

INSTALLMENT 01 · FOOD IS FOUNDATION

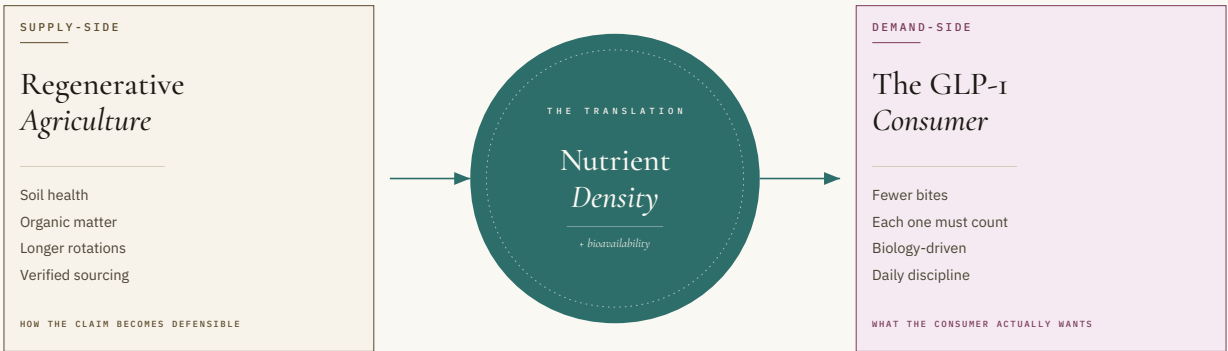
Regenerative Agriculture *and* GLP-1:

Strange Bedfellows, or a Match Made in Heaven?

AN ESSAY BY CHRISTIAN GAMMILL & MATT MURCH

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“ *Regen has a demand problem. GLP-1 has behavior change at scale. The bridge between them is not shared values — it is nutrient density, made defensible by a verification layer that does not yet exist.* ”



Regen earns its keep as the proof underneath — not as the consumer-facing claim.

FIG. 01 THE FRAME · FROM SOIL-SIDE MECHANISM TO BODY-SIDE CLAIM

§ 01

The Setup · Two Revolutions, One Bridge

Regenerative agriculture has a demand problem. Twenty-plus years in, with billions of supply-side capital committed and a proliferating stack of certifications — ROC, Land to Market, Savory — regen has not done what organic eventually did: pull a consumer to the shelf and earn a durable premium. Climate-coded and soil-coded messaging reaches a values-driven minority and stops. The chasm is real, and the bridge has not been built.

Meanwhile, an unrelated category is doing in thirty-six months what organic took thirty years to do. Roughly one in eight American adults has now used a GLP-1, and the share continues to climb. These consumers are not eating less because they read a manifesto. They are eating less because their biology demands it. And when bites are scarce, every bite has to count.

THE REGEN PROBLEM Twenty years in, still no consumer pull. – Climate and soil messaging fails to move the broad consumer to shelf. – Premium isn’t sticking — no durable willingness-to-pay outside a values-driven minority. – The chasm hasn’t been crossed; certifications haven’t become brands.	THE GLP-1 MOMENT Biology is doing the work marketing couldn’t. + Consumer choice is being driven by physiology, not values. + Fewer calories per day means every bite must count harder. + Medical urgency creates structural willingness-to-pay for quality.
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30 YEARS for organic to reach ~6% of grocery	36 MONTHS for GLP-1 to reorganize daily eating at scale	I in 8 ADULTS American adults have now used a GLP-1
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This paper argues those two stories belong in the same sentence — not as a values overlap, but as a *structural* one. The figure on the cover is the entire argument in one frame; what follows is the clinical reality underneath, the supply-side answer to it, and what we think it means for builders.

§ 02

The Hidden Cost · What GLP-1 Depletes

The GLP-1 consumer is a clinical consumer, not just a wellness consumer. The drugs cut caloric intake by an estimated 16–39% across studies. Below roughly 1,200 kcal per day, achieving adequate micronutrient intake from food alone becomes nearly impossible. The drugs also slow gastric emptying and alter absorption, which compounds the deficit at the molecular level. The result is a documented and growing deficiency profile.

The largest dataset to date — a narrative review published in *Clinical Obesity* (Urbina et al., 2026) covering 480,825 adults across six studies — confirms that vitamin D is the most common abnormality, occurring in 7.5% of users at six months and rising to 13.6% at twelve months. Diagnoses of muscle loss, B-vitamin deficiencies, and mineral gaps (calcium, selenium, zinc) climb steadily over the first year of therapy.

