

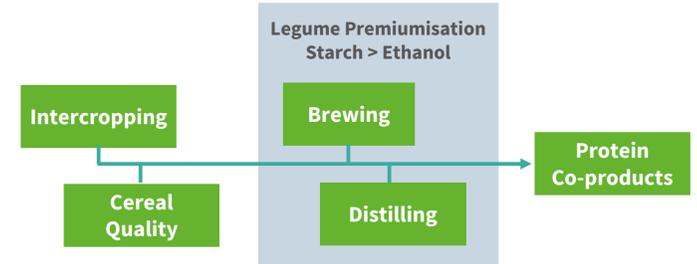


Intercrops for Food and Feed

Kirsty Black
Arbikie Distilling Ltd

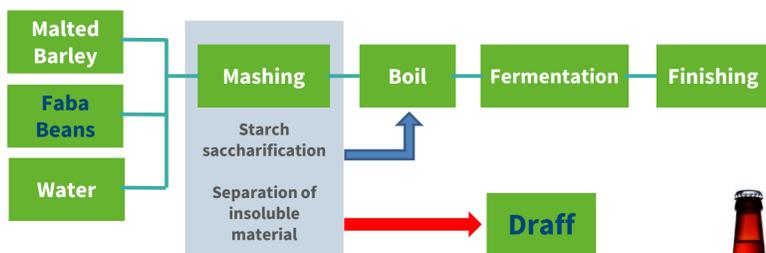
Main Objective(s)

- **Improve on farm profitability** of legume crops via the development of new, high value markets,
- Demonstrate the feasibility of processing legumes, via brewing and distilling processes to produce high value, **novel alcoholic beverages**, and
- **Protein rich coproducts** suitable for feed and / or food purposes.

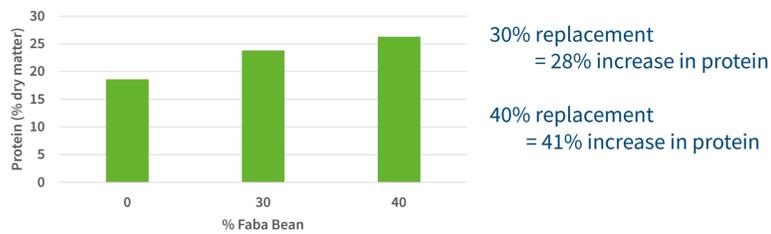


Progress of the work during the second reporting period

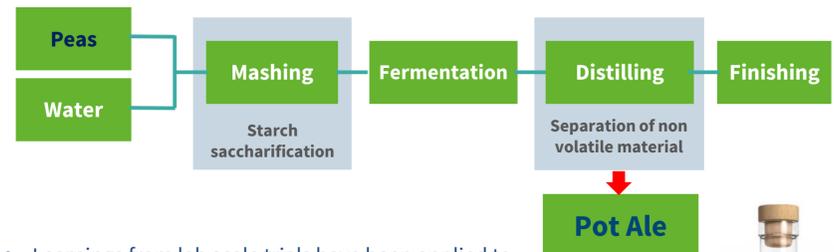
Brewing with legumes



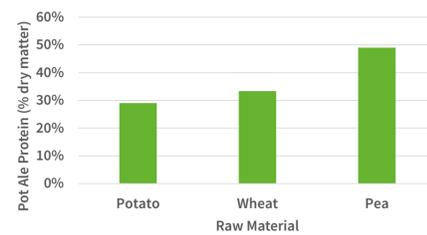
- Previous issues regarding yields and draff separation have been resolved.
 - Cool Beans, made from 40 % faba bean, is now available as a routine limited release from Barney's Beer, Edinburgh.
 - No negative impact on the taste of the beer.
- The use of beans has been shown to result in a protein enriched draff.
 - Trialled by SRUC in poultry trials



Distilling with legumes



- Learnings from lab scale trials have been applied to commercial scale - 100 % pea spirit has now been successfully produced and used to make Nàdar Gin.
- LCA study used in marketing campaign.
- The use of peas has, again, been shown to result in a protein enriched co-product.



48% increase in protein versus wheat based pot ale

Barriers inhibiting greater uptake of this approach

- Dehulled, milled legume availability and cost
- Co-product processing sites / financial feasibility of co-product processing equipment

Next steps:

- Assess different co-product processing from a technology and financial point of view.

SOPs & MEFs:

- SOP, MEF - Brewing with Faba Beans – Enzymes for Mash Optimisation
- SOP, MEF - Rheometer Legume Starch Characterisation
- SOP - Brewing with Legumes

Innovations

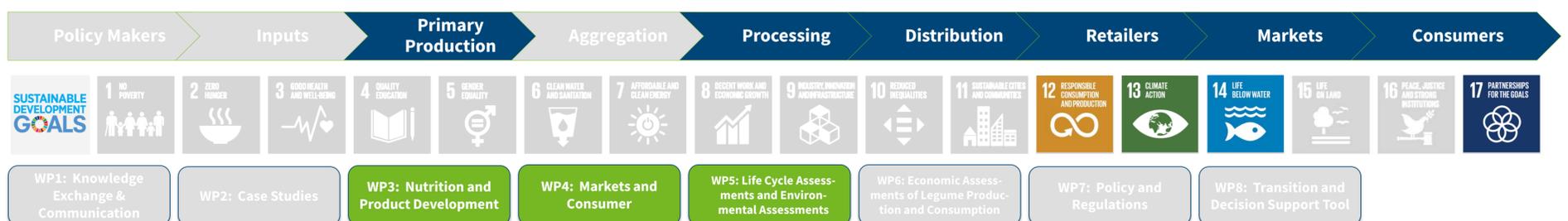
- New products – Cool Beans Beer, Nàdar Gin and Nàdar Vodka
- New processes - production process for producing beverage alcohol from legumes (brewing and distilling).

Impact

- Global coverage of Nàdar Gin launch
- Prominate, Scottish web coverage alone equates to 2.8 billion opportunities to see.
- Publications: -
 - Faba bean as a novel brewing adjunct: Consumer evaluation
 - Optimised processing of faba bean (*Vicia faba* L.) as a brewing adjunct (in review)

Recommendations to realise this transition in practice

- Requirement for breweries and distilleries to reduce their Scope 3 GHG emission = raise awareness of agricultural emissions and a desire for alternative raw materials.
- Network of co-product processing sites and markets.



Contact Information

Kirsty Black, Arbikie Distilling Ltd, Kirsty.black@Arbikie.com

