



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

Kevin Acacio, Aram Apyan, Edward Chiem, James Kapaldo, Paul Kim, Rodolfo Mares Araiza, Moyo Orekoya, Mateusz Prusak, Sakshi Sahni, Amanda Smith, Stephen Tomlin, Soha Zahir

Introduction



Barley



Sponsor:
**Rock Bottom
Brewery,
Lombard, IL**

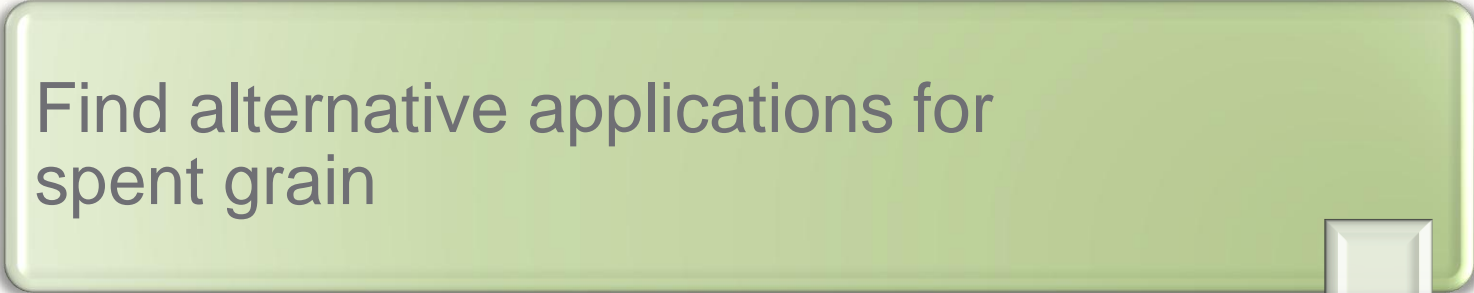
What is spent
grain?
**Wet barley
from beer
production**

