



Bio-Organic Catalyst

Turn animal waste into energy and nutrients, while improving animal health.
Faster.

A non-toxic biocatalyst — not a microbe, not an enzyme — that accelerates the breakdown of animal waste. Less nitrogen going to land, more gas out of the digester, and odour cut at source. Dosed into water you already move, with no capital works.

In paid commercial use on pig farms in Spain today — scaling toward hundreds of sites.

— 70%

odour at a pork producer, scored daily*

17 → 0

ppm ammonia at bird level, layer house**

— 28%

lagoon nitrogen, vs. untreated control***

2.5 ×

return on spend, audited digester†

* An independent trial at a leading pork producer, showed a 70% drop in noxious odors. Feb–Mar 2026; odour scored 0–10 by the plant operator and the distributor. ** Commercial layer operation, 44,200 birds; Dräger single-gas detectors, applied with a humic-acid biostimulant. *** 12-month controlled trial against a matched untreated lagoon, 18,600-head grow-finish site, Nebraska. † Audited 3.2 MW food-waste digester, UK, 2,933 daily records. Full sources on slides 8–12.





Four costs that only move in one direction

For a multi-site pig or poultry business, manure is no longer an operating nuisance. It sets your land base, your permit conditions, your relationship with neighbours and — increasingly — what you have to report to your customers.

1 Nutrient load sets your land base

Nitrogen and phosphorus per gallon decide how many acres you must own or contract. More nutrient means more land, more haulage, more cost per head.

2 Odour, ammonia and H₂S

The largest single source of complaints, planning objections and buffer-zone conditions — and a live worker-safety exposure inside the building.

3 Sludge, crust and desludging

Lagoons and stores fill with solids that must be agitated, dredged and hauled. Storage capacity lost is capacity you already paid to build.

4 Value left sitting in the waste

Manure holds energy and nutrients. Incomplete digestion is gas you never sold and a digestate worth less than it should be.

THE SOLUTION

BOC — a catalyst, not a chemical



BOC is a patented, plant-derived biocatalyst. It contains no bacteria and no active enzymes. It makes the microbial population already living in your slurry, your lagoon and your digester work substantially faster.

01

Not a bug in a jar

No new organisms to establish, monitor or re-inoculate. BOC works with the biology already present on your site.

02

Works at 1–4 ppm

Tiny doses do the work. No bulk chemical logistics, no hazardous storage, no handling burden on staff.

03

Drop-in, no capex

Dosed into flush water, slurry, lagoon or digester feed through a small pump. No plant, no retrofit, no downtime.

04

Certified and non-toxic

Ecocert EU and USDA organic attestations on PC3 Organic. NSF food-safe certification on Eco-Cat. Made in the USA.

Composition: water, highly purified yeast extracts and non-ionic surfactants. No live bacteria. No active enzymes. Nothing that needs a permit to store.

Source: Bio-Organic Catalyst product technical data and Safety Data Sheets, bio-organic.com. Dosing guidance is per product label; site-specific rates are set during assessment.



Three actions, one dose

BOC does three things at once in the same tank. Together they take waste that would sit as crust, sludge and ammonia and drive it through to gas, stable solids and inert nitrogen.

01

Solubilise

Amphiphilic molecules break open fats, greases and slime, releasing locked-up carbon and exposing solids to microbial attack.

Fats solubilisation + 1,240%
Digester viscosity – 42%

02

Catalyse

Lowers the activation energy of each biological step, so the microbes already present drive organic matter and ammonia through faster.

Volatile solids destroyed + 23%
Organic loading rate 5.8 → 7.6 g/L/d

03

Oxygenate

Micro- and nano-bubble chemistry raises oxygen transfer, forming an aerobic layer that suppresses H₂S and drives nitrification.

