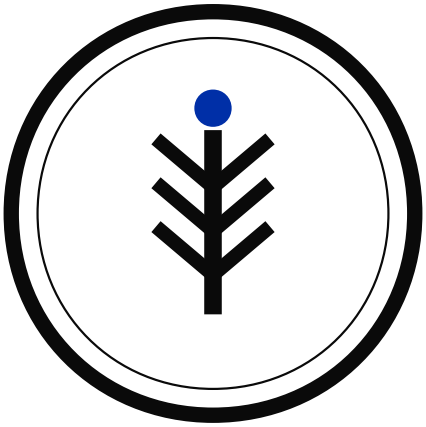


FARMING.IO

INDUSTRIAL YIELD INFRASTRUCTURE FOR SOLANA

An autonomous yield network that plants capital across Solana's venues, harvests and compounds continuously, insures itself through a protocol-owned reserve, and lets locked $CROP direct the flow of emissions — field by field, epoch by epoch.

SPL · $CROP | VOTE-ESCROW | AUTO-COMPOUND

500M	15%	2.5×	10.2%
FIXED SUPPLY — NO INFLATION	PERF FEE — ZERO DEPOSIT FEES	MAX VECROP REWARD BOOST	CIRCULATING AT TGE

PREPARED FOR PRIVATE CIRCULATION · THIS DOCUMENT IS NOT AN OFFER OF SECURITIES

00 — ABSTRACT

Yield is grown, not found.

Solana hosts the deepest and fastest-rotating yield surface in crypto: AMM fees, concentrated-liquidity ranges, lending spreads, liquid-staking baselines and incentive emissions that decay by the week. Capturing it manually means monitoring dozens of venues, re-ranging positions, claiming and re-staking rewards, and paying for every mistake in impermanent loss. Most capital simply doesn't — it sits in the two or three most obvious pools while risk-adjusted returns rot.

FARMING.IO industrializes this work. Deposits are planted into **Fields** — share-token vaults, one per strategy — where a permissionless network of bonded **Harvesters** compounds yield continuously. Allocation across venues is computed off-chain by the **Agronomy Engine**, a risk-adjusted solver, and executed on-chain by a constrained **Router** that enforces caps, oracle sanity checks and slippage bounds. A protocol-owned reserve, the **Silo**, is funded from fees to backstop strategy shortfall events.

The system is steered by **$CROP**, a fixed-supply token using vote-escrow mechanics: locking $CROP yields **veCROP**, which boosts a farmer's own rewards up to 2.5×, votes weekly on which Fields receive emissions (**Irrigation**), and receives half of all performance fees — paid in $CROP bought back on the open market. Fees are charged on harvested yield only: the protocol earns when, and only when, farmers do.

01 — DESIGN PRINCIPLES

FEES ON YIELD, NEVER ON PRINCIPAL

No deposit fees, no management fees on idle capital. A single 15% performance fee at harvest aligns protocol revenue with realized farmer returns.

SOLVER OFF-CHAIN, CONSTRAINTS ON-CHAIN

Optimization is computed off-chain where it is cheap, but every rebalance clears an on-chain constraint set — caps, bounds, timelocks — so the solver can propose, never dictate.

EMISSIONS FOLLOW VOTES

The protocol does not decide which strategies deserve incentives; locked capital does. Gauge weight is the only distribution mechanism for the emissions reserve.

SELF-INSURED BY CONSTRUCTION

The Silo accrues 20% of every performance fee. Shortfall coverage is a budgeted, transparent reserve — not a promise.

02 — MARKET CONTEXT

The unharvested field

Yield on Solana is abundant but perishable. Incentive programs decay on weekly epochs; CLMM positions drift out of range in hours; lending spreads compress as fast as they appear. The half-life of an unattended position is short, and the operational burden of attending to it scales linearly with the number of venues — which keeps growing.

