intended)	Catalyst mesh (FeO+Nafion)	Plasma arc reactor (5–12kV)
Power Source	Zero — passive wind design	50W solar panel (included)
Inputs	Ambient air + humidity	Air + tap water + solar
Output Chemistry (intended)	NH <sub>3</sub> ammonia solution	HNO <sub>3</sub> nitric acid fertilizer
Target Climate	Humid (>40% RH) — SE, Midwest	ALL climates incl. AZ/NV desert
Target Device Size	18" x 12" x 8"	24" x 16" x 14"
Target Retail Price	~\$149 – \$249	~\$299 – \$499
Est. Unit BOM (10K vol)	~\$45.70 (est.)	~\$107.50 (est.)
Target Gross Margin	~77% at ~\$199 retail (est.)	~73% at ~\$399 retail (est.)
Moving Parts	None — fully passive design	Micro pump only
Target Maintenance	Monthly rinse	Quarterly electrode check
Target Recurring Rev.	~\$29/yr mesh replacement	~\$19/2yr electrode kit
Target Setup Time	~5 minutes	~15 minutes
Science Reference*	Stanford Zare Lab (2023/2024)	Eindhoven / Birkeland-Eyde process
Patent Status	<b>Patent Pending — App #64/052,149</b>	<b>Covered under AirFeed PPA</b>
Target Use Case	Best for humid climate homeowners	All climates - premium option

\*Science reference indicates the research basis for the intended chemistry pathway — NOT institutional endorsement of or partnership with C & C's Fertilizer. Stanford and Eindhoven have not reviewed, validated, or approved any C & C product.

All prices, margins, BOMs, and specifications are management estimates based on current design targets. Actual results will depend on prototype validation, manufacturing partnerships, and market conditions.

// GEOGRAPHIC COVERAGE — DESIGN INTENT

## Wide U.S. Coverage Across Two Devices.

Two products designed to work across U.S. climate zones. Coverage ratings below are internal estimates based on typical regional humidity and solar data — not field-validated results.

Region	Primary Product	Est. Households	Suitability (Internal Est.)	Notes
Southeast (FL,GA,SC,AL,MS)	AirFeed	~28M	High	High humidity year-round
Gulf Coast (LA,TX coast)	AirFeed	~18M	High	Strong coastal humidity
Midwest (OH,IN,IL,IA,MN)	AirFeed	~22M	High	Seasonal — summer peak
Mid-Atlantic (MD,PA,NJ,NY)	Both	~24M	Good	Both products suitable
Pacific NW (WA,OR)	Both	~8M	Good	High humidity but low sun
Northern (MN,WI,MI)	Both	~12M	Moderate	Seasonal limitation
California (Coastal)	Both	~14M	Moderate	Fog/marine layer — variable
California (Central Valley)	BoltBrew preferred	~6M	BoltBrew strong	Low coastal humidity
Southwest (AZ,NV,NM,UT)	BoltBrew	~12M	BoltBrew only	AirFeed not recommended
Mountain (CO,MT,WY,ID)	BoltBrew preferred	~6M	BoltBrew strong	Low humidity most areas

- › AirFeed targets high-humidity zones — Southeast, Gulf Coast, Midwest — representing a significant portion of the U.S. homeowner market
- › BoltBrew targets the arid Southwest gap (AZ, NV, NM) where AirFeed is not recommended due to low humidity
- › BoltBrew also serves as the all-climate premium option for buyers who want maximum reliability regardless of region
- › Combined, the two-device lineup is designed to address a broad range of U.S. homeowner climate conditions
- › All estimates above are based on publicly available regional humidity/solar data — not consumer field trials

// RETAIL PACKAGING — FUTURE VISION CONCEPT

## What the Customer Would See.

Future retail vision — packaging design concept for target channels. Channel discussions have not yet begun. This is a pre-prototype concept illustration.

AirFeed™ Target: ~\$199	BoltBrew™ Target: ~\$399
<p><i>"Fertilizer From Thin Air"</i></p> <p>CATALYST MESH</p> <ul style="list-style-type: none"> <li>✓ Zero electricity required (design target)</li> <li>✓ Designed to make fertilizer from air</li> <li>✓ Connects to garden hose (design target)</li> <li>✓ Replaceable catalyst mesh (planned)</li> <li>✓ 2-gallon collection tank (design target)</li> <li>✓ Test strips planned</li> </ul>	<p><i>"Lightning In A Box"</i></p> <p>SOLAR PLASMA REACTOR</p> <ul style="list-style-type: none"> <li>✓ Solar-powered plasma reactor (design)</li> <li>✓ Designed for any climate</li> <li>✓ Mimics natural lightning (intended)</li> <li>✓ Digital nitrogen readout (planned)</li> <li>✓ 5-gallon water reservoir (design target)</li> <li>✓ Battery backup planned</li> </ul>

### Target Retail Channels — Future Vision (discussions not yet begun)

Channel	Format	Status
Home Depot	Garden center endcap · seasonal display	<i>Future target — not engaged</i>
Lowe's	Outdoor living section · year-round	<i>Future target — not engaged</i>
Ace Hardware	Independent garden/hardware stores	<i>Future target — not engaged</i>
airfertilizer.com	DTC · email-gated download + notify list	<b>LIVE</b>

AirFeed™ — Target Package Contents	BoltBrew™ — Target Package Contents
<ol style="list-style-type: none"> <li>1. AirFeed catalyst mesh unit (pre-assembled plan)</li> <li>2. Mounting bracket (fence/wall/stake design)</li> <li>3. 2-gallon BPA-free reservoir</li> <li>4. Garden hose adapter + drip connector</li> <li>5. Ammonia test strips (50-pack — planned)</li> <li>6. Quick-start guide + QR video</li> <li>7. 1-year warranty card</li> </ol>	<ol style="list-style-type: none"> <li>1. BoltBrew plasma reactor unit (pre-assembled plan)</li> <li>2. 50W solar panel + 10ft cable</li> <li>3. 5-gallon reservoir with float valve design</li> <li>4. 12V pump + garden hose adapter</li> <li>5. Nitrate test strips (50-pack — planned)</li> <li>6. 12V battery backup module (planned)</li> <li>7. Quick-start guide + QR video</li> <li>8. 2-year warranty card</li> </ol>

## FROM CONCEPT TO SHELF.

Two products. Broad U.S. coverage. Built for American homeowners.

*Designed by a human who asked the right question and an AI that helped find the answer.*

**AirFeed™**  
**Catalyst Mesh**  
**Target: ~\$199**

**BoltBrew™**  
**Plasma Reactor**  
**Target: ~\$399**

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TWO USPTO PROVISIONAL PATENT APPLICATIONS ON FILE — PATENT PENDING

App #64/052,149 (AirFeed · filed Apr 28, 2026) · App #64/071,827 (VenturCap · filed May 21, 2026)

A provisional patent application establishes a priority date. It is not an issued patent and does not guarantee patent protection.

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