The Alberta Buck - Insurance vs. Liquidation (DRAFT v0.1)

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2025-12-22 09:00:00

DeFi protocols like MakerDAO (Sky) validate civilian demand for hypothecation money – creating purchasing power from owned assets without sale or traditional debt. But their liquidation-based model, relying on overcollateralization and forced asset sales during volatility, replicates the foreclosure dynamic hypothecation money should prevent.

The alternative – insurance-based value stability – transforms the foundation of asset-backed money. Rather than liquidating assets when prices fluctuate, insurance absorbs actual losses while owners retain possession during normal volatility.

Canadian hard red spring wheat demonstrates why this matters. Identical wheat has dramatically different market values depending on growth phase, location, quality testing, and storage condition. Generic fungible tokens cannot capture this variability. Insured NFTs representing specific wheat stocks with attested characteristics provide stable, attestable value that fungible tokens cannot.

The Alberta Buck's insurance model – parametric coverage, NFT-based attestation, BUCK_K credit multipliers – creates hypothecation money without the forced liquidations that make existing DeFi implementations crude. (PDF, Text)

NOTE: This article is a draft, and doesn't yet reflect the complete structure of BUCK stability maintenance.

- Insured minimum sale value is incomplete
- All accounts minting BUCKs from BUCK_CREDIT will also include default insurance, making the account good in the case that BUCK_CREDIT NFTs reduce in value and issued BUCKs exceed BUCK_CREDIT for some period of time.

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1 The Liquidation Model: How DeFi Creates Hypothecation Money

1.1 MakerDAO's Achievement

MakerDAO demonstrated that civilians *will* create money from owned assets when given the opportunity. Over $6 billion in DAI stablecoins now exist, backed by both crypto-native assets (ETH, WBTC) and tokenized real-world assets (corporate bonds, real estate, trade receivables).[1]

The mechanism is elegant:

1. Asset owner deposits collateral into a MakerDAO vault (smart contract)
2. Smart contract mints DAI (pegged to USD) up to a collateral ratio limit (typically 150-175%)
3. Owner uses DAI as money while retaining beneficial ownership of the collateral
4. Owner redeems DAI to release collateral, or vault liquidates if collateral value falls below minimum ratio

This *is* hypothecation money – value created from owned wealth without sale or traditional debt. The owner holds both the asset and the money simultaneously.

1.2 The Liquidation Mechanism

DeFi protocols manage risk through forced liquidation: when collateral value declines below the minimum ratio, the protocol automatically sells the collateral to repay the minted stablecoins.

This serves two functions:

- **Solvency protection**: Ensures the stablecoin remains backed by sufficient collateral value
- **Peg stability**: Removes stablecoins from circulation when backing value declines, supporting the USD peg

The cost is severe: asset owners lose their wealth not to actual loss (fire, theft, destruction), but to *price volatility*. Identical wheat or real estate changes hands not because it was damaged, but because its market price fluctuated.

1.3 Overcollateralization as Risk Management

Without insurance or legal recourse, DeFi protocols require 150-175% collateral ratios – the "overcollateralization buffer" – to survive price volatility between when liquidation triggers and when asset sales complete.

This creates capital inefficiency: locking $150-175 of assets to access $100 of spending power means 33-43% of wealth sits idle. But more fundamentally, it *requires* that collateral be liquid – tradeable at scale in continuous markets – or the protocol cannot function.

For crypto-native assets like ETH trading on 24/7 exchanges with billions in daily volume, this works. For real-world assets like wheat, real estate, or machinery, it fails.

[1] DeFi Llama. "MakerDAO (Sky) TVL and Collateral Composition" (2025). As of late 2025, MakerDAO manages over $6 billion in total value locked (TVL), with real-world assets representing a growing portion of collateral backing DAI supply.

2 The Wheat Problem: When Generic Tokens Meet Physical Reality

2.1 Canadian Hard Red Spring Wheat

Consider Canada Western Red Spring wheat (CWRS)[2] – one of Alberta's major agricultural exports, valued at $3+ billion in 2025. A farmer growing 5,000 bushels (~136 metric tonnes) on 100 acres represents ~$30,000-40,000 in attestable wealth.

Could this farmer tokenize their wheat and deposit it in a MakerDAO vault to mint DAI?

Theoretically, yes. Create an ERC-20 token representing "1 bushel of CWRS wheat," mint 5,000 tokens, deposit them as collateral, mint DAI.

Practically, the model breaks immediately.

