



nuveen

A TIAA Company

How we invest in *farmland*

*An introduction
to Nuveen's global
agricultural
sustainability
approach*

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SEE WHERE WE'RE INVESTED

With our interactive mapping tool, you'll get a bird's-eye view of the locations and types of crops being grown on each of our properties. This tool represents one aspect of our commitment to transparency.

<https://www.tiaa.org/public/assetmanagement/strategies/alternatives/agriculture/farmlandmap>

Farmland investments are less developed, more illiquid, and less transparent compared to traditional asset classes. Investments will be subject to risks generally associated with the ownership of real estate-related assets and foreign investing, including changes in economic conditions, currency values, environmental risks, the cost of and ability to obtain insurance, and risks related to leasing of properties.

Why sustainability matters

The world's population continues to expand — reaching 6 billion at the dawn of the 21st Century and nearly 10 billion projected by 2050. Exploding population and rising protein consumption are driving the need for more efficient agriculture to meet rising global demand for food, animal feed, clothing fiber, biofuels and other farm products.

We believe that our farmland investments can help to meet global demand for food, while encouraging sustainable practices to be good stewards of the environment over the long term. In partnership with our tenants, local operators and farm managers, we foster sustainability best practices and promote investment in farming innovation to improve efficiency. Moreover, we respect land rights and the communities where we farm.

Sound stewardship is imperative for us – it is fundamental to our long-term investment success and aligned with our corporate values. As we execute our investment strategy, we are committed to pursuing the UN-backed Principles for Responsible Investment (PRI) Farmland Guidelines, which we helped to develop in 2011 with other farmland investors.

These five guidelines — regularly monitored with Key Performance Indicators (KPIs) — are designed to promote:

- 1.** Environmental sustainability
- 2.** Labor and human rights
- 3.** Existing land and resource rights
- 4.** High business and ethical standards
- 5.** Transparency in reporting progress toward meeting the Farmland Guidelines

This introduction describes Nuveen's sustainable farmland investing policies and procedures. It is intended to complement our *Farmland Sustainability Annual Report*, which documents our progress in meeting the PRI Farmland Guidelines.

Our approach to farmland investment

Nuveen's farmland investment approach aligns with the company's investment philosophy: we are long-term investors helping to create successful financial outcomes for our customers and clients decades into the future.

With investments that often last 20 years or more, we are committed to preserving farmland for the long term – conserving water, minimizing chemical use and nutrient runoff and respecting the rights of our tenants, partners and local communities. These commitments, which are essential for corporate responsibility and investment success, define our approach to managing farmland assets:

- Acquire farmland assets generally with long-term investment horizons.
- Emphasize the purchase of existing agricultural land rather than converting virgin land or forest into farmland.
- Respect local laws and best practices for protecting sensitive environmental or cultural areas.
- Diversify land holdings by geography, climate factors, crop types and agricultural markets.

- Apply capital and technology to increase productivity and minimize environmental impact.

Nuveen implements farmland investments through our affiliated asset manager, Westchester, with local offices to effectively oversee global farm properties across four continents. As we expand our portfolio, Westchester and Nuveen will continue to improve our approach to meet our sustainability objectives and the local laws and practices of each country.

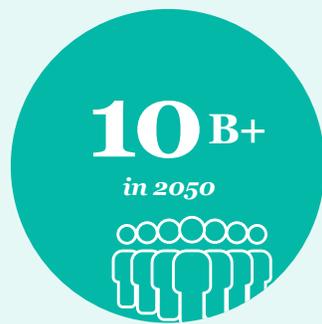
Pre-acquisition due diligence

We follow a strict due diligence process before acquiring property. This examination covers legal ownership rights, the suitability of third-party managers, joint-venture partners, tenants or operators, and financial risk and return. We strive to continuously improve our process for determining land rights, particularly in regions with maturing legal structures. We also assess a range of environmental impacts and risks, including pesticide storage, harvesting practices, water rights and water use efficiency, and presence of endangered species.

Post-acquisition management

Following acquisition, our team actively monitors each farm with annual site evaluations to assess property-level performance against the PRI Farmland Guidelines (see pages 10-11). Each year, Westchester is required to report on a variety of property standards, ranging from infrastructure maintenance and harvesting practices, to

WORLD'S POPULATION VS. AGRICULTURAL DEMAND



The world's population is expected to grow to almost 10 billion by 2050, boosting agricultural demand – in a scenario of modest economic growth – by some 50 percent compared to 2013.