24/7	HOURS	WEEKLY
COMPOUNDING CADENCE REQUIRED	TYPICAL CLMM IN-RANGE HALF-LIFE	EMISSIONS RE-PRICING EPOCHS

2.1 — WHY EXISTING APPROACHES UNDER-DELIVER

Manual farming pays a hidden wage: gas, missed harvests, out-of-range hours, and un-modeled IL. Realized returns routinely undershoot headline APYs by large margins.

Simple auto-compounders compound a single pool but do not allocate: they cannot move capital when the risk-adjusted frontier shifts, and they typically ignore IL entirely — compounding a position that is losing principal faster than it earns fees.

Yield aggregators without skin in the game charge fees on deposits or TVL, decoupling their revenue from farmer outcomes, and carry no reserve when a strategy breaks.

2.2 — THE FARMING.IO POSITION

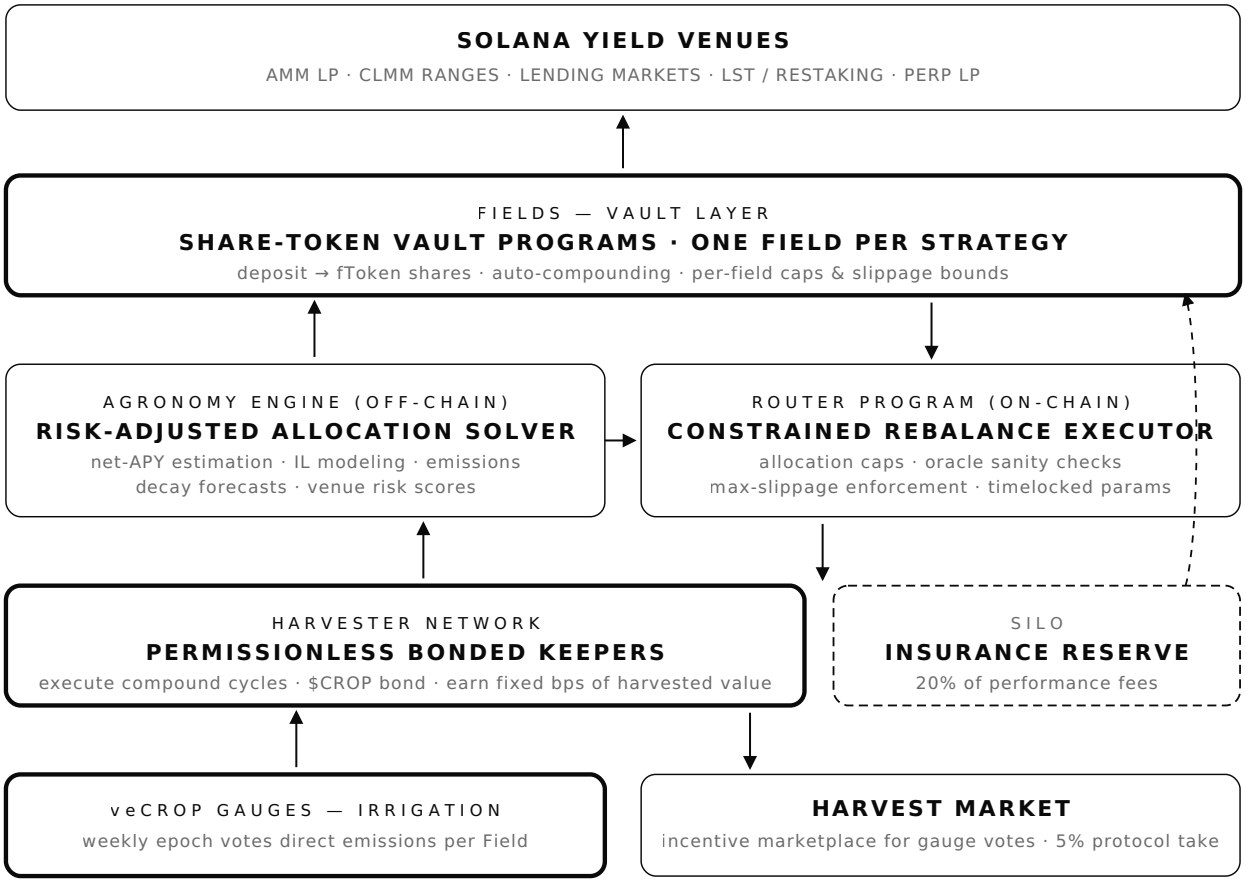
DIMENSION	MANUAL	AUTO-COMPOUNDER	FARMING.IO
Compounding	Sporadic	Per-pool	Continuous, network-wide
Allocation	Ad-hoc	None	Risk-adjusted solver
IL treatment	Ignored	Ignored	Modeled in net-APY objective
Fee basis	—	Varies	Harvested yield only (15%)
Insurance	None	None	Silo reserve (fee-funded)
Incentive routing	—	Team-decided	veCROP gauge votes

