IPRO 340- Business Study of Alternative Uses for Brewers’ Spent Grain

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What is spent grain?

Wet barley from beer production

Enough to fill Crown Hall one foot deep every month

There are 50+ breweries in Chicagoland

Sponsor:
Rock Bottom Brewery, Lombard, IL
Project Goals

Find alternative applications for spent grain

Analyze alternatives

Provide suggestions for Rock Bottom
Group Organization

Primary Research Groups

- Logistics
- Food Alternatives
- Innovative Applications
Task Process

1. Group
2. Task
3. Mini Group
4. Discussion
5. Present to Class
6. Final Product
Group Dynamics

Mini Groups produced

Action Item List to keep deadlines

Periodically, deliverable deadlines updated

Tasking based on progress
Research Techniques

- Review of published papers
- Survey of brewers
- Presentations by experts (professors)
  - Interview of industry insiders
  - Biogas, vertical farming, traditional farmers, etc.
- Survey of sponsor
- Experimentation
Ethical Dilemmas

- Use of Logos
- Trade Secrets
- Under 21
- Free Range Animals
- Food Safety Problems
Core Issues.

- Volume
- Storage
- Odor
- Cost
- Preservation
- Transportation
Why Preserve?

- Increase Value $$$$
- Reduce Weight & Volume
- Reduce Spoilage
- Reduce Neighbor Complaints
Preservation Techniques

- Frozen “Sausages”
- Vacuuming
- Salting
- Drying
Analysis and Findings

- Applications:
  - Biogas
  - Composting
  - Mushrooms
  - Brick
  - Absorbent
  - Xylitol
  - Paper
  - Charcoal
  - Vertical Farming
Current Practices

- Currently, most spent grain goes to:
  - Farmers
  - Landfill
Uses of Spent Grain

- Animal Feed: 48%
- Animal Feed/Landfill: 39%
- Composting: 10%
- Landfill: 3%
Conclusions

- Networked with other IPROs
- Networked with other Professors
- Experiments

The Idea Fermentors

340
Mashing Up Ideas for Tons of Results

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Achievements:

- Brewer’s guide to alternative uses
- Increase sponsor’s awareness of alternatives
- Spent grain is delicious!
Future Works

- Form a brewer’s co-op
- Effective drying techniques
- Work further with Food Lab
  - Bacterial Studies
- Environment Impact
Questions?