Source: The Future of Food and Agriculture: Trends and Challenges, UNFAO, 2017.

compliance with legal, employment and other local regulations. Westchester makes regular site visits to verify that farm management practices and working conditions meet our high standards. Westchester regularly evaluates its site visit process to adapt to changes in our KPIs and pursue continuous improvement in sustainable farm operations.

Farming as a partnership

The partnership between Nuveen, Westchester, local farms and crop managers governs our sustainability approach. We have varying degrees of influence over specific sustainable practices based on the business relationship we have with each farm tenant or operator.

Asset managers

Nuveen's affiliated asset manager, Westchester, identifies and underwrites our farmland investments, including negotiating lease and crop management agreements. The firm's local managers work with farmers and crop managers to promote sustainable farming practices. Westchester's local managers have agricultural backgrounds and bring extensive experience in overseeing our properties. The asset manager's responsibilities include:

- **Conduct pre-acquisition due diligence** by examining legal ownership rights, the suitability of tenants or operators and environmental risks.
- **Support sustainability** by selecting operators who employ best management practices.
- **Invest in improvements** that encourage farm operators to innovate and adopt technology.

- **Monitor sustainable practices** by applying our KPI assessment and pursuing third-party certification (where available and applicable) to verify compliance with the PRI Farmland Guidelines.

Farm operators

Working through Westchester, Nuveen encourages farmers to implement the Farmland Guidelines and our tenant Code of Conduct in their day-to-day operations (see page 5). How we do this depends primarily on crop type:

- **Row crops** are planted or harvested annually and include corn, cotton, grain cereals, sugarcane and soybeans. These crops may be processed into food for human consumption, animal feed, fuel (e.g., ethanol) or fiber for clothing. Land is typically leased to local tenant operators, including many who have farmed our land for 10 years or more. This continuity helps to foster a consistent approach to pesticide storage, harvesting practices, water rights and water use efficiency – issues which are fundamental to sustainability.
- **Permanent crops**, such as vines or trees, are planted once and produce crops over many years. Examples include apples, tree nuts, citrus, avocados and wine grapes – sold whole or used as ingredients for other products. Westchester and a local crop manager provide joint management support to optimize the success of these crops. Unlike largely mechanized row-crop farming, most permanent crops require significant manual labor typically hired and supervised by the local crop manager. The long-term nature of this investment lends itself to creative solutions such as wastewater recycling and other innovative technology that help to minimize environmental impacts.

Respecting land and resource rights

Respect for existing land and resource rights is a critical component of our farmland sustainability strategy and continues to grow in importance as arable land becomes scarcer. Our guidelines also address preventing illegal deforestation.

Due diligence to protect local land rights

We are sensitive to investors' concerns about inadvertently violating insecure land rights, which may be acknowledged by local governments but not protected by law. Accordingly, in regions with still-maturing legal and civil infrastructure, our due diligence process is designed to prevent the acquisition of land when ownership is unclear. We perform title searches and other legal reviews to help verify that land we acquire has sound title. We also consider the rights of native peoples, such as in:

- Australia, where we identify and strive to protect under our stewardship any property listed on applicable aboriginal heritage registers.

- Brazil, where we ensure that properties to be acquired are not among indigenous and quilombolas territories (see Brazil article on facing page).
- Chile, where we avoid investments in locations with a history of land rights conflicts involving indigenous populations.

Preventing illegal deforestation

A key concern of Nuveen stakeholders is that farmland investment may come at the expense of forested areas. Our portfolio consists of land locally approved for agriculture and, in most cases, used as farmland for many years.

Our due diligence helps ensure that land we acquire meets all government requirements for forest protection and that property designated for conservation is preserved.

Wherever we operate we follow a rigorous process to ensure that land and resource rights are respected. We track our progress using KPIs that align with the PRI Farmland Guidelines (see page 11).

BRAZIL: Adapting our approach to meet local needs

We have developed an approach to sustainability in Brazil that is customized for specific local requirements governing forest preservation, land conservation and protecting the ownership rights of indigenous communities.

We conduct careful due diligence before investing to:

- **Preserve forestland:** We adhere to Brazil's Forest Code, one of the most comprehensive environmental laws among food exporters (see below). We use satellite imaging to verify historical land use.
- **Research land ownership:** We go beyond title searches to review existing farmland licenses and use government GPS data to substantiate ownership claims.
- **Know the seller:** We conduct due diligence to confirm the seller's ownership rights and past practices comply with local land use laws and the PRI Farmland Guidelines.
- **Respect indigenous and quilombolas communities:** We respect the demarcated indigenous and quilombolas territories by checking their exact locations, cross-referencing with farm boundaries and avoiding purchases of farmlands that overlap with protected territories.