The wedge is not a single feature but the loop: better allocation attracts TVL, TVL generates fees, fees fund buybacks and the Silo, veCROP locks deepen alignment, and gauge competition prices incentives efficiently. Incumbents own blue-chip vaults; FARMING.IO targets the underserved **long tail** of Solana yield — made safely farmable by real-time venue risk scoring from the ALTCOINS.IO SIGNAL engine, consumed as on-chain attestations.

03 — SYSTEM ARCHITECTURE

Plant. Tend. Harvest.

The protocol separates concerns strictly: value custody in minimal vault programs, optimization off-chain behind on-chain constraints, execution by permissionless bonded keepers, and insurance in a segregated reserve.



Amber dashed path: Silo capital backstops Fields in qualified shortfall events under DAO-ratified coverage rules.

3.1 — FIELDS: THE VAULT LAYER

Each Field is a share-token vault wrapping exactly one strategy ("Crop"). Depositors receive fTokens — pro-rata claims on the Field's underlying — whose exchange rate only increases as harvests compound. Fields carry hard caps, per-epoch inflow limits, and venue-specific kill-switches. Withdrawals are always available at the current exchange rate; a 0.1% anti-flash fee remains *in the Field* for remaining depositors, not the protocol.

3.2 — AGRONOMY ENGINE: THE ALLOCATION SOLVER

The Engine continuously estimates **net** APY per venue — fees plus emissions, minus expected impermanent loss, execution and gas — and solves a constrained allocation:

$$\text{maximize} \quad \sum_a x_a \cdot \text{APY}^{\text{net}}_a \qquad \text{// over venues } a$$

$$\text{subject to} \quad \sum x_a = 1, \quad 0 \le x_a \le \text{cap}_a, \quad \sum x_a \cdot \rho_a \le \rho_{\max} \qquad \text{// risk budget}$$

$$\text{APY}^{\text{net}}_a = f_a + \varepsilon_a \cdot P_\varepsilon - \mathbb{E}[\text{IL}_a] - c_a \qquad \text{// fees + priced emissions − expected IL − costs}$$

Expected IL is modeled per venue class — closed-form for constant-product pools under a volatility estimate, simulation-based for concentrated ranges. Emission terms are discounted by forecast decay, so the solver exits farms *before* incentives collapse, not after.

3.3 — ROUTER: CONSTRAINED EXECUTION

Solver output is a proposed target vector, not a command. The on-chain Router verifies every rebalance against its constraint registry — allocation caps, max slippage vs. oracle mid, cooldowns, allow-listed venues — and rejects anything outside bounds. Constraint changes are timelocked and DAO-governed. A compromised solver can therefore propose bad allocations, but cannot execute them.

3.4 — HARVESTER NETWORK

Compounding is executed by permissionless keepers who post a $CROP bond and earn a fixed 0.5% of harvested value per successful cycle. Malformed or extractive execution (e.g. sandwich-exposed routes) slashes the bond. Harvest frequency is economically self-tuning: as pending yield grows, the keeper reward grows until execution is profitable at prevailing priority-fee levels.

3.5 — SILO: THE INSURANCE RESERVE

The Silo receives 20% of all performance fees into a segregated, program-owned account invested only in the protocol's most conservative Field. Coverage is rule-based: qualified events (venue exploit, strategy defect) trigger pro-rata reimbursement up to the Silo balance, ratified by an expedited DAO track. The Silo is a transparent, bounded backstop — its balance, inflows and payouts are permanently on-chain.

