Through the Looking Glass: Ownership Concentration, Corporate Opacity, and the Three-System Visibility Gap in U.S. Foreign Agricultural Land Disclosure

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Abstract

The United States maintains three separate systems for tracking who owns its agricultural land: the USDA's Agricultural Foreign Investment Disclosure Act (AFIDA) database, the SEC's EDGAR filing system, and 50 independent state Secretary of State corporate registries. None of these systems communicates with the others. This paper measures the visibility gap that results.

Using the USDA's 2024 AFIDA detailed holdings data, I identify 82 unique Chinese-linked agricultural entities holding 248,775 acres across the continental United States. Cross-referencing these entity names against the SEC's complete company tickers database (10,447 registrants), I find that only 6 entities (7.3%) have any SEC filing presence — and none of those matches corresponds to the five largest holders, which control 88% of total acreage. The remaining 76 entities (92.7%), holding 246,019 acres, are completely invisible to federal ownership analysis. Their beneficial owners are discoverable only through state corporate registries — systems that operate independently across 50 jurisdictions with no federal aggregation.

I then apply SECMap, a 30-module deterministic ownership chain tracing system, across two scales. A targeted production run traces 14 Chinese-linked entities through 507,957 ownership edges, identifying 9,463 state-affiliated entities, 7,462 adversarial-jurisdiction edges, and 1,753 obscuring roles. A comprehensive adversarial-nation search of the full SEC filing universe identifies 554 registrants matching PASS Act nation keywords — spanning China, Russia, Belarus, and allied-country intermediaries — and traces their ownership networks through

12,277,069 edges. Of 548 entities rated by SECMap's risk classification system, 508 (92.7%) are rated CRITICAL for adversarial-nation ownership exposure. Seven adversarial nations — Belarus, China, Cuba, Iran, Myanmar, Russia, and Syria — appear in the ownership chains. Of 455 entities with incorporation data, 307 (67.5%) are incorporated in international secrecy jurisdictions (Cayman Islands, Marshall Islands) and only 19 (4.2%) in China itself — demonstrating that adversarial-nation investment systematically routes through intermediary jurisdictions that country-specific policy instruments cannot reach.

For the two cases where primary-source state records are available — Brazos Highland Properties, LP (Texas SOS) and the ChemChina-Syngenta chain (SEC SC 13D) — the actual ownership structures extend to 3 and 7 tiers respectively, exceeding AFIDA's practical tracing depth of 2-3 layers. The ultimate beneficial owners — a former PLA officer in Urumqi, Xinjiang and a Chinese state-owned enterprise in Beijing — are invisible to AFIDA.

This paper provides the first quantification of the three-system visibility gap: AFIDA sees entity names but not beneficial owners; SEC sees parent companies but not the AFIDA-registered subsidiaries; state SOS records see everything but are siloed across 50 jurisdictions. No single federal system connects all three. The gap between them is where adversarial ownership hides — and it is not a malfunction. It is an architectural consequence of an economic system built on commercial privacy as a default. Every layer of every ownership chain examined in this paper operates exactly as American law intended. Closing the gap requires a policy determination that foreign agricultural land ownership near military installations is a domain where national security transparency overrides the privacy default, as it already has for banking (BSA), telecommunications (CALEA), and nuclear materials (NRC).

Keywords: beneficial ownership; corporate opacity; AFIDA; foreign agricultural investment; ownership concentration; three-system visibility gap; CFIUS; national security economics; commercial privacy; regulatory architecture; SECMap

JEL Classification: F21, G32, G34, H56, K22, L51, Q15

1. Introduction

The federal government of the United States cannot answer a simple question: who owns the foreign-held agricultural land reported in its own database?

AFIDA collects entity names. The SEC collects parent company filings. State corporate registries collect officer and director information. These three systems, each maintained by a different level of government for a different statutory purpose, contain — collectively — the information needed to trace ownership from the AFIDA-registered entity to the ultimate beneficial owner. But they do not share data, do not cross-reference records, and do not provide any mechanism for a single analyst to query all three simultaneously.

This paper measures the cost of that architectural failure.

A companion paper (Green, 2026a) established that Chinese-linked agricultural holdings cluster near U.S. military installations at 3.4 times random expectation — nearly twice the allied-nation baseline — using the same USDA AFIDA data analysed here. That paper answered *where* these holdings are. This paper answers *who owns them*, and more importantly, *what the government can and cannot see*.

The findings are stark. Of 82 unique Chinese-linked entities in the 2024 AFIDA data, 76 (92.7%) have no SEC filing presence whatsoever. Their beneficial owners cannot be identified through any federal system. The five largest holders — controlling 88% of all Chinese-attributed acreage — appear in AFIDA as "Brazos Highland Properties, LP," "Murphy Brown LLC," "Murphy Brown of Missouri LLC," "Harvest Texas, LLC," and "Formosa Plastics Corp. Texas." AFIDA does not record that the first and fourth of these are controlled by the same individual, Guangxin Sun, whose address is 165 Xinhua North Road, Urumqi, Xinjiang, China. That fact is discoverable only through Texas Secretary of State franchise tax filings — a state-level record system that operates independently of every federal database.

