Responsible Investment in Farmland

2017 report on ethical conduct and responsible stewardship of the environment
A message from Justin Ourso, Portfolio Manager for Agriculture Investments

This year marks our sixth annual Responsible Investment in Farmland Report. This process began in 2011 when we were one of the inaugural participants in a group of UN Principles for Responsible Investment (“PRI”) signatories who developed the Principles for Responsible Investment in Farmland. These principles have since evolved into the PRI Farmland Guidelines (“Guidelines”), which are designed to guide institutional investors who wish to invest responsibly in farmland. Each year we have adhered to these guidelines and included our performance against them in this report.

Since we began reporting in 2012, we have aimed to improve our performance against the Guidelines each year. What began as a simplified report providing transparency around how we integrated the Guidelines into our responsible investment strategy, has evolved into a much more detailed document providing updated profiles of our investments across crops and regions and a set of customized Key Performance Indicators (“KPIs”) that we now use to track performance.

We recognize the importance of effectively communicating with a broad set of stakeholders regarding how Nuveen, the investment management arm of TIAA, invests in farmland. Recently, stakeholder concern has primarily concentrated around three main issues: transparency, engagement with external stakeholders and our investments in Brazil. Some stakeholders have questioned the level of transparency that investors such as Nuveen should provide on its portfolio holdings. Others believe Nuveen has not adequately engaged with external stakeholders. Finally, concerns have been raised about whether investment in emerging markets such as Brazil contributes to land conflicts, leads to the displacement of local people, encourages deforestation in the Amazon, or fosters excessive pesticide usage. We understand and appreciate these concerns and have taken several steps in the past year to address them.

In 2016, we took the following actions to address the aforementioned stakeholder concerns: (1) increased transparency around our farm locations through updated maps; (2) refreshed our approach to stakeholder engagement by hiring a dedicated person to manage these efforts; and (3) enhanced due diligence processes in Brazil. We developed an interactive map of our holdings which is now available on our website HERE, and outlined in further detail in the “Snapshot of Nuveen’s Farmland Portfolio” section of this report. We intend to update this map as appropriate when properties are added or sold over time. This past year we also hired Sanaz Raczynski to manage Sustainability Client Engagement for our Real
Assets portfolio, which includes our agriculture investments. Under Ms. Raczynski’s leadership we hope to centralize oversight of our sustainability initiatives, explore new ways to improve how we report on our progress against the Guidelines and increase engagement with external stakeholders. Already, over the past several months, Ms. Raczynski has engaged with several stakeholder groups (industry peers, investors, NGOs, farmers and others) to discuss opportunities for improvement in the coming months. Ms. Raczynski hopes to continue expanding outreach efforts and collaboration with stakeholders to collectively advance sustainability practices.

In regards to Brazil, we continue to avoid investing in areas in Brazil with potential indigenous community claims, and in biologically significant forested areas such as those found in northern Brazil in the Amazon Biome. We have also re-evaluated and improved our due diligence during the pre-acquisition phase. While our previous process met industry standards for legal and commercial due diligence, where necessary we now engage a qualified third-party to conduct additional background checks. We discuss these efforts in further detail throughout this report. In 2015, we also hired a third party to conduct an independent ESG assessment on a cross-section of our Brazilian farmland portfolio and have followed up with any properties where issues were found to ensure improvements were made. Furthermore, we enhanced our due diligence process to incorporate improvements identified during the assessment and plan to repeat the assessment in 2018 in order to measure progress since the 2015 audit, as well as to identify additional areas for improvement.

This past year also marked the unification of our asset managers under a single firm, Westchester Group Investment Management, Inc. (“Westchester”). We expect this unification to improve company governance, efficiency and ultimately ensure we are applying the highest ESG standards across all geographies to execute together against one coherent strategy. One of the hallmarks of that strategy is relying on the expertise of our locally-based asset managers to identify, acquire and monitor our farmland investments. Westchester provides high-quality support to our portfolio and is critical to our continuous improvement on the 12 KPIs that we established to measure our progress against the Farmland Guidelines. We have made significant progress against several KPIs this past year, and are proud to be one of the few investors to publish these kinds of metrics.

With the announcement of the UN Sustainable Development Goals (“SDGs”) in late 2015, we have also taken initial steps to align with the global goals that aim to make the world a better place. Our position as a long-term investor in the key food exporting regions of the world, our fiduciary responsibility to our participants, along with Nuveen’s long history of acting with integrity, uniquely aligns our investment goals with the SDGs.