We adhere to the Brazilian Forest Code

Brazil's enactment of comprehensive environmental legislation is important globally, given the nation's prominence in efforts to guarantee food security and address climate change. The Forest Code (Law No. 12.651/2012) sets rules on ecological buffer zones and requires all private property to set aside land for biodiversity protection without compensation.

Nuveen preserves about one-third of its land in Brazil as native vegetation in accordance with the Forest Code. Additionally, we register property boundaries and environmental information with the government's online land registry system (the Rural Environmental Record, locally known as the CAR). Our asset manager has verified that our agricultural properties in Brazil meet registration requirements and are implementing applicable conservation plans.

Maintain effective oversight

- Since 2013, we have improved oversight of properties across Brazil by developing a standardized method for site visits, hiring additional staff and establishing regional offices. Each office conducts site visits to ensure compliance with the PRI Farmland Guidelines (see pages 10-11).
- In 2014 we hired a Head of Sustainability in Brazil and in 2015 commissioned BSD, an independent consultant specializing in Brazil farm evaluations, to assess labor, human rights and environmental sustainability practices across half our Brazilian holdings. The other half will be inspected in 2018.
- Based on the BSD assessment, the team developed stronger internal controls and a Farmland Principles Verification tool for 2018 implementation. Site visit reports now incorporate more detailed information and photo documentation of environmental and working conditions.
- Building on our work with BSD, in 2016 we adopted a detailed tenant code of conduct, discussed with each tenant and incorporated in follow-up visits.

Promoting sustainable water management

Water will always be critical for agricultural producers. Climatic extremes resulting in drought and periodic crises are demanding new solutions and better metrics to optimize usage and ensure conservation. Meanwhile, nutrient runoff associated with irrigation and major rainfall is an important consideration.

Conserving water

Recent changes affecting water availability, cost and regulation have prompted Nuveen and our partners to adopt new conservation measures as concern rises among farmers, institutional investors and other stakeholders. By investing in property improvement and urging tenants to adopt best practices, we can encourage responsible usage and reduce harm to the environment and local water supplies.

Nuveen's tenant partners and farmland managers use a variety of techniques to improve water efficiency. They work to minimize soil erosion and rainfall runoff by building properly designed roads, berms, culverts and terraces. For permanent crops, we implement efficient drip-line and micro-sprinkler irrigation systems. Other strategies include contouring land to reduce water usage, using sensors to measure soil moisture and designing channel and pump systems to capture and reuse runoff.

Reducing nutrient runoff

Nutrient runoff — caused by rain flushing nutrients from fertilizers into surrounding bodies of water — is a concern in many farming regions where we operate. Unless properly managed, runoff can damage surrounding ecosystems, compromise community water supplies and reduce productivity.

In 2015, we revised our fertilizer and pesticide KPIs to improve tenants' application practices and reduce waste.

We track our progress on a range of factors involving water, nutrient runoff and other environmental issues using KPIs that align with the PRI Farmland Guidelines (see page 10).

Conserving water through innovation

Working with our farm operators, we strive for optimal water efficiency using a range of innovations, technologies and cooperative efforts. Here are two examples from U.S. regions:

Recycling wastewater for irrigation in California

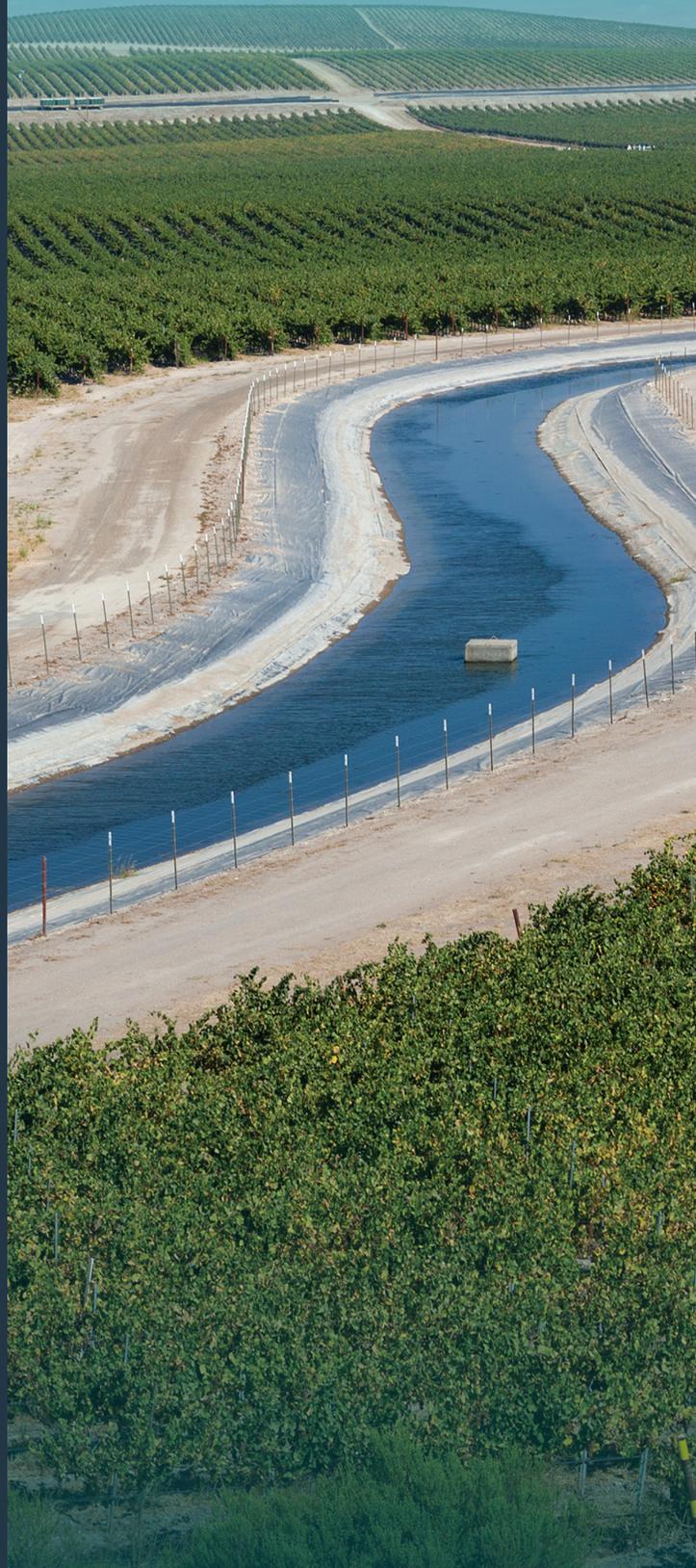
In 2014, Westchester's vineyard management team worked with the Napa Sanitation District to recycle treated wastewater for irrigation.

Nuveen invested \$2 million in capital and property easements to develop a two-foot-wide pipeline irrigating our properties and those of 30 to 40 other landowners in Los Carneros Water District. Reusing wastewater cut irrigation costs by up to 65%, improving the bottom line for local farmers, and is expected to reduce surface and groundwater consumption in the area by 75%.

Boosting irrigation efficiency in the Mississippi River Delta

In the Mississippi River Delta region, we have several tenants using irrigation tools such as Pipe Planner (a web-based tool for planning irrigation tubing and layout) to design more efficient furrow irrigation systems.

We also participate in the Yazoo Mississippi Delta (YMD) Joint Water Management District's voluntary flow meter irrigation program. The program encourages landowners to install flow meters on irrigation wells to monitor annual irrigation and water use, helping them to conserve the aquifer.



Treating people fairly

Since we depend on local farmers and their workers to achieve our goals, treating local communities fairly is essential to our sustainability program. We are committed to working with partners who share our high standards for respecting human rights and protecting worker health and safety.

We strive to ensure that our tenants, operators and crop managers maintain high-quality practices concerning labor and human rights. For example:

- Lease agreements require compliance with national and international health and safety standards.
- Lease and crop management agreements require adherence to applicable state and federal labor laws and maintenance of proper permits and licenses.
- Farm crop managers and operators provide safety training for employees and ensure certification for potentially hazardous activities, such as applying chemicals or operating machinery.

We track our progress on a range of factors involving labor, human rights, and worker health and safety using KPIs that align with the PRI Farmland Guidelines (see page 10).

Fruits of Employment initiative creates opportunities for people with disabilities

Launched in 2009, our Fruits of Employment hiring initiative shows our fair and ethical treatment principles in action.