7.5–13.6%
AT 6–12 MONTHS

VITAMIN D
Most common abnormality. Bone density loss, immune suppression, fatigue. ~49% higher risk vs. SGLT2 comparators.

26–30%
LOWER FERRITIN

IRON · FERRITIN
Reduced intestinal iron absorption observed within 10 weeks on semaglutide. Anemia, cognitive impairment, fatigue.

25–40%
OF WEIGHT LOST

LEAN MUSCLE MASS
Without adequate protein and resistance training, a quarter to over a third of GLP-1 weight loss is muscle, not fat. Sarcopenic obesity is the failure mode.

>60%
BELOW RDA

CALCIUM · MAGNESIUM
Bone fragility, muscle cramps, cardiac risk over long horizons. Compounded by an already-low US baseline.

Rising
OVER TIME

B VITAMINS · B1, B12
Severe cases include Wernicke encephalopathy from B1 depletion. Cognitive decline, anemia, neuropathy.

Flagged
ACLM / OMA

ZINC · SELENIUM · A · E · K · C
Immune dysfunction, hair loss (a top patient complaint), impaired wound healing, slower recovery.

Two compounding factors make this worse than the headline numbers suggest. First, many GLP-1 users were already micronutrient-deficient before starting therapy — obesity itself impairs absorption, so the drug suppresses intake on top of an already-depleted baseline. Second, the consumer in front of you is not choosing health as a lifestyle. They **need** nutritional density to survive their therapy. That is a clinical urgency no consumer food category has ever had structurally built in.

§ 03

The Reframe · Why Regenerative, Not Just Organic

The easy move is to draw a straight line: GLP-1 users care about health, regen is healthier, therefore the GLP-1 consumer is the regen consumer. That line is wrong, or at minimum too short. GLP-1 users do not wake up wanting “regenerative.” They wake up wanting to know that twelve hundred calories actually delivered. The user-facing claim is **nutrient density and bioavailability**. Regen is a credible supply-side answer to how that claim becomes defensible — but it is not the only candidate, and it is not the same thing as organic.

This is the distinction the regen movement has not yet made clearly enough. Organic is a process-based prescription about what you cannot use. It does not require soil health. Regenerative is outcome-based: soil health is the mechanism. That difference matters because nutrient density tracks soil health, not input lists.

	ORGANIC (PROCESS - BASED)	REGENERATIVE (OUTCOME - BASED)
STANDARD	Input prescription — what you cannot use	Outcome — measured soil health scores
SOIL HEALTH REQUIRED	No. Organic farms can till heavily, disrupting microbial networks	Yes. Soil biology is the core mechanism
NUTRIENT EVIDENCE	Mixed across 100+ studies — no consistent micronutrient advantage	Higher vitamins, minerals, phytochemicals in paired-farm comparisons
PHENOLICS, SPINACH	Baseline supermarket levels	Multiples higher in measured regen plots
WHAT LABEL TELLS YOU	How it was grown, not how nutritious it is	What the soil produced — auditable to outcome

The Montgomery et al. (2022) *PeerJ* study makes the point cleanly: paired regenerative and conventional fields, measured side-by-side, found that regen no-till plots running cover crops and diverse rotations produced crops with higher soil health scores *and* higher levels of certain vitamins, minerals, and phytochemicals. The variable that predicted nutrient content was not the certification. It was the soil health score underneath.

THE REFRAME · DISTILLED

The GLP-1 era creates the permission structure for nutrient-density-as-product-category. Regenerative — measured at the soil — is the credible supply story behind it. Organic alone is not.

§ 04

The Math · Price Per Nutrient, Not Price Per Ounce

The conventional grocery shelf is priced per ounce because the dominant constraint has always been calories. The GLP-1 consumer’s constraint has flipped. They are calorie-constrained from above and nutrient-constrained from below. Within that envelope, the cost-relevant unit is no longer dollars-per-ounce or even dollars-per-calorie. It is dollars-per-nutrient-actually-delivered.

-40% Calories fewer per day on therapy	= Less room for nutritionally empty bites	∴ Higher \$/lb is rational not premium, when priced per nutrient
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A GLP-1 user choosing between \$6/lb conventional chicken and \$12/lb regeneratively-sourced, mineral-verified protein is not making a luxury decision. At twelve hundred calories a day, they cannot afford nutritionally empty bites. The premium is closer to an insurance premium against deficiency — and at this consumer’s daily envelope, it is cheap insurance. That reframe is what makes regen pricing rational at the shelf for the first time in the category’s history.