2.2 The Variability Problem

Identical wheat – genetically the same variety, grown in the same region – has dramatically different market values depending on:

2.2.1 Growth Phase

- **Seeded (April-May)**: Potential value only. Vulnerable to drought, frost, disease, pests. Market value: near zero (crop insurance might value at 30-50% of expected harvest).
- **Growing (June-July)**: Increasing value as crop develops. Still vulnerable to weather, disease. Market value: 50-70% of harvest value depending on condition.
- **Pre-harvest (August)**: Near full value if conditions are good. Subject to last-minute losses (hail, wind, disease). Market value: 80-95% of harvest value.
- **Harvested (September)**: Full commodity value if quality meets grade standards. Market value: 100% reference (but subject to quality deductions).

The same 5,000 bushels have 10x price variation across the growing season – not because the wheat changed fundamentally, but because *risk and attestability* changed.

2.2.2 Location and Transport

- **On-farm storage (farmer's bins)**: Lowest value. Buyer must arrange transport, assumes quality risk, deals with farmer directly. Typical discount: 5-15% below elevator price.
- **Local elevator (delivered)**: Reference price. Wheat has been transported to collection point, meets basic quality for acceptance. Market benchmark.
- **Terminal elevator (port)**: Premium. Wheat has been transported to export terminal, inspected, meets export grade. Typical premium: 2-5% above local elevator.
- **Export vessel (loaded)**: Highest value. Wheat is loaded on ship, meets contract specifications, ready for international delivery.

The same physical wheat has 20% price variation based solely on *location and logistics* – no change in intrinsic quality.

[2]Statistics Canada. "Production of principal field crops" (November 2025). Key data include total 2025 wheat production at 40.0 million tonnes and Alberta wheat production at 12.3 million tonnes.

2.2.3 Quality and Testing

Canadian wheat is graded on protein content, falling number (sprouting damage), DON levels (mycotoxin), foreign material, and test weight.[3] Two fields harvested the same day can have different grades:

- **Canada Western Red Spring (CWRS) #1**: >13.5% protein, high falling number. Premium grade. Price: reference + 10-15%
- **CWRS #2**: 12.5-13.5% protein, good falling number. Standard grade. Price: reference
- **CWRS #3**: 11.5-12.5% protein, acceptable falling number. Feed/lower grade. Price: reference - 15-25%
- **Feed wheat**: Fails milling standards due to sprout damage, low protein, or contamination. Price: reference - 40-60%

A hailstorm two days before harvest can drop #1 grade wheat to feed grade – 50% value loss – with zero change in the physical wheat's existence or quantity.

2.2.4 Storage Condition and Time

Wheat degrades in storage:

- **Fresh harvest (September-October)**: Peak quality, full value
- **Stored 3 months (December)**: Slight quality decline, 2-3% value reduction
- **Stored 6 months (March)**: Noticeable decline in falling number, 5-8% value reduction
- **Stored 12 months (September+1)**: Significant quality loss, 15-25% value reduction, possible storage damage

The same wheat, sitting in the same bin, loses value *over time* even with proper storage – and loses value *catastrophically* if storage fails (moisture infiltration, insect damage, heating).

2.3 The Generic Token Impossibility

An ERC-20 token representing "1 bushel of CWRS wheat" cannot capture this variability:

- Is it seeded wheat (April) or harvested wheat (September)? 10x price difference.
- Is it on-farm or at terminal elevator? 20% price difference.
- Is it #1 grade or feed grade? 60% price difference.
- Is it fresh or 12-month stored? 25% price difference.

[3]Canadian Grain Commission. "Official Grain Grading Guide" (2024). Canadian wheat grading standards define multiple quality parameters including protein content (measured by NIR analysis), falling number (-amylase activity indicating sprout damage), DON levels (deoxynivalenol mycotoxin from Fusarium), foreign material percentage, and test weight (bushel weight indicating soundness).

A fungible token says "1 bushel = 1 bushel" – but market reality says "1 bushel ranges from $3 to $12 depending on 20+ factors."

If a farmer deposits "5,000 bushel tokens" in a MakerDAO vault and the market drops, what gets liquidated? The protocol would need to:

1. Determine which physical wheat the tokens represent
2. Assess current grade, location, and storage condition
3. Find a buyer willing to purchase at that specific location and condition
4. Arrange transport and quality verification
5. Complete sale and transfer ownership

This process takes *weeks* – and the wheat's value could change dramatically during that time. MakerDAO's liquidation mechanism assumes liquidation happens in *minutes* on liquid exchanges.