Dissolved oxygen 0.20 → 2.43 mg/L
H₂S in biogas – 29% to – 47%

The nitrogen route: $\text{NH}_3 \rightarrow \text{NO}_2^- \rightarrow \text{NO}_3^- \rightarrow \text{N}_2 \text{ gas}$. BOC accelerates every step — including simultaneous nitrification and denitrification inside a single lagoon or biofilm.

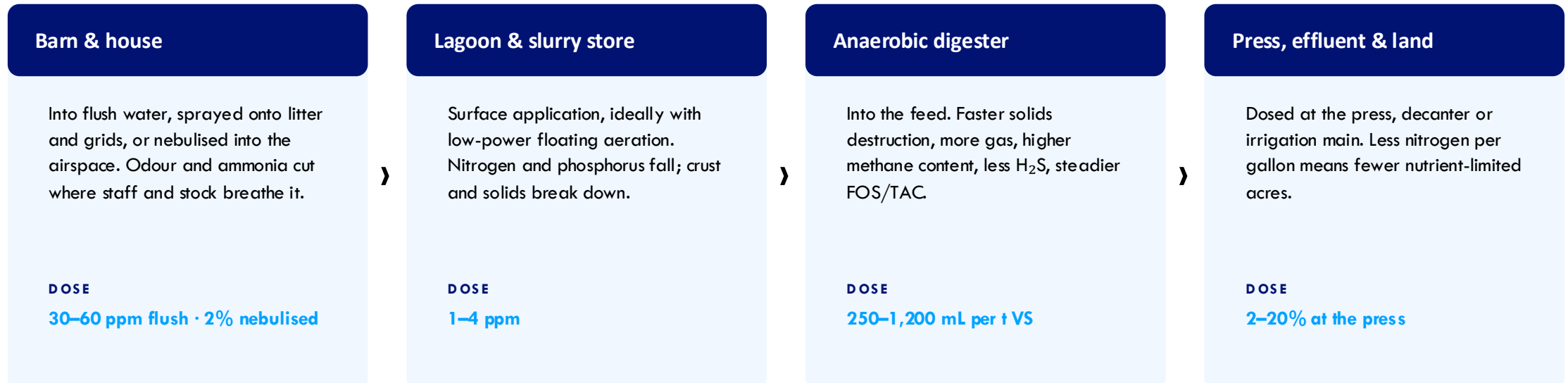
Supporting figures: fats solubilisation, Aqua Enviro (2009). Viscosity, volatile solids and loading rate, Leicester UK co-digestion plant. Dissolved oxygen, Texas creamery SBR. H₂S, southern UK biogas plant. Full detail on slides 8 to 12.



WHERE IT FITS

Four dosing points across one site

BOC follows the manure. You can start at any one of these points and add the others as the numbers come in.



No new plant. No process change. A small dosing pump and a protocol we set with your team.



Where the money actually shows up

Every figure below was measured on an operating site. The animal-waste results come from a live pork-producer trial, a controlled swine-lagoon trial and a slurry co-digestion plant; the energy result comes from the same chemistry in municipal service.

Measured change

Odour score, plant room and irrigation

Pork producer, Chile, 2026

10 → 3

Ammonia at bird level, layer house

Layer operation, 44,200 birds

17 → 0 ppm

Nitrogen (TKN) in lagoon water

Swine lagoon, Nebraska

– 28%

Phosphorus (P₂O₅) in lagoon water

Swine lagoon, Nebraska

> – 50%

Biogas yield per tonne of feedstock

Pig slurry + food waste AD, UK

+ 12%

Aeration energy per tonne of BOD

Municipal plant, N. Ireland

– 34%

Proven in pounds

An audited food-waste digester, six years of daily data:

Gross revenue uplift £43.25 / t VS

Less BOC product cost – £17.40 / t VS

Net £25.85 / t VS

2.5×

return on spend · ≈ £245,000 a year · £1.5M over six years

Sources by row: pork producer odour trial, Chile (Feb–Mar 2026, 0–10 scale, dual-scored); commercial layer operation, Dräger detectors, applied with a humic-acid biostimulant; Fumas Finisher swine trial, Nebraska (1998–99); Leicester UK co-digestion plant (2019); Kinnegar WWTP, Northern Ireland (2019/22). Right-hand panel: 3.2 MW UK food-waste digester, 2,933 daily records 2018–2026, uplift significant at $p < 0.05$, analysis by Alps Ecoscience UK. Results depend on feedstock, loading and operating conditions.