We look forward to working with our partners and stakeholders to determine how we can further improve upon the gains in this year’s report. We welcome positive engagement with the NGO community to discuss and evaluate ways for us to improve our transparency. If you have any questions or comments on the content of this report, please contact Sanaz Raczynski at sanaz.raczynski@nuveen.com.

Justin Ourso
Overview of responsible investment in farmland

Today’s global farmland markets are characterized by an evolving set of challenges. Demand for agricultural products continues to increase with global population growth, and higher levels of disposable income are increasing global consumption of animal protein, which requires more resources for production. At the same time, the risk of climate change and water scarcity place further stress on the food production system.

Responsible investors have a critical role to play in deploying sustainable solutions to these challenges that do not harm the environment, or add stress to already compromised ecosystems. We must look to technological advances in farming practices, efficient equipment, and other means that will provide farmland managers and producers with tools to confront these challenges and increase crop yields using fewer resources.

**Responsible farming practices**

Our farmland investment approach is directly aligned with our overall investment philosophy: we are long-term investors helping to provide successful financial outcomes for our customers and clients decades into the future. We believe farmland is an excellent long-term asset class that adds value and diversification to many institutional investment portfolios. We acquire farmland assets generally with 20- to 30-year time horizons.

We are dedicated to the responsible practices outlined on page 3 and have processes in place to foster their adoption, including in-depth pre-acquisition due diligence, ongoing site visits, property reviews, and KPI measurement and assessment. (Please see the “Tracking progress on the Guidelines” section on page 26 for a more detailed view of our performance in using these KPIs). Our core investment strategy is based on a partnership model focused on acquiring existing high-quality farmland and identifying best-in-class local farmers to operate the farms through a leasing or custom farming arrangement. Through our asset management and farm oversight program, we assess and validate adherence to these responsible operating practices.

Beyond our own internal programs, we continue to look to third-party farm certifications, where available and applicable, to verify the responsible practices employed on our properties. While certifications are not available for all crops within our portfolio, where they are applicable we encourage their adoption. Several certifications are used across our portfolio including: Bonsucro for sugarcane, Rainforest Alliance, GLOBAL G.A.P. (Good Agricultural Practices) and USDA GAP (Good Agricultural Practices) for fresh fruits and vegetables and other agricultural producers, and two highly regarded wine-grape certifications in California such as SIP (Sustainability In Practice) and Certified Sustainable. Although there are a range of sustainability-related certifications available for farmland, the aforementioned were selected based on portfolio applicability, stakeholder and market acceptance, and thoroughness. Nevertheless, we welcome feedback and collaborative engagement related to refining and improving the certifications we pursue. Furthermore, we continue to monitor our portfolio of certifications, how they incorporate new technologies, and how best to utilize them in our work. In this report, we list the certifications obtained by our operators and provide additional detail on page 30 under "Third-party certifications."
Responsible Farming Practices

As part of our long-term investment horizon, we are dedicated to the following responsible and sustainable land management practices that support the environmental health and longevity of our farmland properties. Many of these initiatives and strategies deliver dual “wins” for both investment and sustainability outcomes as listed below:

**Soil health maintenance:** Improves yield and input costs

**Water efficiency and conservation:** Protects groundwater supplies, lowers input costs, and addresses water scarcity issues in water-constrained or drought-prone regions

**Resource efficiency:** Minimizes agricultural waste and increases cost savings through the efficient use of chemical and production input

**Biodiversity protection:** Maintains integrity of valuable ecosystem services (e.g., erosion control, water cycling, nutrient cycling, and pollination)

**Respect for labor standards, human rights and safety:** Helps to protect tenants and their workforces from unnecessary risk to their health and ability to earn a fair wage

**Land acquisition transparency:** Helps to ensure that acquisitions do not contribute to land conflicts and displacement of indigenous peoples

**Respect for local communities, smallholder farmers and other stakeholders:** Increases support of local communities’ economic and cultural needs
Challenges to farmland investing

As one of the leading institutional investors in global farmland, we have been using responsible and sustainable practices over the past several years to help manage the challenges noted below. From the beginning of our engagement with this asset class, the adoption of best practices and promising new technologies are intended to enable us to maintain the integrity and value of our portfolio over the decades to come.