04 — TOKEN UTILITY

Lock to steer. Boost to earn.

$CROP uses vote-escrow mechanics deliberately: the protocol's scarcest resources — emissions and fee flow — are allocated exclusively to participants who lock. Mercenary capital can farm, but cannot steer, boost, or collect fee share without taking duration risk in the token.

4.1 — VECROP: VOTE-ESCROW

$$ve_i = amount_i \cdot t_{lock} / t_{max}$$ // t_max = 104 weeks · balance decays linearly to unlock

Locks range from 1 to 104 weeks and are non-transferable. 1 CROP locked two years mints 1.0 veCROP; the same CROP locked six months mints 0.25 veCROP. Decay continuously re-prices commitment, so governance weight always reflects *remaining* duration.

4.2 — REWARD BOOST

Emissions received by a farmer scale with their veCROP share via a working-balance mechanism, capping at 2.5×:

$$w_i = \min(\ 0.4 \cdot d_i + 0.6 \cdot D \cdot (v_i/V),\ \ d_i\ ) \qquad boost_i = w_i\ /\ (0.4 \cdot d_i) \in [1.0,\ 2.5]$$
// d_i deposit · D Field TVL · v_i voter's veCROP · V total veCROP

EXAMPLE — 10K DEPOSIT, 1M TVL FIELD	VECROP SHARE	WORKING BALANCE	BOOST
No lock	0.0%	4,000	1.00×
Small lock	0.2%	5,200	1.30×
Committed lock	0.6%	7,600	1.90×
Full boost	1.0%	10,000 (cap)	2.50×

4.3 — IRRIGATION: GAUGE VOTING

$$E_g(epoch) = E_{epoch} \cdot votes_g\ /\ \Sigma_{g'}\ votes_{g'}$$ // weekly epochs · votes re-castable each epoch

Each Field has a gauge. veCROP holders allocate voting weight weekly; the epoch's emissions flow pro-rata to gauge weight. Venues that want liquidity compete for votes on the **Harvest Market** — posting incentives to veCROP voters — with a 5% protocol take routed to the buyback pool. Gauge competition thus converts third-party incentive budgets into $CROP demand and fee flow.

4.4 — FEE SHARE

50% of performance fees market-buy $CROP on-DEX via TWAP execution; bought tokens are distributed pro-rata to veCROP balances each epoch. Fee share is paid in the token, from the open market — never minted.

05 — SUPPLY & ALLOCATION

500,000,000. Fixed.

Irrigation Emissions	45%	225.0M
Core Contributors	18%	90.0M
Treasury (DAO)	12%	60.0M
Strategic	12%	60.0M
Genesis Airdrop	8%	40.0M
Liquidity & MM	5%	25.0M