WORKED EXAMPLE

What that looks like on one 20,000-head site

An illustrative model built on the same scale as our Nebraska trial: a 20,000-head grow-finish site with a 28-million-gallon anaerobic lagoon, land-applying under a nitrogen-limited nutrient plan.

Lagoon water land-applied each year	28 M gallons
Application and haulage, at \$0.012 / gallon	\$336,000
Nitrogen per gallon, with BOC measured	— 28%
Nutrient-limited acreage and haulage required measured	— 28%
Value released — land application alone	
≈ \$94,000 / yr	

And that is before

- Lagoon desludging and dredging avoided
- Biogas uplift, if you digest the slurry
- Odour complaints and buffer-zone conditions
- Ammonia lost to air that could stay as fertiliser value

Across a 20-site business, this line alone

≈ \$1.9M a year

Illustrative. Only the 28% nitrogen reduction is measured (Fumas Finisher, Nebraska, 12-month controlled trial vs. an untreated lagoon). Lagoon volume, application cost per gallon and the assumption that acreage scales with nitrogen are illustrative only — application cost varies widely with geography, equipment and haul distance. BOC product cost is quoted per site and is not deducted above. We rebuild this model with your volumes, your nutrient plan and your costs before you commit to anything.



Nitrogen down 28% against an untreated control

An 18,600-head grower-finisher: 19 barns on flush management discharging to a single 28-million-gallon anaerobic lagoon, land-applied under a state nitrogen-limited permit. Run for twelve months against a matched, untreated sister site.

Total nitrogen (TKN)

twelve-month average against the untreated control lagoon • — 48% through the March–May peak

— 28%

Phosphorus (P₂O₅)

the untreated control lagoon ran more than double the treated lagoon's phosphorus

> 2 ×

Treated lagoon, against its own history

lowest total nitrogen recorded at the site in four years

815 ppm

The set-up

18,600 head	19 barns, flush management
28 M gallons	single anaerobic lagoon
505 gallons	initial surface application, 6 weeks
30–60 ppm	continuous, into barn flush water
5 × 1 hp	floating fine-bubble aerators
Matched control	untreated sister site

Source: Fumas Finisher, Arapahoe, Nebraska, May 1998 – May 1999. Independent report by Stuart H. Russell, P.E., WETCO, with dual-laboratory analysis. Odour reduction was reported by site personnel but was not instrumented — no reliable field method existed at the time. The programme combined BOC with five newly installed low-power aerators, and the report does not separate the two contributions. This remains our only controlled swine-lagoon dataset — the Chile trial on the previous slide is its modern counterpart.



Ammonia gone at bird level in the houses

Three floor-based, controlled-environment layer houses — 44,200 birds on litter that accumulates across an 18-month laying cycle. Eco-Cat and a humic-acid biostimulant sprayed weekly onto the litter and the manure grids.

Ammonia (NH₃), measured with Dräger single-gas detectors

At bird level, inside the house

the reading that drives welfare, performance and inspection

17 → 0 ppm

At the litter and manure surface

detector placed directly on the accumulated litter

253 → 0 ppm

Hydrogen sulphide read zero both before and after.

What it takes to run

44,200 birds across 3 houses

1,260 m² per house ≈ 12 birds / m²

0.5 L per dose diluted 1 : 7

5 doses per month

7 L Eco-Cat + 1 L biostimulant

the whole farm, per month

≈ 1.9 mL of Eco-Cat per bird, per year

Also reported by the operator, though not measured: fewer flies, calmer and more stable birds, lower mortality, and faster composting of the spent litter.