**Water scarcity:** Over the past few years, water access and management has become an increasingly significant challenge, requiring ongoing adoption of practices that reduce consumption. Water availability is, and will continue to be, a growing concern for farmers and institutional investors in farmland alike. By encouraging our tenants to use the most efficient irrigation and water management practices available, we can mitigate volatility in water availability and the associated negative impacts on the environment and local waterways. For more information on this issue, please see page 34 ("Ensuring Effective Water Management") for an overview of how Nuveen supports water efficiency on its properties.

**Nutrient runoff:** Nutrient runoff continues to be a concern in many of the farming regions where Nuveen owns or manages properties. Nutrient runoff from fertilizers can damage surrounding ecosystems, and when these nutrients are not absorbed fully in farmland, the short-term productivity of the land and community water supplies may be compromised. In 2015, to better acknowledge the impact of nutrient runoff, we revised our chemical and production inputs KPIs to reflect the differences in how fertilizer is applied across row and permanent crops. For more on this issue, please see page 36 ("Managing Nutrient Runoff Effects") for an example of how Nuveen is working toward better nutrient runoff strategies.

**Climate change impacts:** Climate change impacts may lead to several agricultural challenges, including climate variability and extreme weather, shifting agricultural zones, increased temperatures, and water stress that can compromise crop yields. In addition, climate change can accelerate agricultural stresses such as declining soil fertility, water degradation, pest and plant disease pressure, and loss of agro-biodiversity.
**Deforestation:** A key concern among stakeholders is that farmland investment may come at the expense of forested areas. Nuveen addresses this concern by ensuring our entire farmland portfolio consists of land approved for agricultural use. Furthermore, the majority of our farmland portfolio has been used as farmland for many years, if not decades. Beyond this basic approach, we also seek to avoid investing in biologically significant forested areas such as those found in northern Brazil in the Amazonian biome. Our processes help to ensure that the lands we acquire meet all government requirements for forest protection and contribute by improving and rehabilitating certain lands set aside for conservation. See page 42 for more information on how we adhere to the Brazilian Forest Code.

**Land rights protection:** As emerging markets open their economies to foreign direct investment, stakeholders have expressed concern around investors taking advantage of insecure land rights in undeveloped areas to purchase large tracts of land. In regions with still-maturing legal and civil infrastructure, our due diligence process helps to identify parcels of land that are unsuitable for investment based on these grounds. Our procedures, where relevant and applicable, include a title search and review process to ensure the land we own is part of a verified chain of ownership for a minimum of 20 years and an assessment of outstanding legal, civil, tax case, and criminal activities related to the seller in the most relevant jurisdictions that are verifiable in the public domain. Recognizing that title searches are just one aspect of due diligence, we also review licenses permitting land conversion to agriculture, satellite imagery to understand historical land use patterns, and government global positioning system data used to substantiate land claims. See page 40 (“Respecting Land and Resource Rights”) for more detail on this aspect of our process.

**Transparency:** Non-governmental organizations (NGOs) and agriculture activists often voice their concern on the lack of transparency of farmland investors with respect to their investments. We make every effort to be transparent in our investments, such as publicly sharing the municipality/administration location of farms as well the type of crop grown in each of these municipalities. Our publication of this Responsible Investing in Farmland report for the past five years and our commitment to improve disclosure demonstrate our dedication to being transparent about our farmland investments to the highest extent possible while retaining sensitive commercial information as required by our business.

**Worker health and safety:** Given our primary operating strategy of leasing our farms to third parties, we are one step removed (i.e. generally not direct operators), and, as a result, we aim to ensure our tenants uphold high standards of worker health and safety. In 2015, we commissioned a third-party evaluation of labor and human rights and environmental sustainability practices across portions of our Brazilian portfolio and found that the majority of our tenants performed very well. For more on this issue, please see page 38 (“Respecting Labor and Human Rights”) for information. We expect similar periodic assessments on new properties.

At Nuveen, we take farmland investment concerns seriously, and we believe our investment approach and transparency sets us apart.
Newcomb

AR  3,669

STATE  ACRES
Our role in delivering on the Sustainable Development Goals

In late 2015, the member states of the United Nations adopted the Sustainable Development Goals (SDGs), a set of 17 global goals and 169 specific sub-targets designed to address a broad range of sustainable development issues. These goals set the agenda for how countries, companies and individuals can work together to create a more sustainable and equitable future.

While many of the goals are extremely ambitious, they create a powerful framework for thinking about all three dimensions of sustainable development: the environment, economics and society.