The mismatch is fundamental: generic fungible tokens cannot represent assets whose value depends on specific, attested, time-varying characteristics.

3 The Insurance Model: NFTs, Attestation, and Risk Transfer

3.1 The Alberta Buck Approach

The Alberta Buck system addresses wheat's variability through *insured NFTs* – non-fungible tokens representing specific wheat stocks with attested characteristics and parametric insurance coverage.

Rather than liquidating assets when prices fluctuate, insurance absorbs *actual losses* while owners retain possession during normal volatility.

The amount of final sale price volatility the farmer is prepared to accept is priced into the insurance; unless the farmer needs to extract every possible BUCK out of their commodity, they can opt for a low guaranteed sale price and reduced insurance premiums – their choice.

3.2 Insured Wheat NFTs

An Alberta farmer with 5,000 bushels of CWRS wheat would:

1. **Attest the wheat**: Work with certified inspector to document:
   - Quantity (bushels)
   - Quality (grade, protein, falling number, DON levels)
   - Location (on-farm bin #3, GPS coordinates)
   - Storage condition (temperature, moisture monitoring)
   - Growth phase (if pre-harvest) or harvest date (if stored)
2. **Obtain parametric insurance**: Purchase coverage against specific losses:
   - Hail, drought, frost damage (pre-harvest)
   - Fire, theft, spoilage (post-harvest storage)
   - Transport damage (if moving to elevator)

- Grade degradation beyond normal aging (storage quality failure)

3. **Mint insured NFT**: Create unique token containing:
   - All attestation data (quantity, quality, location, condition)
   - Insurance policy details (coverage limits, deductibles, conditions)
   - Valuation parameters (base commodity price, quality adjustments, location adjustments, and insured *minimum* sale price)
   - PPSA lien (legal claim allowing hypothecation while retaining possession)
4. **Deposit NFT as collateral**: Submit to Alberta Buck system smart contract
5. **Receive BUCK_CREDIT NFT**: System issues credit limit NFT based on:
   - Insured value of wheat (insured minimum sale price, not market price)
   - Risk assessment (growth phase, storage condition, farmer history)
   - BUCK_K stabilization factor (dynamic multiplier maintaining commodity basket peg)
6. **Mint BUCKs**: Create fungible BUCK tokens up to credit limit
7. **Use BUCKs as money**: Spend, save, or trade BUCKs while retaining ownership of wheat

3.3 Value Stability Through Insurance

The critical difference: the NFT's *insured value* provides stability that *market price* cannot.

If wheat market prices drop 30% due to global oversupply, the farmer's insured NFT value remains stable – because the *physical wheat hasn't been damaged*, and if the market price doesn't exceed their insurance threshold (or they choose not to sell and ride out the temporary drop) – price volatility isn't an insurable loss; it's market risk the owner accepts.

The farmer continues holding both the wheat and the BUCKs. No liquidation. No foreclosure.

If the wheat is *actually destroyed* (barn fire, spoilage, theft), the insurance claim triggers:

- Insurance pays claim to Alberta Buck system
- Farmer's BUCK_CREDIT limit adjusts downward (lost collateral)
- Farmer must redeem BUCKs proportionally, or system redeems using insurance proceeds
- Farmer receives remaining insurance proceeds after BUCK redemption

This is fundamentally different from liquidation:

- Liquidation happens on *price volatility* (temporary, reversible)
- Insurance claims happen on *actual loss* (permanent, irreversible)

3.4 Credit Multiplier vs. Overcollateralization

The BUCK_K credit multiplier serves the same function as MakerDAO's overcollateralization – limiting money creation to maintain peg stability – but operates differently:

MakerDAO: Static collateral ratio (150%). Farmer with $40,000 wheat can mint $26,667 DAI. If wheat price drops to $35,000, vault liquidates.

Alberta Buck: Dynamic credit multiplier (BUCK_K). Farmer with $40,000 insured wheat receives BUCK_CREDIT with limit calculated as:

```
BUCK_CREDIT_limit = Insured_Value × BUCK_K × Risk_Factor
```

If BUCK_K = 0.60 (60% credit multiplier) and Risk_Factor = 0.85 (wheat storage has moderate risk):

```
BUCK_CREDIT_limit = $40,000 × 0.60 × 0.85 = $20,400
```

Farmer can mint up to 20,400 BUCKs (valued against commodity basket, roughly CAD-equivalent).