\$91 a month

treats all 44,200 birds

2.5¢ per bird

per year, at \$13 a litre

0.5%

of flock mortality avoided pays for it

Source: Bio-Organic Catalyst poultry success case (published 2025). Ammonia read with Dräger Pac single-gas detectors; H₂S read zero throughout. These are single spot readings rather than a logged series, there was no untreated control house, and in the litter-surface pair the detectors rested on the litter before but were hand-held after — so the bird-level figure is the more directly comparable of the two. Eco-Cat was applied with a humic-acid biostimulant, so the result belongs to the pair, not to BOC alone; the biostimulant is not priced above. Costs use \$13 per litre delivered, a ceiling — actual delivered cost is lower. Mortality breakeven assumes a \$5 replacement bird: \$1,092 a year ÷ \$5 = 218 birds, or 0.49% of the flock. The source does not state the farm, country or dates.



CASE STUDY • LEICESTER, UNITED KINGDOM

12% more gas from pig slurry and food waste

A 50,000 tonne-per-year anaerobic digestion plant co-digesting food waste, pig slurry and dog meal. Two 3,000 m³ digesters feeding 1.5 MW of CHP. Tested first in replicated batch reactors, then proven at full scale.

+ 12%

gas yield per tonne

149 → 167 m³ / t

+ 18%

daily gas volume

21,055 → 24,600 m³ / day

+ 3.7%

methane content

57.95% → 60.11%

+ 23%

volatile solids destroyed

replicated batch reactors

Dose: 80 litres a day — 250 to 500 mL per tonne of organic dry matter.

Two-stage validation: 1,000-litre batch reactors at 38°C over 14 days, then the full plant. Reported to the World Biogas Association in August 2019. A follow-up at the same site measured a 42% fall in digestate viscosity on restarting dosing, with organic loading rate lifting from 5.81 to 7.57 g DM/L/day — above the plant's 5.5–6.0 nameplate.

Source: 50,000 t/yr AD plant, Leicester, UK, April–September 2019, reported to the World Biogas Association. The plant co-digests pig slurry with food waste and dog meal; the gas results cannot be attributed to the slurry fraction alone. Ammonium-nitrogen effects were reported as inconclusive. Figures are as reported by the operator and are not an independently instrumented trial.

COMMERCIAL TRACTION



Already paid for. Already scaling.

BOC is not a pilot looking for a home. It is in paid commercial service on pig farms today, and across municipal, food-processing and industrial water treatment in multiple countries.

SPAIN · PIG FARMS, IN PAID COMMERCIAL USE

A major pork operator is paying for BOC across multiple farms today, and plans to take it to hundreds of sites.

Multiple farms

in paid service now

Hundreds

of sites in the rollout plan

And measured under instrumentation elsewhere, in municipal and food-processing service

> 95%

less H₂S at a works inlet

Dubai, UAE. Logger-baselined, then dosed at 1–2 ppm for three months.

– 87%

ammonia-nitrogen in effluent

Sharjah, UAE municipal plant. Total nitrogen – 70%, within 30 days.

– 34%

aeration energy per t BOD

Kinnegar, Northern Ireland. A 110,000 population-equivalent plant.

– 28%

sludge pressed for disposal

A food manufacturer's lagoons. 57,065 → 40,892 lb a day.

Spain: paid commercial supply through a regional partner, operator not named. Results are reported as good by the operator but are not yet instrumented — no performance figures are claimed from these sites. Other figures: Bio Catalyst Middle East project reports, Dubai and Sharjah (2023–25); Kinnegar WWTP report by Alps Ecoscience UK (2022); global food manufacturer secondary aeration lagoons (2006). Those are municipal and food-processing sites, not farms.