The policy implications are direct. The PASS Act targets entities from China, Russia, Iran, and North Korea. CFIUS reviews transactions involving adversarial-nation investors. Both frameworks depend on knowing who the investor actually is. If 92.7% of Chinese-linked AFIDA entities are invisible to the federal system designed to track them, and if the entities that are visible appear under names that do not reveal their ultimate beneficial owners, then the federal

government is screening for adversarial ownership with a system that cannot identify adversarial owners.

2. Institutional Background

2.1 The Three Systems

AFIDA (USDA). The Agricultural Foreign Investment Disclosure Act of 1978 requires foreign persons to report interests in U.S. agricultural land via Form FSA-153. The GAO documented in January 2024 (GAO-24-106337) that USDA headquarters officials "do not include additional foreign persons beyond the primary investor (i.e., other ownership tiers or complex legal entities)." The practical effect is a 2-3 tier tracing ceiling. As of 2024, the AFIDA data contains 49,548 entity-level records across 45.85 million acres of foreign-held agricultural land.

SEC EDGAR. The Securities and Exchange Commission's EDGAR system contains filings from approximately 10,447 registered companies. Annual reports (10-K, 20-F), beneficial ownership schedules (SC 13D/G), and proxy statements (DEF 14A) contain detailed ownership chain information, subsidiary listings, officer and director names, and jurisdiction data. However, SEC coverage is limited to public companies and their direct filers. Private LLCs, LPs, and trusts — the entity types that dominate Chinese-linked agricultural holdings — generally do not file with the SEC.

State SOS Registries. Each of the 50 states and the District of Columbia maintains a Secretary of State business entity registry covering every entity formed or registered to do business in that state — including the private vehicles invisible to both AFIDA and the SEC. Access methods vary: 9 states offer free APIs, 21 provide bulk downloads, 20 require web scraping, and 1 (Texas, where the two largest Chinese-linked holders are registered) operates behind a paywall with multi-hour delivery times. There is no federal aggregation of these 51 systems.

2.2 The Gap Between Systems

The three systems were designed for different purposes: AFIDA for agricultural land tracking, SEC for securities regulation, state SOS for business authorisation. None was designed to trace beneficial ownership of foreign-held assets across all three levels. No federal system integrates

their data. No federal analyst can query all three simultaneously. No automated cross-reference connects an AFIDA entity name to its SEC parent company or its state-registered officers.

The result is a gap that multi-layered ownership structures can occupy — not through any illegal action, but by operating in the space between systems that do not communicate.

The Corporate Transparency Act (CTA) of 2021, which took effect January 1, 2024, requires most U.S. companies to report beneficial owners to FinCEN. However, the CTA database is not integrated with AFIDA. The information needed to connect entity names to beneficial owners may now exist in a federal system — but USDA cannot access it for agricultural land tracking purposes. Meanwhile, the SBA's Office of Advocacy reports 36.2 million small businesses in the United States — virtually all registered with state SOS offices, virtually none with any federal beneficial ownership disclosure prior to CTA. The gap between what state systems contain and what federal systems can see is not an edge case. It is the default condition for the overwhelming majority of American business entities.

2.3 Related Literature

The ownership network analysis in this paper draws on Vitali, Glattfelder, and Battiston (2011), who mapped the network of global corporate control using a similar graph-theoretic approach applied to Orbis data. La Porta, Lopez-de-Silanes, and Shleifer (1999) established the cross-national framework for analysing corporate ownership concentration and the mechanisms — pyramidal structures, cross-ownership, dual-class equity — by which control separates from cash-flow rights (Bebchuk, Kraakman, and Triantis, 2000). Milhaupt and Zheng (2015) extended this literature to Chinese state capitalism, documenting how SOE structures obscure the boundary between state and private ownership. Daines (2001) provides the empirical foundation for understanding Delaware's role in American corporate formation. Ashwood et al. (2022) examined the corporate organisation of farmland investment specifically. The GAO's January 2024 report (GAO-24-106337) documented AFIDA's process failures but did not quantify the cross-system visibility gap that this paper measures. No prior study has applied network analysis to AFIDA-reported entities using SEC filing data, measured the coverage gap between these two federal systems, or integrated state SOS records as a third data source.

3. Data and Instrument

3.1 AFIDA Detailed Holdings Data

I use the USDA AFIDA detailed holdings spreadsheet for 2024, released pursuant to the Consolidated Appropriations Act of 2023. The file contains 49,548 entity-level records with 46 fields including: state, county, FIPS code, owner name, country attribution, country code, number of acres, owner type, acquisition year, current value, and — new to the 2024 data — secondary interest flags for China, Iran, Russia, and North Korea.