If wheat *market price* drops to $35,000 but wheat is physically intact, insured value remains $40,000, BUCK_CREDIT limit unchanged. No liquidation.

If BUCK_K adjusts downward (system-wide, to maintain BUCK peg to commodity basket) to 0.55, the farmer's credit limit recalculates:

```
BUCK_CREDIT_limit = $40,000 × 0.55 × 0.85 = $18,700
```

Farmer must redeem 1,700 BUCKs to stay within limit – but this is *gradual adjustment* based on system-wide peg maintenance, not *immediate liquidation* based on individual asset price volatility.

The farmer can choose: redeem some BUCKs, add additional collateral (another insured asset), or accept reduced credit availability. No forced asset sale.

3.5 NFT Specificity vs. Fungible Generality

The insured NFT captures what fungible tokens cannot:

Characteristic	ERC-20 Wheat Token	Insured Wheat NFT
Represents	Generic "1 bushel wheat"	Specific wheat stock, bin #3, farm GPS
Quality	Undefined	Attested: #1 CWRS, 14.2% protein, etc.
Location	Unknown	Documented: on-farm bin, elevator, vessel
Growth phase	Ambiguous	Timestamped: harvest date or growth stage
Storage condition	Unmonitored	Monitored: temp/moisture sensors, alerts
Insurance coverage	None	Parametric policy attached to NFT
Insured value	N/A	Calculated from attestation + coverage
Market price sensitivity	100% (liquidation on drop)	Low (insurance covers loss, not volatility)
Liquidity requirement	High (must sell quickly)	Low (insurance settles claims)
Owner retention	No (liquidated on drop)	Yes (retained unless actual loss)

The NFT isn't just a token – it's a *digital twin* of the physical asset, carrying all the information needed to value, insure, and hypothecate it without requiring immediate liquidity or forced sales.

4 Comparison: Liquidation vs. Insurance Foundations

4.1 Risk Management Philosophy

Liquidation Model (MakerDAO):

- Assumption: Asset prices are volatile and unpredictable
- Solution: Overcollateralize and liquidate before value drops too far
- Result: Owners lose assets on price volatility, even if no actual loss occurred
- Necessary condition: Assets must be liquid (tradeable quickly in continuous markets)

Insurance Model (Alberta Buck):

- Assumption: Asset *value* is stable when attested and insured; asset *prices* fluctuate
- Solution: Insure against actual loss, tolerate price volatility
- Result: Owners retain assets through volatility, lose only on actual destruction/damage
- Necessary condition: Assets must be attestable and insurable

4.2 Capital Efficiency

Liquidation Model:

- Requires 150-175% collateral ratio
- $100 of money requires $150-175 of locked assets
- Efficiency: 57-67% (33-43% of capital idle)

Insurance Model:

- BUCK_K multiplier dynamically adjusts (typically 50-70%)
- $100 of money requires $140-200 of insured assets (depending on BUCK_K)
- Efficiency: 50-71% (29-50% of capital reserved for peg stability)
- *But*: Reserved capital remains in owner's possession, earning yield (crops grow, real estate appreciates, equipment operates)

The difference: MakerDAO's overcollateralization locks capital *idle* in vaults (ie. yield from tokenized securities accrues to MakerDAO's pools). Alberta Buck's credit multiplier limits hypothecation but doesn't lock assets – the underlying wheat, machinery, etc. asset continues being available to the farmer for harvest, sale, or use.

4.3 Owner Sovereignty

Liquidation Model:

- Owner loses assets on price volatility
- No choice in liquidation timing or buyer
- Forced sale may occur at local price bottom
- Outcome feels like foreclosure (because it *is* foreclosure, just algorithmic)

Insurance Model:

- Owner retains assets through price volatility
- Choice to redeem BUCKs, add collateral, or accept reduced credit
- Asset forfeiture only on actual insured loss (and insurer paid for that right via premiums)
- Outcome feels like insurance claim (because it *is* an insurance claim)

4.4 Applicability to RWAs

Liquidation Model:

- Works well: Crypto-native assets (ETH, WBTC) with 24/7 liquid markets
- Works poorly: Real estate (takes months to sell, highly location-specific)
- Works poorly: Agricultural commodities (seasonal, quality-variable, location-dependent)
- Works poorly: Equipment, vehicles, inventory (illiquid, condition-dependent)
- Works poorly: Intellectual property, business equity (no continuous market)

Insurance Model:

- Works well: Any attestable asset with insurable risks
- Real estate: Insure structure against fire/damage, land against title defects
- Agricultural commodities: Insure crops against weather, storage against spoilage
- Equipment/vehicles: Insure against damage, theft, obsolescence
- Inventory: Insure against spoilage, theft, obsolescence
- IP/equity: Insure revenue streams, key person risks

The insurance model's range is *vastly larger* than liquidation's range – because most real-world assets are attestable and insurable but *not* continuously liquid.

