BOND IS THE WORLD’S FIRST PET FOOD COMPANY THAT’S AN ALLY FOR ALL ANIMALS

NO ANIMALS HARMED
Proteins harvested without slaughter

SAFE
Reduced risk of foodborne illness for pets and pet parents

SUSTAINABLE
Less resources required to produce primary ingredients

NUTRITIOUS
Animal protein formulations crafted by board-certified veterinary nutritionists
THE PROBLEM

DOGS AND CATS THRIVE ON MEAT-BASED DIETS
GLOBAL MEAT DEMAND RISING

Source: Food and Agriculture Organization of the United Nations, ESA Working Paper No. 12-63, p. 131

Chicken is the #1 protein source in 80% of pet food recipes, +2% YOY
PRODUCTION OF BOND ANIMAL PROTEIN

Chicken → Muscle DNA → Single-cell organism → Bioreactor → Solid/liquid separation → Drying → Bond Protein

Feed → Sugars Salts Inducer → Trace Elements
ENERGY UTILIZATION IN THE PRODUCTION PROCESS

<table>
<thead>
<tr>
<th>UNIT OPERATION</th>
<th>UTILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>STERILIZATION</td>
<td>STEAM</td>
</tr>
<tr>
<td>FERMENTATION (HEATING/COOLING/AGITATION)</td>
<td>ELECTRICITY</td>
</tr>
<tr>
<td>SEPARATION</td>
<td>ELECTRICITY</td>
</tr>
<tr>
<td>DRYING</td>
<td>ELECTRICITY</td>
</tr>
<tr>
<td>PUMPS</td>
<td>ELECTRICITY</td>
</tr>
<tr>
<td>FACILITY MAINTENANCE</td>
<td>ELECTRICITY</td>
</tr>
</tbody>
</table>

FEEDSTOCK ENERGY REQUIREMENT IS DEPENDENT ON TYPE OF FEEDSTOCK AND HOW IT’S TRANSPORTED

TYPE OF ENERGY (RENEWABLE VS FOSSIL FUELS) DEPENDENT ON WHAT IS AVAILABLE IN THE VICINITY OF THE PLANT
ENERGY/WATER/GHGE REDUCTION

PROCESS INTEGRATION
UTILITY WATER RECYCLED
PROCESS STREAM WATER FILTERED AND RECYCLED

HEAT INTEGRATION
HEAT EXCHANGERS BUILT INTO THE PROCESS

FEEDSTOCK CHOICE
USE BY-PRODUCTS FROM OTHER PROCESSES (E.G. GLYCEROL, MOLASSES)

THANKS TO CHEMICAL ENGINEERING STUDENTS AT UNIVERSITY OF COLORADO
LIFE CYCLE ASSESSMENT

THANKS TO CHEMICAL ENGINEERING STUDENTS AT UNIVERSITY OF COLORADO
**LAND USE**

*Values are estimates (have not been validated)*

*Land use (m2)*

<table>
<thead>
<tr>
<th>Land use</th>
<th>Thousands</th>
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</thead>
<tbody>
<tr>
<td>Materialization</td>
<td>8</td>
</tr>
<tr>
<td>Operational</td>
<td>0</td>
</tr>
</tbody>
</table>

**Land use**

- Materialization: 100%
- Transport
- Operational
- Cleaning
*Values are estimates (have not been validated)
*Values are estimates (have not been validated)
LCA OUTCOME SUMMARY

• OVERALL IMPROVEMENTS IN LAND USE, WATER USE, ENERGY AND GREENHOUSE GAS EMISSIONS COMPARED TO SOME OF THE COMMON TYPES OF ANIMAL AGRICULTURAL PRODUCTS

• ESPECIALLY GREAT REDUCTIONS IN LAND AND WATER USE

THANKS TO CHEMICAL ENGINEERING STUDENTS AT UNIVERSITY OF COLORADO
THANK YOU.