I filter for Chinese-linked holdings using two criteria: (1) the country field contains "CHINA" or "CHINESE," and (2) the secondary interest flag for China equals 1. This produces 175 holding-level records across 82 unique entity names totaling 248,775 acres.

AFIDA reports holdings at the county level (state, county name, FIPS code) but does not publish sub-county parcel coordinates. For spatial analysis, I use NOAA county centroids as proxy locations — the same approach used in Green (2026a). This introduces a measurement error that varies with county size: average centroid-to-parcel displacement is approximately 10 miles for typical eastern counties but reaches 20-35 miles for large western counties such as Val Verde County, Texas (3,171 sq mi) and Fresno County, California (5,958 sq mi). The error is symmetric and affects both observed and Monte Carlo-simulated distances equally, preserving the validity of enrichment ratios. However, for absolute distance measurements, results are reported at the 100-mile threshold where centroid error represents less than 20% of the measurement distance for all but the largest counties. Sub-county parcel-level geolocation via county assessor GIS records is a priority for future work.

3.2 SEC Company Tickers Database

The SEC publishes a complete registry of filing companies at company_tickers.json, containing 10,447 CIK-ticker-name mappings across all U.S. exchanges (NYSE, Nasdaq, OTC, CBOE). I use this as the matching target for the AFIDA cross-reference, employing both exact matching on normalised entity names and fuzzy matching (SequenceMatcher, threshold 0.80) to account for naming variations between AFIDA and SEC records.

3.3 SECMap: Research Instrument

To trace ownership chains beyond AFIDA's disclosure ceiling, I employ SECMap, a deterministic beneficial ownership chain tracing system designed for this research programme. SECMap is a 30-module Python package that discovers related entities via recursive CIK traversal to 10 layers of depth, retrieving and caching SEC filings (10-K, 20-F, SC 13D/G, DEF 14A) with rate-limited EDGAR access. It extracts person names from positional structural locations — signature blocks, "Name, age XX" patterns, title-adjacent patterns — eliminating false positives from filing boilerplate, and parses SC 13D/G cover pages for beneficial ownership entries with percentage stakes.

Each discovered entity is classified by jurisdiction risk across five tiers (adversarial, conduit, opacity, monitored, standard), covering 135 countries, and screened for state-actor affiliation across six adversarial nations: PRC (SOE, Party-controlled, military-civil fusion, United Front), Russia (state corporations, oligarch-linked), Iran (IRGC, bonyads), DPRK (front companies), and others. Obscuring roles — nominee, proxy, intermediary, settlor, protector — are flagged as layered ownership indicators. The output is a 25-column deterministic CSV with chain analysis metadata.

The system includes a state SOS integration layer with a 51-jurisdiction access catalog and a gap analyser that compares SEC ownership chains against state-level entity registrations, risk-scoring gaps based on shell-structure name patterns, privacy-state registration (Delaware, Nevada, Wyoming, South Dakota), layering vehicle type, and commercial registered agent usage.

Given the same SEC filings, SECMap produces identical output — verified by a test suite of 258 tests. Beginning with version 1.1, SECMap also ingests the SEC's XBRL Financial Statement and Notes Data Sets, parsing the SUB (Submissions) table to extract structured country codes (countryba, countryinc, countryma) and co-registrant CIKs (aciks field) for each filing entity. The co-registrant data enables downward chain traversal — descension — from parent to subsidiary, complementing the existing upward BFS traversal. This bidirectional capability means SECMap can now trace both who owns a given entity and what that entity owns. The system, its documentation, and its test suite are available at github.com/rjgreenresearch/secmap under Apache 2.0 licence.

3.4 State Corporate Registry Data

For primary-source validation of ownership chains beyond SEC coverage, I use Texas Secretary of State franchise tax filings obtained through the Texas Comptroller of Public Accounts. Seven filings spanning 2016-2023 document the officers, parent entity, and registered agent for Brazos Highland Properties, LP — the single largest Chinese-attributed agricultural holding in the United States.

3.5 Production Run Summary

SECMap processes three datasets for this paper.

Run 1: Targeted production (14 CIKs). The primary production run targets 8 Chinese-linked entities identified through prior research (Sinopec, Syngenta, Smithfield Foods, Formosa Plastics, and others) plus 6 CIKs from the AFIDA cross-reference. This run provides the case study data for Sections 5 and 8.

Run 2: AFIDA-matched entities (6 CIKs). The six CIKs identified by the AFIDA parser's fuzzy matching are processed separately to determine whether they have genuine adversarial exposure, independent of whether the name match to AFIDA entities is valid.

Run 3: Comprehensive adversarial-nation search (554 CIKs). SECMap's adversarial-nation search expansion identifies all SEC registrants matching PASS Act nation keywords — country names, demonyms, known SOE names, strategic company names, legal entity suffixes, and major city names — across China, Russia, Iran, Cuba, Venezuela, Belarus, Myanmar, Syria, Nicaragua, and North Korea. This run provides the comparative analysis in Section 7.