4.5 Systemic Stability

Liquidation Model:

- Cascading liquidations: Price drop triggers liquidations, liquidation sales push prices lower, triggering more liquidations
- Positive feedback loop during volatility
- Requires circuit breakers, emergency shutdowns, governance interventions
- DeFi history: Multiple events where cascading liquidations nearly collapsed protocols[4]

Insurance Model:

- No forced sales: Price volatility doesn't trigger asset sales
- Insurance claims based on actual losses, not market prices
- Negative feedback through BUCK_K adjustment: If system becomes undercollateralized, BUCK_K drops, reducing credit limits *gradually*, giving owners time to adjust
- Self-stabilizing: No cascades, no emergency shutdowns needed

4.6 Legal and Regulatory Clarity

Liquidation Model:

- Ambiguous legal status: Is DAI a security, a commodity, a currency?
- No legal tender status: Cannot pay taxes, settle debts at law
- Regulatory uncertainty: SEC, CFTC, FinCEN all claim potential jurisdiction[5]
- No deposit insurance: Holders bear full protocol risk

Insurance Model:

- Clear legal foundation: Provincial jurisdiction over property, insurance, contracts (s 92(13))
- Integration with existing law: PPSA liens, insurance contracts, property law
- Regulatory pathway: Alberta Superintendent of Insurance, Securities Commission
- Insured value backing: Parametric insurance provides legal claim structure
- Potential for legal tender designation within Alberta (subject to constitutional constraints)

[4]Examples of DeFi liquidation cascades: March 2020 ETH price crash caused $8.32M in undercollateralized MakerDAO debt (zero-bid auctions); May 2021 flash crash liquidated $1B+ across protocols in minutes; November 2022 FTX collapse triggered cascading liquidations exceeding $2B. These events demonstrate systemic fragility inherent in liquidation-based models.

[5]U.S. regulatory agencies have asserted overlapping jurisdiction over stablecoins and DeFi protocols: SEC claims stablecoins may be securities (Howey test); CFTC claims authority over crypto as commodities; FinCEN regulates as money transmitters; OCC issued interpretive letters on bank stablecoin issuance. This regulatory fragmentation creates legal uncertainty for DeFi participants. In contrast, Alberta's provincial jurisdiction over property and insurance (s 92(13)) provides clear constitutional foundation for the Alberta Buck.

5 The Wheat Example in Practice

5.1 Farmer Scenario: 5,000 Bushels CWRS Wheat

Alice farms 100 acres near Lethbridge, Alberta. She harvests 5,000 bushels of #1 CWRS wheat in September 2025.

5.1.1 Traditional Approach (Borrowing)

Alice needs $15,000 for living expenses over winter while storing wheat for better spring prices.

- Takes farm loan at 7% interest: $15,000
- Pledges wheat as security (bank gets lien)
- Annual interest: $1,050
- Risk: If she can't repay, bank seizes and sells wheat (foreclosure)

5.1.2 DeFi Approach (MakerDAO with Tokenized Wheat)

Alice tokenizes her wheat as "5,000 CWRS tokens" representing bushels.
Market price: $8/bushel = $40,000 total value

- Deposits tokens in MakerDAO vault
- Mints DAI at 150% collateral ratio: $26,667
- Uses $15,000 for living expenses, keeps $11,667 in reserve
- If wheat price drops to $7/bushel ($35,000 total), vault liquidates – she loses wheat worth $35,000 to recover $26,667 in minted DAI
- Risk: Price volatility causes asset forfeiture even though physical wheat is fine

Problem: Generic tokens don't capture wheat specifics. What grade? What storage condition? How does protocol liquidate – does buyer get tokens or physical wheat? How is wheat delivered? The model breaks on implementation details.