This initiative provides a skilled, safety-conscious and stable workforce by hiring people with disabilities to work on our agricultural properties. Disability experts train farm managers on how to source, hire, train and support people with disabilities in performing a range of farming tasks.

All applicants are pre-screened for job compatibility and must be able to perform essential job functions. Workers are trained to perform standard tasks such as pruning, suckering, wire moving, leaf pulling, harvesting and hoeing. They are also given opportunities to learn more advanced skills, such as tractor driving and irrigation maintenance, which help to develop careers in agriculture.

This initiative offers true employment to people with disabilities who often lack job opportunities. The success of our Fruits of Employment initiative has been recognized by private organizations and state and local government agencies, and highlighted in publications such as *The Economist*.



Living up to our commitments

We developed our customized Key Performance Indicators (KPIs) in 2013 to assess our farmland sustainability performance against the five PRI Farmland Guidelines. Each guideline and how we measure compliance is summarized in the table below.

MEASURING SUSTAINABILITY PERFORMANCE

GUIDELINE	1 Promoting environmental sustainability	2 Respecting labor and human rights
KEY PERFORMANCE INDICATORS (KPIs)	<ul style="list-style-type: none"> - Farmland due diligence and post-acquisition processes - Chemical and production inputs - Soil health - Water management and conservation 	Farm managers, tenants and operators agree to comply with: <ul style="list-style-type: none"> - Labor laws - Permanent crop worker health and safety requirements
HOW WE MEASURE PROGRESS	Percentage of acreage meeting established benchmarks	<ul style="list-style-type: none"> - Percentage of partners agreeing to comply - Third-party compliance certifications

In addition to our KPIs, Nuveen continues to sponsor conferences and research on environmental, social and governance practices. We also work with regulators, legislators, self-regulatory organizations and institutional investors to teach the business community about responsible investing.

We participate in public and industry debates, as well as related conferences and symposia. In addition, the TIAA Center for Farmland Research (<https://farmland.illinois.edu>) publishes information on farmland returns and their impact on investment portfolios.

NUFFIELD INTERNATIONAL FARMING SCHOLARSHIP

Every year since 2015, Nuveen has supported a Nuffield International Scholar in one of the countries where we operate farms. Through the Nuffield International Farming Scholarship, our scholar participates with 75 others in a week-long conference to discuss topics related to global agribusiness. In addition, the scholar completes a six-week tour to seven countries across four continents to see and experience differing global agribusiness practices.

3

Respecting existing land and resource rights

- Farmland chain of title and ownership verification
- Compliance with national and local laws governing land usage, conservation and protecting the rights of indigenous populations

- Percentage of acreage with formal title search and review
- Percentage of acreage in compliance

4

Upholding high business and ethical standards

Required courses on business ethics and best practices

Percentage of company staff completing a course annually

5

Reporting on activities and progress toward implementing and promoting the PRI Farmland Guidelines

Commitment to transparency in communicating progress in implementing sustainability practices

- Publishing two sustainability reports:
 - *How we invest in farmland: An introduction to Nuveen's global agricultural sustainability approach*
 - *Nuveen Farmland Sustainability Annual Report*
- Maintaining a web-based, interactive map showing location and crop type for all our farmland properties.

Moving forward

Investment in farmland continues to attract attention globally and many investors now understand the benefits of including this asset class in a diversified investment portfolio. We believe that sustainable farmland practices are integral to producing competitive investment returns for our clients over the long term. In fact, the twin goals — sustainability and investment success — are mutually supporting.

As a complement to this introduction, we provide regular updates on KPI performance in our [*Nuveen Farmland Sustainability Annual Report*](#), where you will find more information about our current practices and progress. Drawing on our global experience, we will continue to refine our approaches toward sustainable agricultural investment, with the goal of encouraging best practices across our farm operations around the world.



ABOUT NUVEEN

Nuveen, the investment manager of TIAA, offers a comprehensive range of outcome-focused investment solutions designed to secure the long-term financial goals of institutional and individual investors. Nuveen has \$970 billion in assets under management as of 31 December 2017 and operations in 16 countries. Its affiliates offer deep expertise across a comprehensive range of traditional and alternative investments through a wide array of vehicles and customized strategies.

For more information, please visit us at nuveen.com.

¹The Future of Food and Agriculture: Trends and Challenges, UNFAO, 2017, <http://www.fao.org/3/a-i6583e.pdf>

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Nuveen provides investment advisory solutions through its investment affiliates.

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OPINION PIECE: PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

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