4. The AFIDA-SEC Coverage Gap

4.1 Cross-Reference Results

Cross-referencing the 82 unique Chinese-linked AFIDA entity names against the SEC's complete company tickers database produces the following coverage assessment:

Table 1: AFIDA-SEC Cross-Reference Summary (2024 Chinese-Linked Holdings)

The 6 SEC-matched entities are all fuzzy matches (0.84-0.90 similarity scores) to small holders — none corresponds to any of the top five entities by acreage. Manual verification reveals that all six are likely false positives: the fuzzy matcher connected "HUNG GROUP INC." (a Chinese shrimp farm) to Hub Group, Inc. (an American trucking company), and "dongyi International llc" to DIGI INTERNATIONAL INC (a Minnesota IoT company). If confirmed, the actual AFIDA-SEC overlap is not 92.7% but 100% — zero Chinese-linked AFIDA entities have a genuine SEC filing presence.

The large holders — Brazos Highland Properties, Murphy Brown LLC, Harvest Texas, Formosa Plastics Corp. Texas — do not match any SEC registrant name because they are subsidiaries of parent companies that file under entirely different names (WH Group, Smithfield Foods, Formosa Plastics Corporation). This is the structural problem at the centre of the visibility gap: AFIDA records subsidiaries; SEC records parents. The two federal systems use different entity names for the same ownership chains, and no automated cross-reference connects them. An analyst who searches for "Murphy Brown" in EDGAR finds nothing. An analyst who searches for "Smithfield Foods" in AFIDA finds nothing. The ownership relationship between them exists only in Smithfield's 10-K filing — a document neither system links to the other.

4.2 The Five Largest Holders

Table 2: Top Five Chinese-Attributed Entities — System Visibility

For 3 of 5 entities (60% by count, 67.1% by acreage), the SEC provides no direct filing. The ownership chain is discoverable only through state SOS records (Brazos Highland, Harvest Texas) or through manual identification of the parent company's SEC filings using external knowledge (Murphy Brown → Smithfield → WH Group).

AFIDA records none of the ultimate beneficial owners. It records entity names and Houston addresses.

In sum, the two federal systems that ought to track foreign agricultural ownership — AFIDA and SEC EDGAR — share no entities in common for Chinese holdings. The gap is not partial.

5. Ownership Chain Depth Analysis

5.1 The ChemChina-Syngenta Chain (Seven Tiers, Six Jurisdictions)

The longest documented ownership chain in the dataset connects a Chinese state-owned enterprise to a U.S. agricultural entity through seven corporate tiers spanning six jurisdictions, as disclosed in the CNAC Saturn (NL) B.V. Schedule 13D filed with the SEC:

China National Chemical Corporation (Beijing) → CNAC (China) → CNAC (HK) Holdings (Hong Kong) → CNAC (HK) Investment (Hong Kong) → CNAC Century (HK) → CNAC Saturn (HK) → CNAC Century (LUX) (Luxembourg) → CNAC Saturn (NL) B.V. (Netherlands) → Syngenta AG (Switzerland) → Syngenta Seeds, LLC (United States)

The SC 13D filing states that CNAC (HK) Investment and CNAC (HK) Holdings "were organised in connection with the acquisition of the Issuer and have not conducted any other activities or business." These are single-purpose vehicles — entities whose sole function is to add tiers to the chain.

SECMap's production run on CIK 1123661 (Syngenta AG) identified 57,408 ownership edges across 100 visited CIKs, with 800 adversarial-jurisdiction edges, 973 state-affiliated entities (including China National Agrochemical Corporation and China National Chemical Corporation

as PRC SOEs), and named persons including post-acquisition board members Liru An and Hongbo Chen. Adversarial jurisdictions detected include Belarus, China, Iran, and Russia.

AFIDA sees Syngenta Seeds, LLC. The Chinese state-owned enterprise seven tiers above it is invisible.

5.2 The WH Group-Smithfield Chain (Four Tiers, Six Jurisdictions)

SECMap's production run on CIK 91388 (Smithfield Foods) produced 56,979 edges across 100 visited CIKs, with 537 adversarial-jurisdiction edges, 889 state-affiliated entities, and named persons including Chinese-national executives. The risk rating is CRITICAL with an Agriculture & Food supply chain alert. Adversarial jurisdictions detected include China, Cuba, Iran, and Russia.

Named Chinese-national executives extracted from the filings include: Gordon Lijun Guo, Hank Shenghua He, Hongwei Wan, and Jiao Shuge — individuals whose presence in the ownership chain is invisible to AFIDA, which records only "Murphy Brown LLC."

Country associations span adversarial (China, Cuba, Iran, Russia), conduit (Hong Kong, Singapore, UAE), and opacity (Cayman Islands, BVI, Bermuda) jurisdictions. The conduit architecture — routing through Hong Kong and offshore jurisdictions before reaching Virginia — is the standard pattern for Chinese outbound investment.

5.3 The Sun Guangxin Chain (Three Tiers — But Opaque by Design)

The shortest chain in tier count is the most opaque in practice, because neither entity files with the SEC and SECMap therefore has no federal source to process.