Enough to fill
Crown Hall one
foot deep every
month

**There are 50+
breweries in
Chicagoland**

Project Goals

Find alternative applications for
spent grain



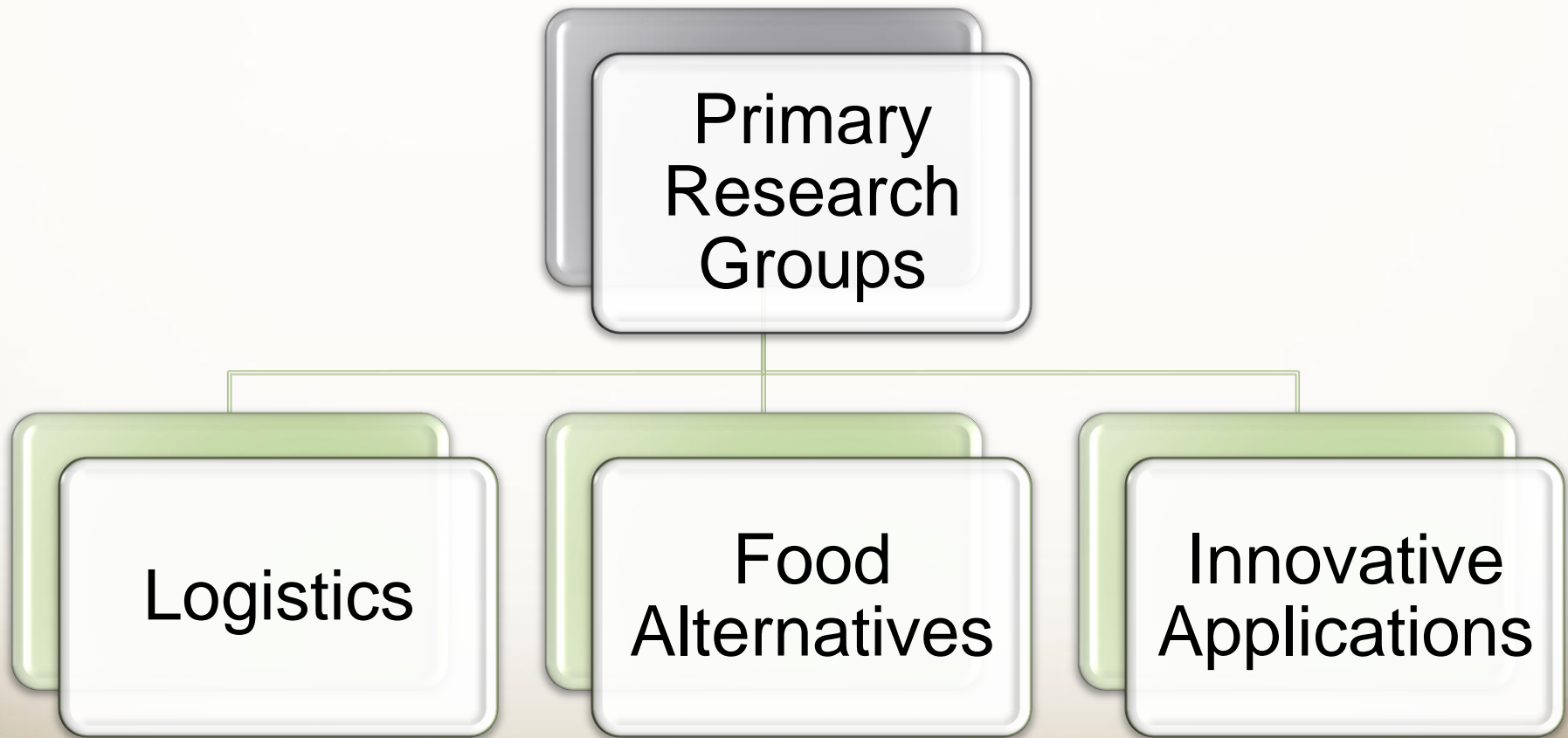