§ 05

The Bifurcation · Two Cohorts, Two Products

GLP-1 consumer behavior is not converging — it is bifurcating. One cohort moves toward premium, whole-foods, intentional eating. The other moves toward shake-and-bar convenience and protein-as-input, because they are nauseous, time-strapped, or simply not hungry enough to cook. Both are real. Both are growing. Both are monetizable. They require different products, different channels, and different brand voices.

For cohort one — roughly 30–40% of users, skewed higher-income — regen-sourced whole foods with verified micronutrient density work cleanly. Lead with the body claim, not the soil story; the supply chain is the proof, not the pitch. Verified mineral density, protein-per-bite math, bioavailability claims, a QR code that resolves to a soil health score on the farm of origin.

For cohort two — the remaining majority — a GLP-1 companion supplement formulated specifically against the documented deficiency profile is the right wedge. Not a generic multivitamin, but a clinically-targeted intervention: D3 + K2 for bone and immune support, iron and B12 for anemia prevention, magnesium for muscle and GI tolerance, zinc and selenium for immune function and hair retention. Two products, one underlying thesis.

§ 06

The Infrastructure · Verification Is the Unlock

None of this works without trust infrastructure. A nutrient-density claim on the front of a package is regulatory theater unless someone can audit it. The organic apparatus is the cautionary tale: a process-based label scaled to consumer trust without an outcome layer underneath, and now consumers cannot reliably translate the label into the nutrition they think they are buying. Regen-without-verification will repeat the same error.

The verification stack has four layers, all of them legible to a phone screen at point of sale: soil testing (organic matter, microbial diversity, mineral availability), crop nutrient testing at harvest (vitamins, minerals, phytochemicals measured rather than asserted), shelf-level audit-grade claims, and a consumer-facing trace from package back to farm and soil score. This is the lane **Clinical A&F** is being built into. The brand or fund that owns this layer holds a moat no marketing budget can replicate.

§ 07

Implications · For Builders and Investors

I. Lead with the body, *not* the soil.

Brands that win this will not put “regenerative” on the front of the package. They will lead with verified nutrient density, micronutrient transparency, and protein-per-bite math tuned to the GLP-1 deficiency profile. Regen earns its keep underneath, in the supply chain, where it pays for itself in the form of defensible claims.

II. Build for *both* cohorts.

Whole-foods brand for cohort one. Clinically-formulated supplement for cohort two. Different products, different channels, different brand voices — one underlying thesis. A strategy that addresses only the premium cohort leaves the higher-need cohort unserved.

III. Own the *verification* layer.

Soil-to-shelf, outcome-based, third-party audited. The organization that makes nutrient-density claims legible and defensible at retail owns a position no marketing budget can replicate. Without that infrastructure, every claim is rhetoric.

IV. Reframe the price *conversation*.

Price per ounce is the wrong metric for a 1,200-calorie-per-day consumer. Price per nutrient delivered changes the calculus entirely — and makes regen’s premium rational, not aspirational. Brands that build that math into their packaging and marketing will train a generation of consumers to think in the right unit.

§ 08

Stress Test · Where the Thesis Is Weakest

The argument has real teeth, but it also has soft spots worth naming before someone else does.

EVIDENCE

“Regen produces measurably more nutritious crops.”

The Montgomery PeerJ 2022 study calls itself “preliminary” and rests on roughly eight paired-farm comparisons. The directional case is strong; the venture-scale case requires more — larger N, controlled cultivar matching, harvest-to-shelf chain-of-custody. Until that data exists, the claim has to be made carefully.

CAUSALITY

“GLP-1 therapy causes these deficiencies.”

Most of the deficiency literature is observational. The Urbina 2026 review explicitly notes that many GLP-1 users were already deficient pre-therapy, baseline labs were rarely captured, and testing patterns differ between treatment groups. The deficiencies are real; full causal attribution to the drug is not yet settled. The thesis still holds, but the language should say “associated with” rather than “caused by.”

REGULATORY

“Insurance premium against deficiency.”

