



Case study Ogilvy Spirits

Zero Waste Scotland is supporting the development of a circular economy by sharing the learnings of projects to stimulate ideas and collaboration in Scotland.

Scottish business, Ogilvy Spirits, embraces the principles of a circular economy by distilling award-winning vodka from potatoes not suitable for the supermarket. The family run farm in Forfar takes low grade potatoes that would normally be used for cattle feed and turns them into a high value exportable product with a long shelf-life.

Background

Graeme and Caroline Jarron run a mixed farm in Forfar, Angus, where they grow potatoes, cereal crops and rear livestock. The potato crop is sorted each year in different grades, with the highest quality and highest value potatoes sold to supermarkets and the lowest grade potatoes are used as stock potatoes for cattle feed. Potatoes are considered to be low grade if they are damaged, unsuitably sized for sale or have skin blemishes.

Looking to find a higher value use for the crop, the Jarrons turned to vodka distilling as a way to turn this low value, perishable crop into an exportable product. The product was successfully launched in January 2015 after trialling twenty prototypes since the distillery was built the previous year.

Process

Success of the potato harvest in Scotland and further afield greatly affects the quality level accepted by supermarkets and the price per tonne paid to farmers. However, whether



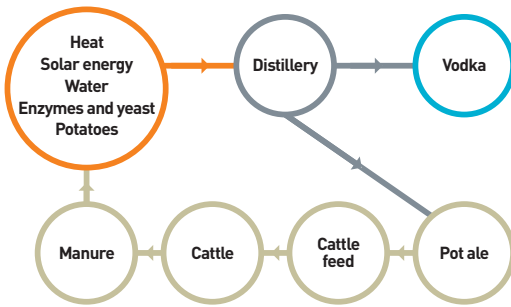
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the season is good or poor, only the lowest grades are used for the vodka production; the distillery can accept potatoes with skin blemishes or minor damage and works more effectively with smaller potatoes.

The distillery only uses potatoes grown at the farm and is located at the same site. After harvesting, the potatoes are washed, graded and stored on site. During the distilling process, they are loaded into a masher and the resulting mixture is put into a pressure-cooker to gelatinise the starch.

“I wanted to build a future for further generations, to create something from our farm’s produce, starting small, and then hopefully sharing it worldwide.”
Mr Graeme Jarron, Co-Founder

Ogilvy vodka process



First enzymes and then yeast and nutrients are added to create a mash, converting the remaining starches to sugars. The mash is then fermented for four to five days and constantly monitored to ensure the temperature and pH are at the optimum levels. Once this process is complete, the fermented mash is distilled twice within 12 hours to remove methanol and reach the required level of purity.

The resulting spirit is put through a charcoal filtration system for a week and finally, a 1-micron sheet filter for 'polishing'. Through this process, Ogilvy Spirits transforms almost two tonnes of potatoes into 500 bottles of vodka every week. Some of the electricity required to power the process is produced by photovoltaic panels located on the distillery roof. Ogilvy Spirits is investigating the further generation of renewable heat from low value crop residues via a biomass boiler system.

The product

Sales are successful both locally and internationally and Ogilvy Spirits has gained recognition through a number of awards. In addition to the vodka, the distilling process also results in a by-product known as pot ale. This contains proteins, sugars and minerals originating from the potatoes, yeast and enzymes used in the distilling process.

While some of this is recycled back into the next batch, the make-up of pot ale means that it is suitable to add to silage to feed the farm's cattle. The inclusion of nutrients from the yeast means this is a high nutritional cattle feed. There are two other by-products from the process: small quantities of methanol and used charcoal from filtering. Both of these are suitable for use as fuel or feedstock for new products.

Circular economy benefits

Embracing a circular economy means carefully considering all waste products generated from an economic system and thinking about how they could be put to better use. The project started by the Jarron family is an example of this way of thinking. Not only is the commercial value of their crop increased by the production of potato vodka but the by-products from the distillation process are also utilised.

The use of the pot ale in the cattle feed adds to the wider nutrient recycling on the farm. Applying the cattle manure to the soil brings multiple agronomic benefits including a reduction in nitrogen fertiliser requirements. If the installation of a biomass boiler goes ahead, this could provide further benefits; the ash from the biomass boiler could be applied to the farm's soil thus contributing to a nutrient recycling system between the farm and distillery.

Zero Waste Scotland supports the development of circular economy systems, models and products. For information on the support available, contact the Circular Economy team on circulareconomy@zerowastescotland.org.uk.

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