HARD INVARIANTS

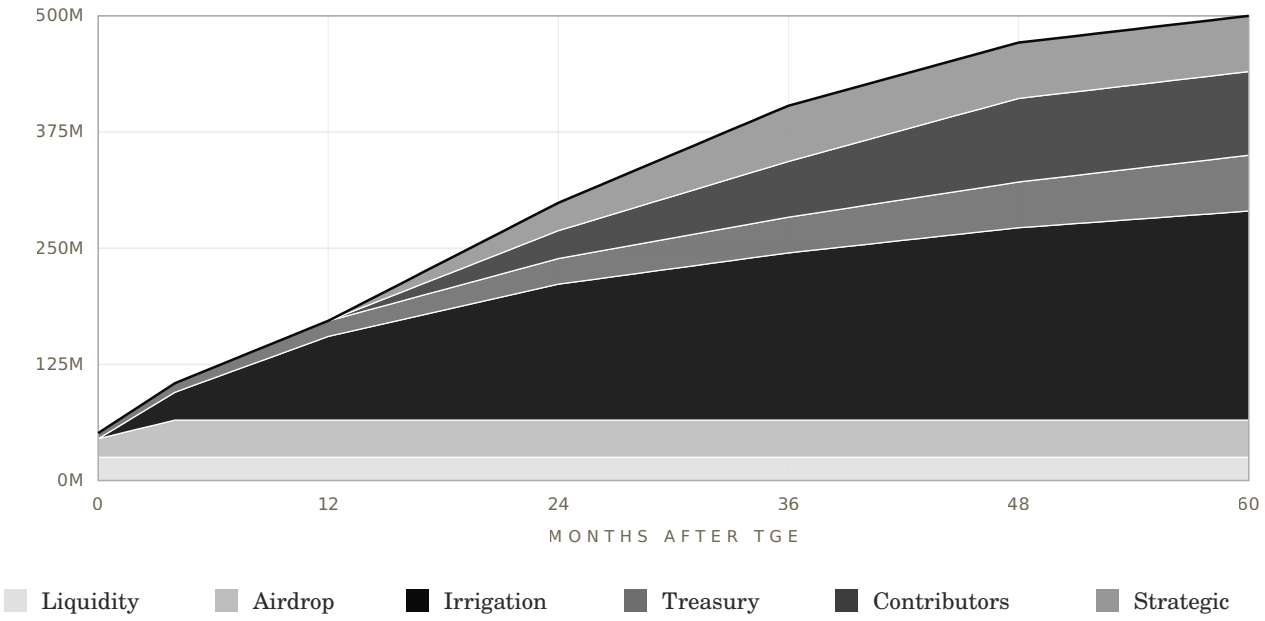
- Mint authority burned at TGE — supply can never increase.
- Emissions distributable only through gauges — no discretionary spend from the 225M reserve.
- Insider allocations (30%) cliff 12 months; community-directed supply (65%) more than doubles them.

5.1 — VESTING TERMS

BUCKET	SIZE	TGE UNLOCK	SCHEDULE
Liquidity & MM	25M	100%	DEX/CEX liquidity operations
Genesis Airdrop	40M	50%	Remainder linear over 4 months
Irrigation Emissions	225M	0%	5 annual Seasons, stepping down (see 5.3)
Treasury (DAO)	60M	10%	Linear over 60 months, DAO-governed
Core Contributors	90M	0%	12-mo cliff, then 36-mo linear
Strategic	60M	0%	12-mo cliff, then 24-mo linear

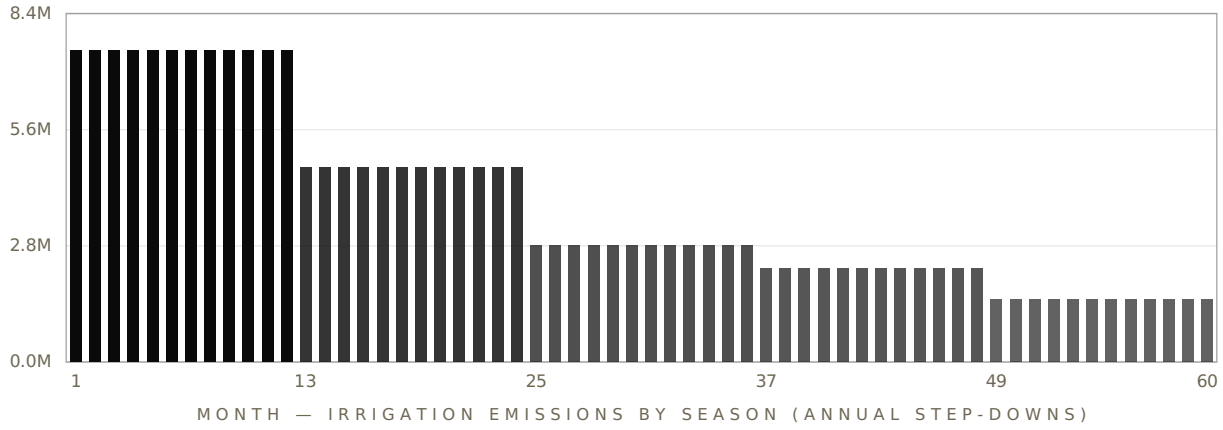
Circulating at TGE: **51M (10.2%)**. All vesting enforced by on-chain streaming contracts; no admin fast-forward. Contributor and strategic locks may not be shortened by any governance action.