Analyze alternatives



Provide suggestions for Rock
Bottom



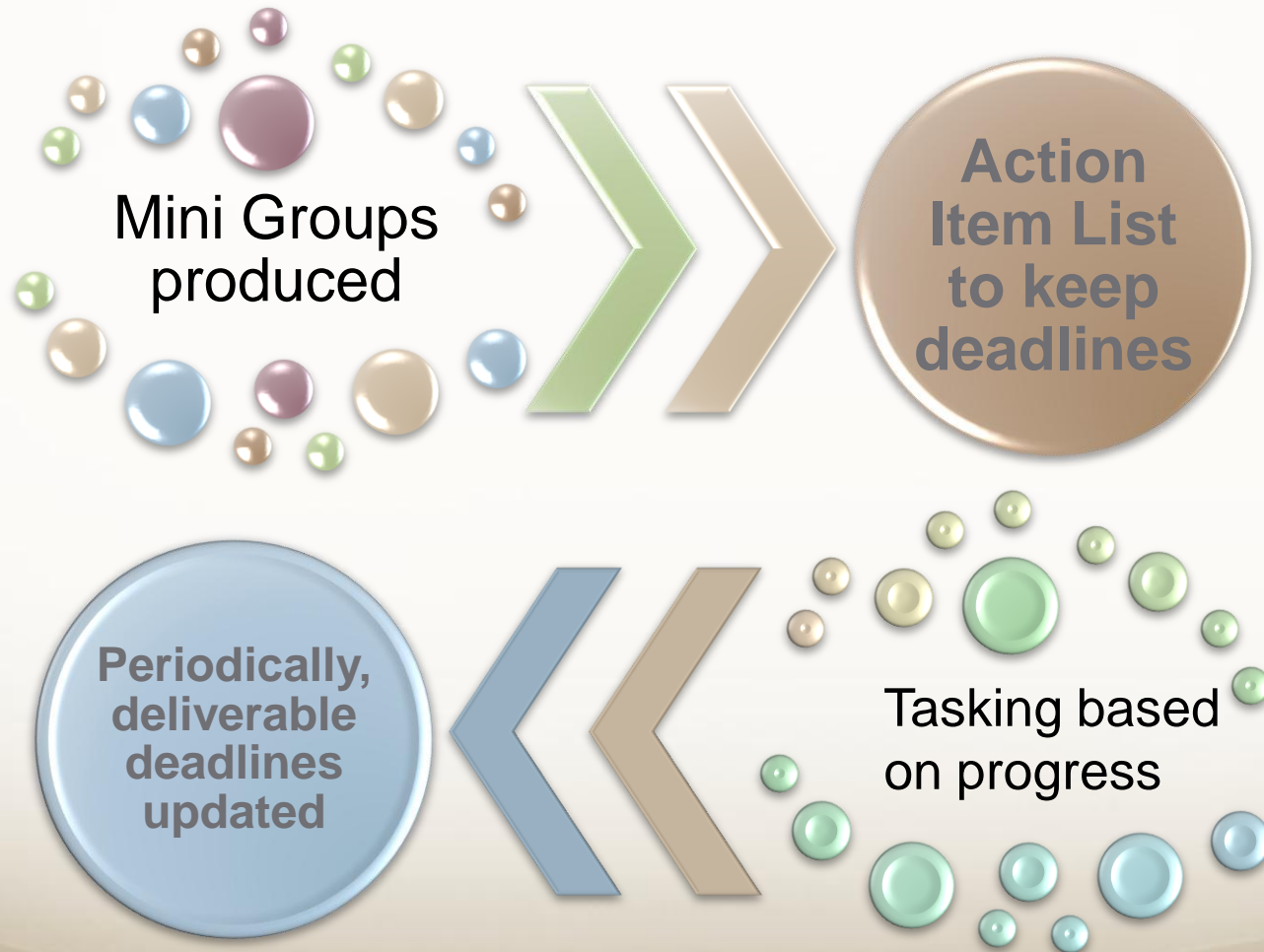
Group Organization



Task Process



Group Dynamics



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