The ownership was discoverable only through Texas Secretary of State franchise tax filings, which reveal an officer transition between 2018 and 2023: from Houston-based proxies (Haolei Shang, President; Dong Qiu, CFO; address: 2800 Post Oak Blvd Suite 3601) to the actual principals (Guangxin Sun, President and Director; Lingyun Sun, Vice Chair and Director; address: 165 Xinhua North Road, Urumqi). The 99% parent entity — Brazos Highland GP, LLC, a Delaware limited partnership — remained unchanged throughout.

This case demonstrates the state SOS system's unique value: it is the only data source in any of the three systems that names the actual human being controlling 41.6% of all Chinese-attributed agricultural acreage in the United States.

5.4 Depth Gap Summary

Table 3: Ownership Chain Depth vs. AFIDA Visibility

In every case, the actual ownership structure exceeds AFIDA's tracing depth. The system designed to track foreign agricultural ownership cannot see through the corporate structures that the largest foreign holders actually employ.

6. The Allied-Country Intermediary Mechanism

SECMap's jurisdiction risk classification reveals a structural mechanism by which AFIDA's country attribution can systematically misrepresent the origin of investment. The Syngenta production run (57,408 edges) identifies adversarial jurisdictions (China, Russia) but also extensive associations with Switzerland, Netherlands, and Luxembourg — the intermediate jurisdictions through which the ChemChina ownership chain passes. These allied-country entities have legitimate corporate existence and are the names that AFIDA records.

If AFIDA attributes a holding to the jurisdiction of an intermediate entity rather than the ultimate beneficial owner, the holding may appear as Swiss, Dutch, or Luxembourgish — not Chinese. The PASS Act, which targets entities from China, Russia, Iran, and North Korea specifically, would not apply.

The 2024 AFIDA data provides partial evidence that this mechanism is operative: the Secondary Interest in China flag identifies entities attributed to other countries (including Canada and

Singapore) but with Chinese secondary interests. The parser identified holdings with a Singapore primary attribution but "Secondary Interest in China = 1" — indicating that AFIDA itself recognises the allied-country intermediary problem but addresses it through an optional flag rather than through the primary country attribution.

The implication is that AFIDA's country-specific acreage totals may undercount adversarial-nation holdings by attributing them to the intermediate jurisdiction rather than the ultimate beneficial owner's nation of origin.

7. Comparative Adversarial-Nation SEC Filing Analysis

7.1 Adversarial-Nation Search Methodology

To determine the full scope of adversarial-nation presence in the SEC filing universe, I use SECMap's adversarial-nation search expansion, which auto-expands each PASS Act country name into a comprehensive set of search terms: country names and demonyms, known SOE names (Sinopec, Gazprom, PDVSA), strategic company names (Alibaba, Yandex), nation-specific legal entity suffixes (PJSC, PAO for Russia), and major city names (Beijing, Moscow). This expansion identifies 554 SEC registrants matching adversarial-nation keywords across all PASS Act nations plus Myanmar and Syria — substantially more than the 24 found by country-name-only search.

SECMap processes all 554 CIKs with BFS traversal to depth 10, extracting 12,277,069 ownership edges. Of 548 entities for which risk ratings were computed, 508 (92.7%) are rated CRITICAL — meaning adversarial-nation jurisdictions were detected in their ownership chains. Seven adversarial nations appear: Belarus, China, Cuba, Iran, Myanmar, Russia, and Syria.

The vast majority of the 554 targets are Chinese-linked — including entities found by SOE names (Sinopec Shanghai Petrochemical), strategic company names (Alibaba, Baidu, NIO Technologies, Trip.com), and city names (Beijing Geekplus Technology). Russian-linked entities include MECHEL PAO (steel and mining), VEON Ltd. (telecommunications, formerly VimpelCom), and EPAM Systems (software, Belarus-founded). No SEC registrants were identified for Iran, Cuba, Venezuela, or North Korea through any search strategy.

7.2 The Incorporation Jurisdiction Pattern

The most significant finding from the comprehensive search is the incorporation jurisdiction distribution. Of 455 adversarial-linked entities with incorporation data extracted from SEC filings:

Table 5: Incorporation Jurisdiction of Adversarial-Linked SEC Registrants

International secrecy jurisdictions (Cayman Islands and Marshall Islands) account for 307 of 455 entities (67.5%). US privacy-favorable states (Nevada, Delaware, Wyoming) account for an additional 106 (23.3%). Combined, 413 of 455 adversarial-linked entities (90.8%) are incorporated in either international secrecy jurisdictions or US privacy-favorable states. Only 19 (4.2%) are incorporated directly in China.

This finding has direct implications for country-specific policy instruments. The PASS Act restricts agricultural land purchases by entities from China, Russia, Iran, and North Korea. But if 96% of Chinese-linked SEC filers are incorporated in the Cayman Islands, Nevada, or the Marshall Islands, country-of-incorporation screening will identify them as Caymanian, Nevadan, or Marshallese — not Chinese. The intermediary jurisdiction is not an anomaly. It is the dominant pattern.

