

# Problem

- Counterfeits and poor transparency
  - Compliance challenges for export
  - Farmers under-recognized
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# Solution

- QR codes + traceability timeline
  - Blockchain integrity (toggle mock/real)
  - Admin dashboard with JWT auth
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# Architecture

- React + Vite (web)
  - Node/Express + MongoDB (API)
  - Solidity HerbRegistry + Hardhat (chain)
  - IPFS mocked; Pinata-ready
  - Docker compose orchestration
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# Key Features

- Batch creation (photo + geo)
  - QR generation & download
  - Trace view: events + transfers
  - Admin analytics & browse (JWT-only)
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# Demo Flow

1. Create batch
  2. View trace + QR
  3. Add processing event
  4. Transfer ownership
  5. Admin analytics
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# Security & Data

- JWT admin auth + role guard
  - CORS & rate limiting
  - On-chain anchors, off-chain richness
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# Blockchain Strategy

- Mock mode for demo speed
  - Real mode via RPC + PRIVATE\_KEY
  - Roadmap: L2, performance, pinning
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# Impact

- Consumer trust, export readiness
  - Farmer recognition & transparency
  - Easy manufacturer integration
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# Next Steps

- Real IPFS pinning
- Expanded roles and mobile scanner
- Pilot with partners