340

Mashing Up Ideas
for Tons of Results



Use of Logos

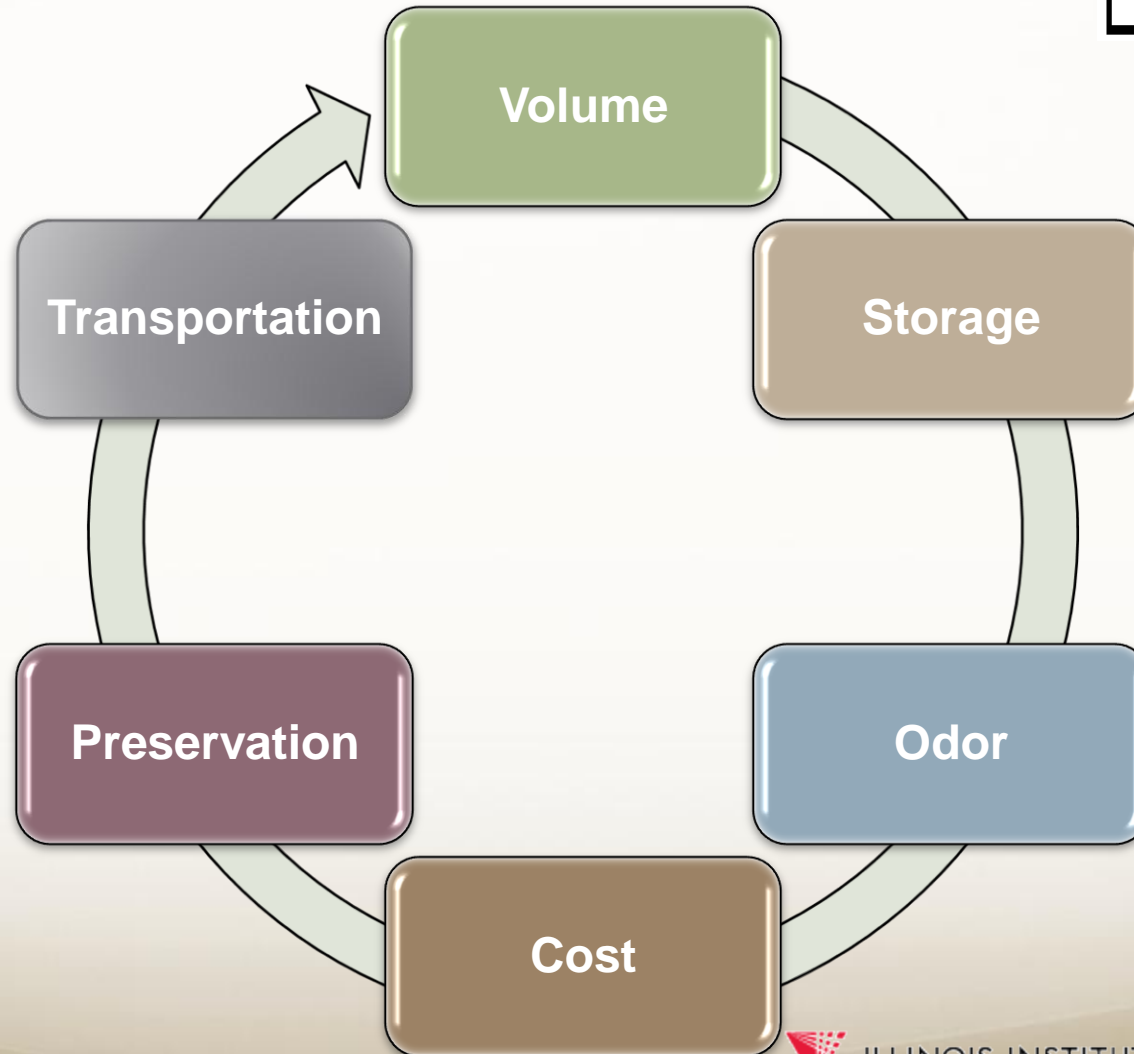
Trade
Secrets

Under 21

Free Range
Animals

Food Safety
Problems

Core Issues.



Why Preserve?