7.3 Critical Supply Chain Exposure

The 554 adversarial-linked entities span every critical sector that Congress and the executive branch have identified as strategically significant:

Table 6: Adversarial-Linked SEC Registrants by Critical Sector

Of the 548 rated entities, 188 (34.3%) map to at least one critical sector. The remaining 360 entities without sector classification are predominantly investment vehicles (closed-end funds, SPACs, ADR shells) that serve as capital-routing intermediaries rather than operating companies.

7.4 The Asymmetry of Visibility

The comprehensive search confirms a fundamental asymmetry. For China, the SEC provides substantial visibility: 554 registrants identified through expanded keyword matching, 12.3 million ownership edges, named executives, subsidiary chains, and jurisdiction routing across seven adversarial nations. This represents the most complete adversarial-nation ownership dataset assembled from a single federal filing system.

For Russia, the search identified only three entities with genuine Russian connections: MECHEL PAO (Chelyabinsk-based steel and mining), VEON Ltd. (Amsterdam-listed but historically Russian telecommunications), and EPAM Systems (Delaware-incorporated but Belarus-founded software). All three are rated CRITICAL. None operates in agriculture.

For Iran, Cuba, Venezuela, North Korea, and Belarus (beyond EPAM), the expanded search identified zero SEC registrants through any search strategy — country names, SOE names, legal suffixes, or city names. The federal government's ownership analysis toolkit remains structurally inapplicable to these nations.

7.5 Supply Chain Implications

The combination of the AFIDA coverage gap (92.7-100% of Chinese agricultural entities invisible), the SEC filing gap (zero registrants for five PASS Act nations), the critical-sector exposure (188 entities across 9 sectors), and the incorporation jurisdiction pattern (90.8% in secrecy or privacy jurisdictions) creates a compounding vulnerability. The federal government has partial visibility into Chinese ownership of strategically significant companies — but that visibility is mediated through intermediary jurisdictions that obscure the chain's origin. For every other adversarial nation, the federal government has no visibility at all. And for agricultural land specifically — the domain that motivated this investigation — the AFIDA and SEC systems share zero entities in common.

8. Ownership Concentration

The Herfindahl-Hirschman Index computed on acreage shares across 82 entities is 1,880. When entities are consolidated by ultimate beneficial owner — Sun Guangxin's two entities combined, WH Group's two Murphy Brown entities combined — the effective HHI exceeds 2,800, well above the Department of Justice threshold of 2,500 for a highly concentrated market.

Five entity clusters control 88% of total Chinese-attributed acreage. Two individuals — Wan Long (WH Group) and Guangxin Sun — control 75% between them.

The property portfolio is also shifting. The Brazos Highland Properties listing on farmandranch.com advertises 87,819 acres for sale in Val Verde County, Texas. If the sale completes, a single transaction will remove approximately 35% of all Chinese-attributed acreage from the AFIDA data. Whether the buyer is domestic or foreign, and if foreign, from which country, will test whether the acreage leaves the Chinese-attributed category or merely changes its country label through the allied-country intermediary mechanism.

These concentration findings compound the visibility problem. The ownership behind the entities is not merely invisible — it is concentrated in remarkably few hands, creating single-point-of-failure risk that the current regime has no mechanism to detect.

9. Discussion

9.1 The Three-System Visibility Gap as the Core Finding

The 92.7% figure — the share of Chinese-linked AFIDA entities with no SEC filing presence — is not a measurement of incompetence. It is a measurement of architecture. Each system does what it was designed to do. AFIDA collects self-reported foreign ownership data. The SEC regulates securities markets. State SOS registries authorise business entities. The failure is in the spaces between them — three systems designed for different purposes, operating in isolation, collectively unable to answer the question that national security requires: who ultimately controls this land?

9.2 What This Paper Does Not Argue

This paper documents structural opacity. It does not argue that the investments analysed are illegal, strategically motivated, or contrary to U.S. interests. WH Group acquired Smithfield Foods to build the world's largest pork company. Sun Guangxin purchased Texas land for wind energy development. Syngenta operates a global agricultural technology business. These are commercially documented motivations, and this paper takes no position on whether they are the complete explanation.

What this analysis demonstrates is that the federal system designed to track foreign agricultural ownership cannot see through the corporate structures that the largest foreign holders actually employ. That blindness is now quantified.

9.3 The Public-Private Divide as Structural Cover

The three-system visibility gap documented in this paper is not a bug to be patched. It is a consequence of deliberate architectural choices embedded in the American economic system.

The United States maintains two parallel economic engines — public companies subject to SEC disclosure and private companies subject to virtually none — and treats the boundary between them as a policy choice with legitimate economic justification. Public companies access public capital markets and accept public disclosure as the cost. Private companies forgo public capital and retain privacy. This trade-off has defined American securities regulation since 1933, and it has served the economy well.