5.2 — CIRCULATING SUPPLY SCHEDULE



5.3 — SEASONS: THE EMISSION CALENDAR

Emissions follow five annual **Seasons** with hard step-downs — an agricultural calendar rather than a smooth curve. Step-downs are sharp and scheduled so the market can price them; within a Season, weekly epochs are constant and fully gauge-directed.



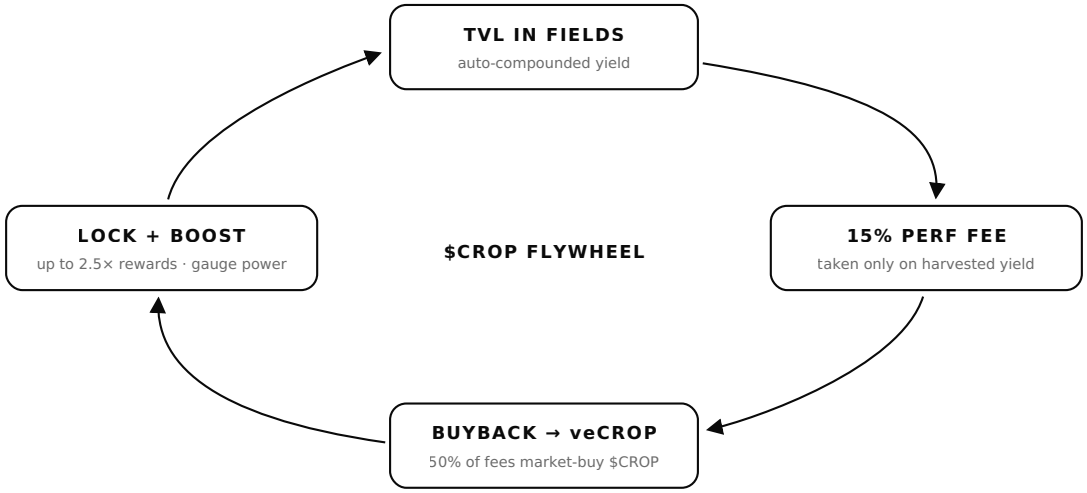
SEASON	MONTHS	EMISSIONS	SHARE OF RESERVE	PURPOSE
I — SOWING	1–12	90.0M	40%	Bootstrap TVL and gauge competition
II — GROWTH	13–24	56.25M	25%	Deepen strategic Fields
III — TENDING	25–36	33.75M	15%	Sustain long-tail coverage
IV — RIPENING	37–48	27.0M	12%	Transition to fee-dominant rewards
V — HARVEST	49–60	18.0M	8%	Terminal subsidy; fees carry steady state

06 — VALUE ACCRUAL

The harvest cycle

Every unit of protocol revenue originates as realized farmer yield — the 15% performance fee is charged at harvest, in the harvested asset. The fee then splits three ways by fixed policy:

DESTINATION	SHARE	FUNCTION
veCROP fee share	50%	TWAP buyback of $CROP on-DEX → distributed to lockers per epoch
Treasury (DAO)	30%	Audits, development, grants — runway without token sales
Silo reserve	20%	Shortfall insurance capitalization



6.1 — DEMAND STACK SUMMARY

SOURCE	MECHANISM	CADENCE
Boost demand	Farmers lock $CROP to raise personal APY up to 2.5×	1–104 wk locks
Gauge demand	Venues and funds accumulate veCROP to direct emissions	Continuous
Harvest Market	Incentive spend for votes; 5% take → buyback pool	Weekly epochs
Fee buyback	50% of performance fees market-buy $CROP	TWAP, weekly
Keeper bonds	Harvesters post $CROP bonds to operate	Standing

Note the reflexive floor absent from emission-only farms: fee share is bought, not minted, so distribution to lockers is itself buy pressure, scaled by real yield throughput rather than token issuance.