Increase
Value
\$\$\$\$

Reduce
Weight &
Volume

Reduce
Spoilage

Reduce
Neighbor
Complaints



Preservation Techniques

340

Mashing Up Ideas
for Tuns of Results

- 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



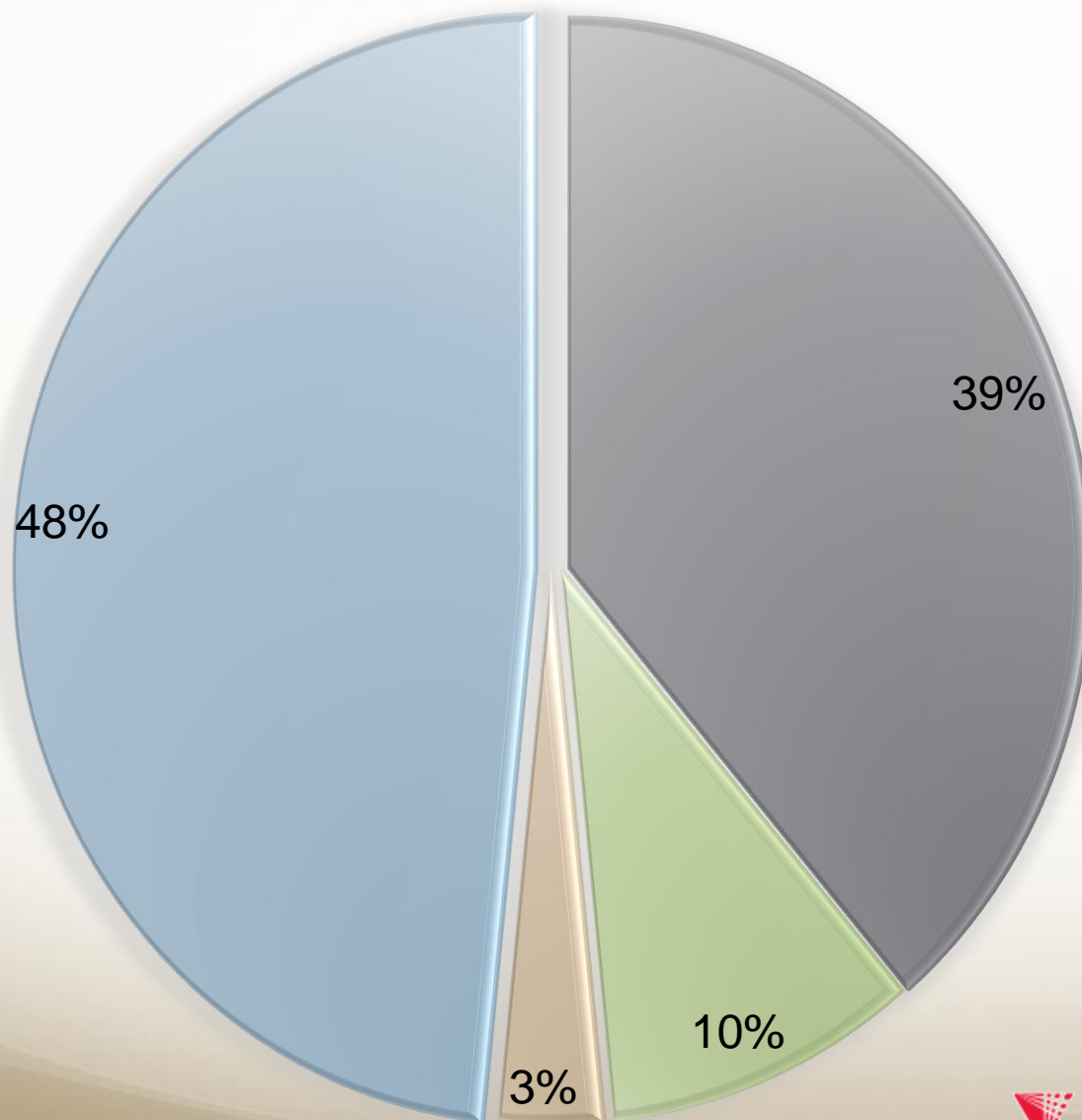
Landfill



340

Mashing Up Ideas
for Tons of Results

Uses of Spent Grain



■ Animal Feed