Layered on top of this public-private divide is a federalist corporate formation system in which 50 states compete for business registrations by offering varying degrees of privacy, speed, and cost. Delaware's dominance in corporate formation — including its role as the incorporation state for Brazos Highland GP, LLC, the 99% parent of the largest Chinese-attributed agricultural holding in the United States — is not an accident or an oversight. It is the product of a century of deliberate policy designed to attract business formation through minimal disclosure requirements. Delaware's economic model depends on incorporation fees and franchise taxes from entities that choose to form there precisely because the state asks fewer questions than its competitors.

The nonprofit sector adds a third engine: organisations that report to the IRS under an entirely separate regulatory framework, with no cross-reference to either the SEC or state SOS systems. Government contractors can be any of the three — public, private, or nonprofit — and the federal contracting system does not require beneficial ownership chain verification beyond immediate parties. Three economic engines, three regulatory frameworks, zero integration.

9.4 Opacity as Architecture: The Sun Guangxin Demonstration

The Sun Guangxin ownership structure demonstrates this architecture in operation. Every layer works exactly as American law intended. A Delaware LP provides formation privacy. A Texas business registration provides authorisation to transact. A Houston P.O. box provides a domestic mailing address. CT Corporation System, a commercial registered agent, provides statutory compliance. No law was broken. No disclosure was evaded. No filing was falsified. The system delivered precisely the opacity it was designed to deliver.

The same architecture — private entity formation in privacy-friendly states, commercial registered agents substituting for named officers, parent companies in offshore jurisdictions — is

available to any foreign investor in any sector. It requires no sophistication. It requires only a lawyer who understands how Delaware LPs work — and that knowledge is available from any corporate formation service for a few hundred dollars.

This has a direct implication for national security policy. The visibility gap measured in this paper is not a technical failure that better software can fix. It reflects a structural tension between two values that cannot both be maximised simultaneously: commercial privacy and national security transparency. The American economic system is optimised for the former. The PASS Act, CFIUS expansion, and 26 state-level restrictions all attempt to carve out exceptions for the latter. But they do so within a system whose default setting is opacity — and whose default setting has been opacity, by design, since the Securities Act of 1933.

9.5 The Precedent for Domain-Specific Transparency

The argument that national security requires carving out a transparency exception within a system designed for privacy is not novel. The United States has made this determination repeatedly in other domains:

Banking. The Bank Secrecy Act (1970) and its successors require financial institutions to report suspicious transactions and maintain customer identification programmes. The privacy expectation that would otherwise attach to banking relationships yields to anti-money-laundering and counter-terrorism-financing requirements. Banks are private businesses, but they operate in a domain where Congress determined that national security transparency outweighs commercial privacy.

Telecommunications. The Communications Assistance for Law Enforcement Act (CALEA, 1994) requires telecommunications carriers to build surveillance capability into their networks. The expectation of communications privacy yields to lawful intercept requirements. Carriers are private companies, but they operate in a domain Congress designated as security-critical.

Nuclear materials. The Nuclear Regulatory Commission licensing system requires any entity handling special nuclear material to submit to ownership verification, background investigation, and ongoing monitoring. The privacy of corporate structure yields entirely to the imperatives of nuclear security.

Corporate ownership itself. The Corporate Transparency Act (2021) represents Congress's most recent determination that beneficial ownership opacity has become incompatible with national security and law enforcement requirements. The CTA requires most U.S. entities to report their beneficial owners to FinCEN — a direct intrusion into the corporate privacy that Delaware and its competitors have sold for a century.

The question this paper raises is whether agricultural land ownership near military installations belongs in this category — whether it is a domain where the structural default of opacity should yield to a national security transparency requirement. The 92.7% visibility gap, the seven-tier ChemChina chain, and the Texas franchise tax filing that was the only federal-or-state document to name the actual owner of 87,000 acres of American farmland all suggest that it does.

10. Policy Implications

The architectural nature of the visibility gap — opacity by design, not by accident — means that incremental technical fixes are necessary but insufficient. The gap requires a policy determination that agricultural land ownership near sensitive sites is a domain where national security transparency takes precedence over commercial privacy defaults.

10.1 A Detection Framework: The Unregistered Foreign-Controlled Landholding Entity

This paper's findings suggest a formalised detection class: the Unregistered Foreign-Controlled Landholding Entity, or UFLE. The defining characteristics are: formation at the state level as a private entity (LP, LLC, or trust); no SEC filing presence; control by a foreign principal through one or more corporate layers; holding of agricultural land, particularly near military installations or critical infrastructure; and frequent use of commercial registered agents and privacy-state incorporation in place of named beneficial owners.

Brazos Highland Properties, LP is the archetype: a Texas LP, Delaware GP, no SEC filing, controlled by a Xinjiang-based principal through a single corporate layer, holding 87,000 acres of ranchland, using CT Corporation System as registered agent. The 76 unmatched AFIDA entities identified in Section 4 are candidate UFLEs. Each requires state SOS investigation to determine whether it fits the pattern. Naming the pattern gives policymakers and analysts a

category to detect, count, and prioritise — transforming individual case studies into a systematic screening framework.

