



Abertay
University®



The James
Hutton
Institute

STRICTLY EMBARGOED TO 00.01 HOURS (GMT) WEDNESDAY FEBRUARY 19

World's first 'climate positive' gin produced from peas by UK scientists

- **Nàdar Gin launched today following five-year research project**
- **Innovative distilling process avoids more CO₂ emissions than it creates**

The world's first "climate positive" gin has been created by UK scientists — using the humble garden pea.

Five years of research at Abertay University and the James Hutton Institute in Scotland, in collaboration with Arbikie Distillery, has culminated in today's (FEB 19) release of new gin, Nàdar.

Created by Arbikie's Master Distiller, PhD student Kirsty Black, each 700ml bottle of Nàdar has a carbon footprint of -1.54 kg CO₂e (carbon dioxide equivalent), meaning it avoids more carbon dioxide emissions than it creates.

This environmental performance — significantly better than traditional wheat gins — is mainly achieved by utilising all useful components of the peas from the dehulling (de-skinning) and distilling process, to create home-grown animal feed.

It also takes advantage of the peas' natural ability to source essential nitrogen for growth from the atmosphere through a process known as 'biological nitrogen fixation', negating the need for environmentally-damaging synthetic fertilisers.

In addition, during harvesting, some nitrogen is left behind in-field in crop residues, improving soil fertility and function for the next crop in the rotation, thereby further reducing the need for synthetic fertilisers.

During distilling, a waste product known as 'pot ale' is created from the leftover pea protein and spent yeast, and this can be used as a highly nutritious animal feed.

The aim is to offset the high environmental costs of importation of animal feeds, which are most often derived from soybean and commonly sourced from cleared rainforest and cerrado regions.

The first batch of Arbikie pea gin pot-ale is currently being used to feed cows on a farm neighbouring the distillery, which is based near Montrose.

Black's PhD at Abertay University and the James Hutton Institute is focused on exploring the potential of pulses such as peas and beans as an environmentally sustainable feedstock to the brewing and distilling industries.

The research team is also working to investigate whether pot-ale protein can be isolated and used as a source of food for humans.

Black said the finished gin product is flavoured using natural botanicals, plus lemongrass and citrus leaf, contributing to a "fresh and fruity" aroma.

She added: "At Arbikie, everything we do is dictated by the seasons and our geographical location. Year on year we see the weather, harvest timings and crop quality change; all highlighting the need to address the climate crisis now. By producing the world's first climate positive gin, we are taking initial steps towards

improving our environmental impact, while demonstrating what can be achieved when like-minded researchers and businesses come together.”

Professor of Zymology at Abertay University, Graeme Walker, is supervisor on the PhD project.

He said: “This project is an excellent example of what can be achieved with the right blend of academic expertise and industry know-how. Creating real-world impact through our scientific research is part of Abertay University’s core mission and I’m delighted to see that coming together in this genuinely innovative project.”

Dr Pietro (Pete) Iannetta, an agroecologist at the James Hutton Institute, added: “The climate change crisis demands far greater respect for natural resources that has previously been afforded. We must be more efficient, and the best place to start is locally. Towards that end, this is not simply a story of a new gin but is in fact another great example of Scottish teamwork and ingenuity. Nàdar is fully provenanced as a sustainable Scottish product, and when purchased consumers can be assured they are also encouraging more-practical crop rotations, helping to reduce artificial fertiliser use, improve soil qualities, and most importantly, to directly reconnect the values of local consumers and farmers to help realise the most respectful and sustainable of agricultural operations at home.”

ENDS

To view the PhD research paper:

<https://www.sciencedirect.com/science/article/pii/S0160412019308773#t0015>

Pictures:

<https://www.dropbox.com/sh/o84gtwt4o86al40/AACtirmxbOZSOq8t5nYRimEna?dl=0>

For further information and interview requests contact Andrew Murray, Abertay University PR Officer at andrew.murray@abertay.ac.uk or 01382 308755.

NOTES TO EDITORS:

About Abertay University:

Abertay University is based in Dundee, Scotland and has research and knowledge exchange expertise across Food Science & Technology, Sensory & Consumer Science, Public Health & Human Nutrition and Zymology & Alcoholic Fermentations. Abertay’s undergraduate Food & Drink courses are ranked number one in Scotland and the University has enjoyed award-winning collaborations with stakeholders such as Innovate UK, Interface, and Food & Drink Federation Scotland. The University has a strong focus on research projects that have an impact in the real world. www.abertay.ac.uk

About the James Hutton Institute:

The James Hutton Institute is a world-leading scientific organisation encompassing a distinctive range of integrated strengths in land, crop, waters, environmental and socio-economic science. The Institute takes its name from the 18th century Scottish Enlightenment scientist, James Hutton, who is widely regarded as the founder of modern geology and who was also an experimental farmer and agronomist. www.hutton.ac.uk

Further research collaboration and funding background:

The environmental impact assessment reported here were carried out in collaboration with an international network with www.true-project.eu partners led by Dr David Styles of University of Bangor and National University of Ireland Galway, and in partnership with Trinity College Dublin.

The James Hutton Institute and Scotland’s Rural College are also supported by the Scottish Government.