07 — GOVERNANCE & SECURITY

Bounded powers, audited rails

7.1 — GOVERNANCE SCOPE

veCROP governs a bounded parameter registry: Field onboarding and caps, Router constraint values, fee split within charter bounds (performance fee hard-capped at 20%; Silo share floor 15%), Season gauge rules, and Silo coverage ratifications. Outside governance reach: total supply, vesting schedules, the emissions-through-gauges invariant, and retroactive fee changes on existing deposits.

PARAMETER	MECHANISM	VALUE
Proposal threshold	min veCROP	0.5% of total veCROP
Quorum	participating veCROP	4%
Timelock	execution delay	48 h (7 d for fee params)
Emergency track	guardian multisig, pause-only	can pause, never move funds

7.2 — PROGRAM SURFACE

PROGRAM	FUNCTION	VALUE AT RISK
Field programs	Share-token vaults, one per Crop	User deposits
Router	Constrained rebalance execution	Transient, bounded per tx
veCROP Locker	Escrow, decay, gauge votes, fee share	Locked $CROP
Silo	Reserve custody + coverage payouts	Reserve balance
Harvest Market	Incentive escrow + distribution	Posted incentives

All programs are built with Anchor and will undergo at least two independent audits before mainnet, with a continuous bug bounty thereafter. Fields launch with conservative caps that raise only by governance as audit coverage and operational history accumulate. The guardian multisig can pause deposits and rebalances but can never transfer user funds — an intentionally asymmetric power.

7.3 — ROADMAP

Q4 2026	GENESIS FIELDS	Mainnet launch: blue-chip LP, stable-pair and LST Fields. Points accrue retroactive airdrop weight.
Q1 2027	TGE + veCROP	$CROP generation event and airdrop. Vote-escrow locking, gauges and boost go live.
Q2 2027	HARVEST MARKET	Incentive marketplace for gauge votes. Silo activation. CLMM auto-ranging Crops.
Q3 2027	STRUCTURED YIELD	Leveraged LST loops, fixed/variable tranche Fields, Agronomy API for integrators.
2028	YIELD NETWORK	Institutional Fields with policy rails, cross-venue margin, community strategy registry.

08 — RISK FACTORS & LEGAL NOTICE

Read this page.

8.1 — RISK FACTORS

- **Conceptual stage.** This document describes a protocol design. Parameters, schedules and mechanisms are design targets, not measurements of a live system, and may change materially.
- **Strategy risk.** Yield strategies can lose principal — through impermanent loss, venue exploits, de-pegs, or liquidation cascades. Auto-compounding compounds losses as efficiently as gains. The Silo is a bounded reserve, not a guarantee of reimbursement.
- **Smart-contract risk.** Vaults custody user funds; audited code can still fail.
- **Model risk.** The Agronomy Engine's IL and decay forecasts are estimates; systematically wrong estimates produce systematically bad allocations within Router bounds.
- **Token risk.** $CROP may lose some or all of its value; locking is irreversible for the chosen duration; boost and fee share do not guarantee positive returns.
- **Regulatory risk.** Treatment of yield products, vote-escrow tokens and fee distributions varies by jurisdiction and is evolving; access may be restricted in some jurisdictions.

8.2 — LEGAL DISCLAIMER

This whitepaper is a conceptual design document prepared for discussion purposes. It is not an offer to sell or a solicitation of an offer to buy any token, security, or financial instrument in any jurisdiction. $CROP, if issued, is intended solely as a utility and governance token within the FARMING.IO protocol; it represents no equity, debt, dividend right, or claim on the revenue or assets of any entity. Nothing herein constitutes investment, legal, accounting, or tax advice. Forward-looking statements — including APY mechanics, roadmap dates and economic projections — involve known and unknown risks and may prove inaccurate. Digital assets and DeFi strategies are highly volatile and can result in total loss of principal. Prospective participants must conduct their own due diligence and consult their own advisers, and must not rely on this document as the basis for any decision. To the maximum extent permitted by law, the authors disclaim all liability arising from use of, or reliance on, this document.

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