10.2 Recommendations

Four specific recommendations follow.

First, AFIDA should be integrated with FinCEN's Corporate Transparency Act beneficial ownership database. The CTA already requires most U.S. entities to report beneficial owners to a federal system. Connecting that system to AFIDA would close the largest component of the visibility gap without requiring any new reporting obligation. The information already exists in a federal database. The connection does not.

Second, a federated query mechanism for state SOS corporate registries — not a federal takeover of state authority, but a national security access layer analogous to the CTA database — would make the information that Texas franchise tax filings already contain available to the federal analysts who need it. The 92.7% of Chinese-linked entities invisible to federal analysis are visible at the state level. The states retain their authority to authorise business formation. The federal government gains the ability to ask who it authorised. This model preserves federalism while closing the visibility gap, following the precedent established by the Bank Secrecy Act's state-federal information sharing framework.

Third, AFIDA's country attribution methodology should be audited for allied-country intermediary effects. The Secondary Interest flags introduced in the 2024 data are a step toward addressing this, but an optional flag is not a substitute for accurate primary attribution. If holdings controlled by Chinese state-owned enterprises are attributed to Switzerland or the Netherlands because the AFIDA-visible entity is incorporated in those jurisdictions, country-specific policy instruments cannot function as designed.

Fourth, Congress should determine whether foreign agricultural land ownership within CFIUS-relevant proximity of military installations constitutes a domain requiring mandatory beneficial ownership disclosure — joining banking, telecommunications, and nuclear materials as sectors where national security transparency overrides the commercial privacy default. The PASS Act moves in this direction by restricting purchases by designated adversarial nations. But

restriction without identification is unenforceable: the system must first be able to determine who the buyer actually is. As this paper demonstrates, it currently cannot.

11. Conclusion

The United States tracks foreign ownership of its agricultural land through a system designed in 1978 for a world in which a foreign farmer bought a field and filed a form. That system cannot identify the beneficial owners of 92.7% of Chinese-linked entities in its own database. The five largest holders — controlling 88% of acreage — appear as entity names and mailing addresses. The actual owners are a former PLA officer in Urumqi and a Hong Kong-listed subsidiary of a Chinese conglomerate. Those facts are discoverable, but only by manually querying state corporate registries that operate independently of every federal database.

The problem is worse than the Chinese case suggests. A comprehensive adversarial-nation search of the SEC filing universe identified 554 registrants matching PASS Act nation keywords — but 90.8% of those with incorporation data are incorporated in secrecy jurisdictions (Cayman Islands, Marshall Islands) or US privacy-favorable states (Nevada, Delaware, Wyoming), not in the adversarial nation itself. Only 4.2% are incorporated in China. Country-specific policy instruments that screen by jurisdiction of incorporation will miss 96% of them. For Russia, Iran, Cuba, and Venezuela, no SEC registrants were identified through any search strategy — the federal government's primary ownership analysis toolkit is structurally inapplicable to these nations. SECMap's analysis of 12.3 million ownership edges across 554 entities reveals that seven adversarial nations — Belarus, China, Cuba, Iran, Myanmar, Russia, and Syria — appear in ownership chains that route through allied-country and opacity jurisdictions, spanning every critical supply chain sector from pharmaceuticals to semiconductors to agriculture.

The visibility gap is not a technical failure. It is the predictable consequence of an economic system that treats commercial privacy as a default — a default that has served American enterprise well but that creates structural cover for adversarial ownership as a side effect. Every layer of every ownership chain examined in this paper operates exactly as American law intended. No law was broken. No filing was evaded.

The question is not whether the system is broken. The question is whether agricultural land ownership near military installations, pharmaceutical supply chains dependent on adversarial-nation APIs, and critical mineral processing controlled by state-owned enterprises are domains where the system's default — opacity — should yield to a national security exception, as it already has for banking, telecommunications, nuclear materials, and, since 2024, corporate ownership generally under the CTA.

The information exists. The systems that contain it do not communicate. The gap between them is measurable, and this paper measures it. Closing it requires not better software, but a policy determination that these domains matter enough to override the default.

Data and Code Availability

Primary data: - USDA AFIDA detailed holdings data (2024): fsa.usda.gov - SEC company tickers database: sec.gov/files/company_tickers.json - SEC Financial Statement and Notes Data Sets (XBRL): sec.gov/data-research/sec-markets-data - Texas SOS franchise tax filings: comptroller.texas.gov

Research instruments (open-source, Apache 2.0): - SECMap ownership chain tracing system: github.com/rjgreenresearch/secmap - AFIDA parser and cross-reference tool: github.com/rjgreenresearch/afida-parser - Spatial analysis framework: github.com/rjgreenresearch/afida-spatial-analysis - Research website: www.rjgreenresearch.org

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