Safe around stock, staff and land

The first question any farm vet or environmental manager asks is whether a new input can hurt the animals, the people handling it, or the ground it ends up on.

Bio-aquatic toxicity

LC₅₀ of 203 to 316 ppm, against typical use at 1 to 4 ppm — a margin of more than fifty times.
Tested under EPA protocols at independent EPA-certified laboratories.

Certified for organic farming

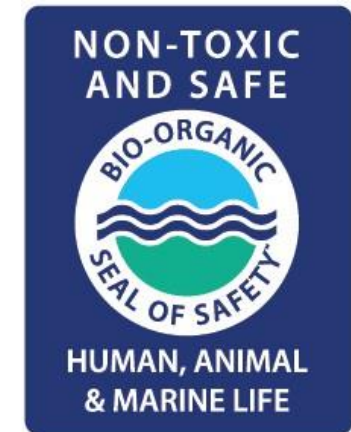
PC3 Organic carries Ecocert attestations to EU Regulations 2018/848 and 2021/1165, and to the USDA National Organic Program.

Food-safe and quality-assured

Eco-Cat is NSF certified food safe. Manufactured in the USA. ISO 9001 and ISO 14001 held in our GCC operation, with Dubai Municipality approval.

Nothing hazardous to handle

Non-toxic, non-caustic, non-corrosive and biodegradable at use concentration. No hazardous-material handling or storage burden on your staff.



**The Bio-Organic
Seal of Safety™**

The Bio-Organic Seal of Safety™ is our own mark. The LC₅₀ figures come from testing under EPA protocols at EPA-certified laboratories; they are not an EPA product registration. Safety Data Sheets for the US, Canada, EU and Spain, and REACH dossiers are published for every product in the range.



Regenerative agriculture is where the pressure is going

Nutrient limits tighten, ammonia ceilings arrive, and buyers push emissions reporting down the supply chain. The same actions that take cost out of your operation produce the evidence your customers and regulators are already asking for.

1

Compliance headroom

Less nitrogen and phosphorus per unit of manure buys margin against nutrient limits and discharge consents — without buying land. Lower H_2S and ammonia reduce the odour exposure that drives objections and buffer conditions.

2

Energy and nutrient value

More methane per tonne of feedstock and more complete digestion. A more workable, better-stabilised digestate for land application, with the organic matter that rebuilds soil rather than just loading it.

3

Reporting and credits

Lower energy per unit of output, higher renewable generation and reduced fugitive emissions are all measurable — and all feed the reporting frameworks your customers now require of you.

BOC is not a fertiliser and we make no credit-registry claim. It is the process tool that moves the numbers those schemes are built on.



Assess, trial, scale

BOC is already in commercial supply in multiple countries. Adding a site is a protocol change, not a project.

01

Assess

2–4 weeks

We review one site: manure volumes, lagoon or store capacity, your nutrient plan, digester performance if you have one, and your current cost per head. You get a written model built on your numbers, not ours.

02

Trial

8–16 weeks

One barn, one lagoon or one digester. Dosed at 1–4 ppm through a small pump. We baseline first, then measure. No capital works, no process change, no disruption to production.

03

Scale

ongoing

We supply direct or through regional partners, and we hold the protocol as you roll it across sites. Volumes and commercial terms are set at this point.

You would not be first. BOC is in paid commercial service on pig farms today. What we add on your site is measurement — energy, nitrogen, gas and odour to protocol, so the numbers are yours rather than ours.



Let's put a number on your manure.

We are expanding reach and volume across pig and poultry operations worldwide. If you want these numbers for your own estate, we will build them with you.



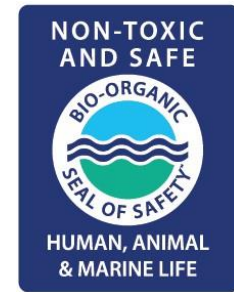
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100 patents world-wide,
21 patents pending.