The strongest framing for the price-per-nutrient argument also flirts with FDA structure-function claim territory. A consumer brand that markets food as risk mitigation against medical-grade deficiency invites scrutiny it may not be ready for. The framing belongs in investor memos and physician-channel positioning before it belongs on packaging.

ABSORPTION

“Higher nutrient density means the consumer absorbs more.”

Density at harvest is not the same as bioavailability after cooking, transport, storage, and digestion. The verification stack as described measures the former; the consumer experiences the latter. Closing that gap — through cooking guidance, food-pairing for absorption, fortification where needed — is product work, not just supply-chain work.

COMPETITION

“The companion-supplement category is open.”

It’s open today; it won’t be in twelve months. Several entrants are already moving into GLP-1-targeted nutrition. The defensible position is not formulation — formulation will commoditize — but clinical channel access (bariatric clinics, telehealth GLP-1 prescribers, employer benefits) and verification credibility. Win the channel, win the category.

ECONOMICS

“Verification is a moat.”

Soil testing plus crop nutrient testing at scale is expensive. Who pays — the brand, the farmer, the consumer? The unit economics of the verification layer have to work for someone in the chain. The most likely answer is that the brand absorbs the cost in exchange for premium pricing power, which only works if Implication IV (price-per-nutrient reframe) actually lands with consumers.

§ 09 · AN INVITATION

This is a thought starter, not a finished view. We are actively shaping the GLP-1 × Food is Foundation thesis across three vectors: a companion-supplement incubation targeting the documented deficiency profile, Cultivate Next portfolio activity on the whole-foods and price-per-nutrient side, and the verification infrastructure being stood up via Clinical A&F. We welcome sharp pushback and outright disagreement. The most useful response to this paper is the one that breaks it.

— Christian Gammill & Matt Murch

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THOUGHT STARTERS · № 01 · 23 APRIL 2026

Extended POV · Notes Behind the Frame

A · 01 Why the Straight Line Fails

Match made in heaven, but only if you reframe slightly. The structural problem with regen has always been pull-through — organic took thirty years to reach roughly 6% of grocery, and regen labels (ROC, Land to Market) have barely registered with consumers because the value prop was climate-coded and soil-coded, not body-coded. GLP-1 changes the math because it creates a consumer who is actively, daily reorganizing their relationship to food around “fewer bites, each one has to count more.” That is a nutrient-density consumer by necessity, not by ideology — which is a much bigger and stickier market than the climate-motivated one.

A · 02 Attribute *vs.* Mechanism

The friction point: separate the attribute from the mechanism. The GLP-1 user does not wake up wanting “regenerative.” They want to know that the 1,200 calories they ate today actually delivered. Nutrient density (and bioavailability) is the user-facing claim; regen is one credible supply-chain answer for how you make that claim defensible. The brands that win this will not lead with regen on the package — they will lead with verified micronutrient transparency, with regen as the proof underneath. Which, not coincidentally, is exactly why a verification and audit layer like Clinical A&F starts to look strategically central rather than adjacent: you need the trust infrastructure before any nutrient-density brand can make a non-laughable claim.

A · 03 The Cohort Split, in More Detail

Worth pushing on: GLP-1 consumer behavior is bifurcating, not converging. One cohort goes premium / whole foods / intentional. The other goes shake-and-bar / convenience / protein-as-input because they are nauseous, time-strapped, or just do not feel like cooking when they are not hungry. Regen pull-through really only works cleanly for cohort one — maybe 30–40% of GLP-1 users, skewed higher-income. The companion supplement is interesting partly because it can sit inside cohort two’s behavior (one more thing in the routine) while the regen-sourced food story plays to cohort one. Two products, one thesis.

A • 04

Open Questions • For the Next Conversation

Q • 01 *What does a credible, audit-grade nutrient-density claim actually look like at shelf? Who issues it, who verifies, who pays?*

Q • 02 *Does the cohort-one GLP-1 consumer accept a regen story when it is positioned as proof rather than promise — and at what price elasticity?*

Q • 03 *Where does QSR fit? Chipotle's Food With Integrity heritage and supply-chain depth make it the obvious pressure-test for menu architecture built around protein-per-dollar.*

Q • 04 *Is the companion-supplement category big enough to underwrite a venture-scale outcome on its own, or is its real role as a beachhead into a broader Food is Foundation portfolio?*



END OF INSTALLMENT № 01

An NXP Thought Starter • Christian Gammill & Matt Murch • 23 April 2026

NEXT: INSTALLMENT № 02 — TO FOLLOW