5.1.3 Alberta Buck Approach (Insured NFT)

Alice works with certified grain inspector:

- Inspect wheat: 5,000 bushels, #1 CWRS, 14.2% protein, 380 falling number
- Document storage: On-farm bin #3, GPS coordinates, temp/moisture sensors installed
- Photograph bins, create condition report

Alice purchases parametric insurance:

- Fire, theft, spoilage coverage: $40,000 insured value
- Premium: 2.5% annually = $1,000/year

- Deductible: $2,000 (5%)

Alice mints insured wheat NFT:

- Contains: Attestation data, insurance policy, PPSA lien, valuation parameters
- Insured value: $40,000

Alberta Buck system evaluates NFT:

- Base insured value: $40,000
- BUCK_K (system stabilization factor): 0.60
- Risk factor (stored grain, monitored): 0.85
- BUCK_CREDIT limit: $40,000 × 0.60 × 0.85 = $20,400

Alice mints 15,000 BUCKs (stays well under limit for safety margin):

- Uses BUCKs for living expenses over winter
- Retains ownership of wheat in her bin
- Wheat continues aging normally, maintains #1 grade quality
- Cost: $1,000 insurance premium vs. $1,050 interest (minor difference)

5.1.4 Volatility Scenario: Market Price Drops

March 2026: Global wheat prices drop 25% due to Russian export surge.

Wheat market price: $8 → $6/bushel

Traditional loan: Bank assesses wheat value at $30,000 (5,000 × $6), demands Alice pay down loan or provide additional security. If she can't, bank forecloses.

MakerDAO vault: Collateral value drops below 150% threshold. Vault liquidates automatically. Alice loses wheat worth $30,000 to cover $26,667 in DAI minted. Net loss: ~$3,333 plus lost wheat.

Alberta Buck: Insured value remains $40,000 (physical wheat undamaged). BUCK_CREDIT limit unchanged. Alice continues holding wheat and BUCKs. No liquidation. Waits for prices to recover in summer, sells wheat at $8.50 in July when prices normalize. Redeems BUCKs. Insurance premium was $1,000; net benefit of keeping wheat through volatility: ~$12,500 (5,000 bushels × $2.50 price recovery).

5.1.5 Actual Loss Scenario: Barn Fire

April 2026: Electrical fire destroys barn and stored wheat.

Traditional loan: Alice's insurance pays out $38,000 (after deductible). Bank takes $15,000 for loan repayment. Alice keeps $23,000 to rebuild.

MakerDAO vault: Collateral destroyed. Vault liquidates by... what? There's no wheat to sell. Protocol takes loss or pursues Alice legally for minted DAI. Messy.

Alberta Buck: Insurance claim triggers automatically (fire detected by sensors, claim filed).

- Insurance pays $38,000 (after $2,000 deductible)
- Alberta Buck system redeems 15,000 BUCKs using $15,000 of insurance proceeds
- Alice's BUCK_CREDIT NFT burns (collateral destroyed)
- Alice receives remaining $23,000 to rebuild
- Clean settlement: insurer paid claim (as designed), BUCKs redeemed, Alice whole minus deductible

The insurance model handles actual loss *cleanly* – exactly as designed – while liquidation model struggles with physical asset destruction.

6 Conclusion: Foundations Matter

The difference between liquidation and insurance isn't merely operational – it's philosophical.

Liquidation says: "Assets are unstable. Protect money by forcing asset sales before value drops too far."

Insurance says: "Assets are stable when attested and insured. Protect money by covering actual losses, ignore price volatility."

For crypto-native assets trading 24/7 on liquid exchanges, liquidation works adequately (though cascading liquidations remain a persistent problem).

For real-world assets – wheat, real estate, equipment, inventory, IP – liquidation is fundamentally unsuitable. These assets:

- Have illiquid markets (can't sell quickly)
- Have condition-dependent values (grade, location, storage, testing required)
- Have seasonal dynamics (harvest timing, storage periods, transport logistics)
- Require physical delivery (not just token transfer)

Insurance handles all of this naturally:

- Parametric policies define exact coverage triggers
- Claims settle based on actual loss, not market prices
- Owners retain assets through volatility
- NFT attestation captures asset-specific characteristics fungible tokens cannot

The Alberta Buck's insurance foundation isn't just "better than MakerDAO" – it's *the only approach that works* for scaling hypothecation money to the full range of real-world assets.

DeFi validated demand. Insurance provides the foundation for delivery.

For Alberta's farmers holding billions in attestable, insurable agricultural wealth – wheat, canola, cattle, land – the insurance model transforms that wealth into liquid money without forced sales, foreclosures, or liquidation cascades.

The missing monetary element isn't just available. It's implementable. And the foundation is insurance, not liquidation.