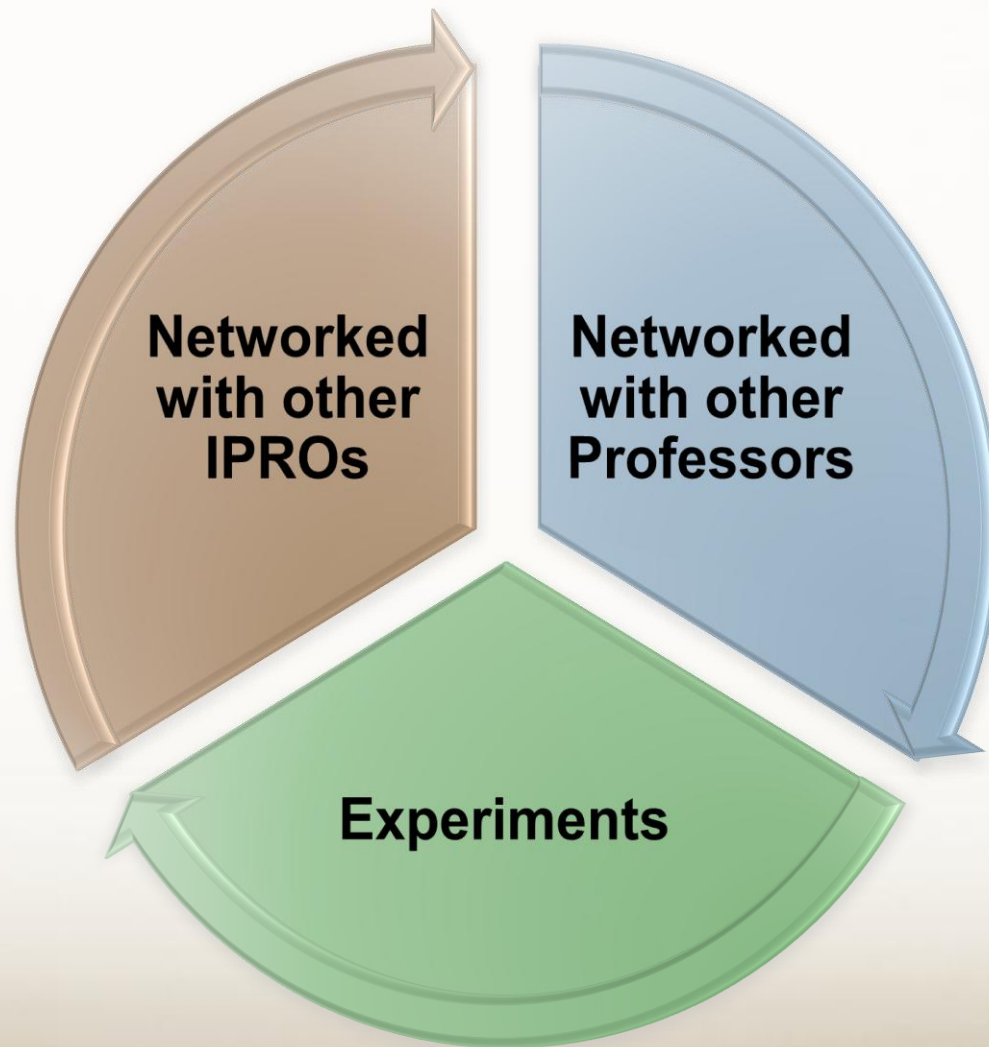
■ Animal
Feed/Landfill

■ Composting

■ Landfill



Conclusions

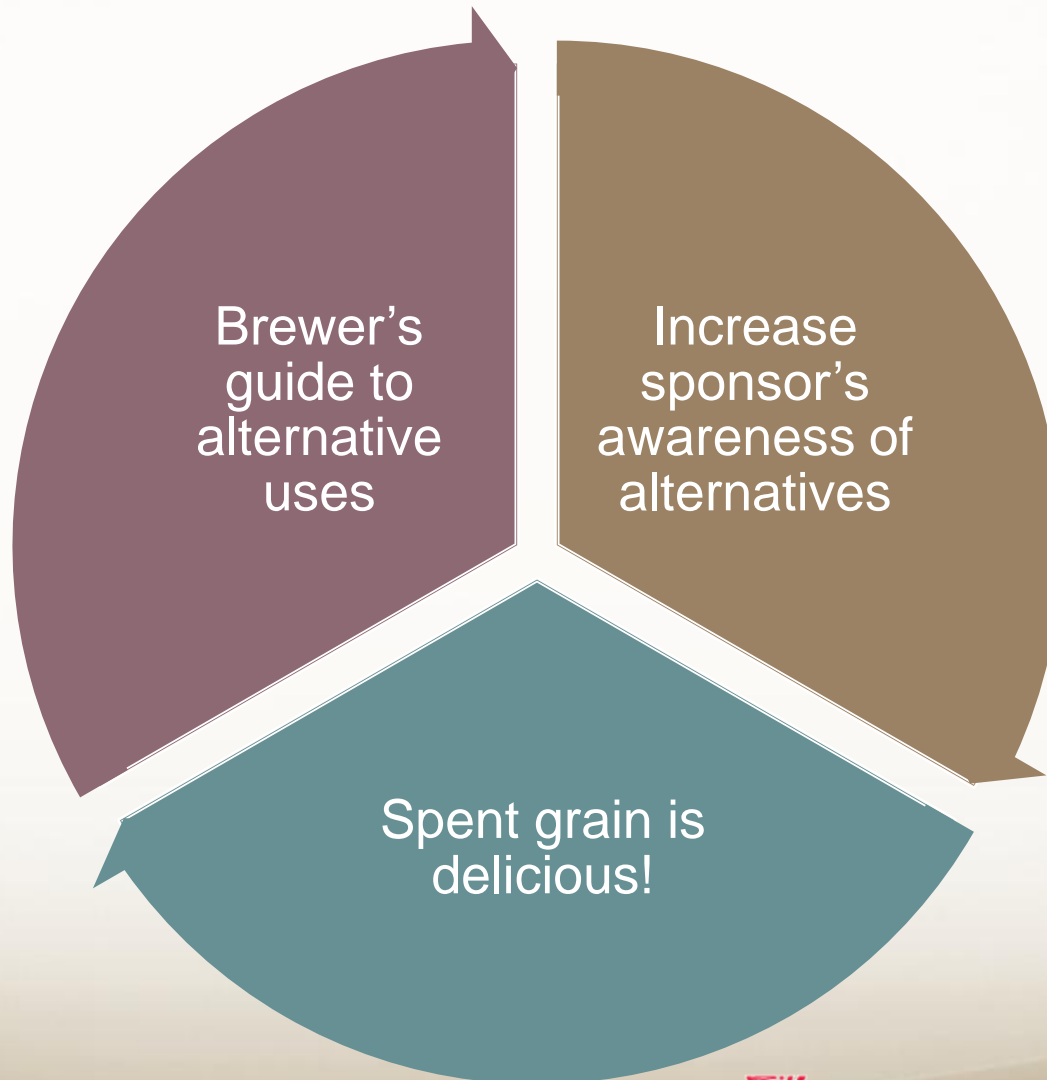


Achievements:

The Idea Fermentors

340

Mashing Up Ideas
for Tons of Results



ILLINOIS INSTITUTE OF TECHNOLOGY

Future Works

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



Questions?