We believe all 17 goals are important and interconnected, but realize that we are best positioned to impact only a subset of the 17 goals. Following an analysis of the 17 goals and sub-targets, we have identified three that are most relevant to our farmland investing:

**SDG 2**
End hunger, achieve food security and improved nutrition and promote sustainable agriculture. Several of the sub-targets within this goal are related to agricultural productivity, sustainable and resilient food production, agricultural research and infrastructure.

**SDG 6**
Ensure access to water and sanitation for all. Nuveen can specifically impact the sub-targets within this goal related to water quality, water-use efficiency and the protection of water-related ecosystems.

**SDG 15**
Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss. Nuveen is positioned to impact the sub-targets related to sustainable use of terrestrial ecosystems like wetlands and forests, restoration of degraded soil and biodiversity conservation.

Over the next year, we will be doing further analysis to better understand our role in supporting the SDGs and will provide an expanded update in our next report.
Farmland stakeholder management

To understand our approach to farmland investing, it is important to become familiar with the key stakeholders in our investment process. As investors, we distinguish our role from those of our business partners, which include investors, farm operators and numerous other stakeholders such as farm workers and local communities.

Investors
Nuveen has established several investment entities, including TIAA-CREF Global Agriculture LLC and TIAA-CREF Global Agriculture II LLC (the “TCGA entities”) to make farmland investments. These entities provide equity capital for land purchases and capital investment including but not limited to upgrading irrigation technology, which conserves water resources while improving yields, installing well monitors to track water usage, and paving roads on properties to reduce dust.

Institutional investors represent the majority of members of the TCGA entities. TIAA and our co-investors make capital contributions to the investment entity, and receive capital distributions from the investment entities. These distributions may have several revenue sources including rent paid by farmers, proceeds from the sale of properties, and crop sales. In addition, all interested TCGA board members participate on the Environmental, Social and Governance (ESG) Advisory Councils which review Nuveen’s adherence to a written ESG policy based on the Guidelines.

Asset Manager
Nuveen’s affiliated asset manager, Westchester, covers all areas where we invest in agricultural properties including the United States, Australia, Brazil, Chile and Europe, and is a critical stakeholder in the implementation of our investment approach. Westchester identifies, acquires, and monitors our farmland investments and is also responsible for the negotiation of the lease and crop management contracts. Because Westchester personnel are based in the regions where we invest, they are well-positioned to work directly with farmers and crop managers within the local communities to meet these Guidelines. In many cases, Westchester employees have close ties to family farms and may even farm themselves, allowing us to apply decades of farming experience to how we manage our properties.
Farm Operators
Farm operators manage the properties on a day-to-day basis. Our relationships with farm operators generally depend on the types of crop being farmed. We invest in farmland that produces two kinds of crops: row crops and permanent crops.

- Row crops are planted or harvested annually, such as corn, cotton, sugarcane, or soy. These crops may be further processed into food for human consumption, animal feed, fuel (e.g., ethanol production), or fiber for clothing. With row crops, the farmer generally leases the land from the investment entity and pays rent to the entity. The terms of the lease are usually established or renewed on an annual or multi-year basis. The lease term is generally a function of market convention and in the U.S., which is the most developed market, has the shortest lease duration. Notwithstanding these annual leases, Westchester has found that tenant turnover is very low with many tenants having been on our farms for ten years or longer; this low tenant turnover speaks to the high quality of our farmland portfolio, tenants and Westchester's emphasis on building strong, lasting relationships with farmers. These farmers are responsible for acquiring seeds, fertilizer, labor, equipment, and other inputs, and for growing and harvesting the crops. Once the row crop is harvested, a crop buyer purchases it from the farmer, and the proceeds of this purchase go to the farmer.

- Permanent crops, usually vines or trees, are planted once and then produce crops over many years. Examples include apples, tree nuts, citrus, or wine grapes. They may be sold as a finished product for human consumption, or used as ingredients to be processed into some other type of grocery item. Most of Nuveen’s permanent crops are custom farmed. Westchester helps to manage the sales and marketing of the crop, and the proceeds from the sale of the crop go to the investment entity. Under a custom farming strategy, a crop manager is responsible for the cultivation of trees or vines during the non-bearing stage and for the management of the crop once the trees and vines are producing. A key difference with permanent crops is that a significant portion of the asset value is in the tree or vine and related improvements, which have a finite life. Another key difference includes the labor associated with harvesting them. While row crop harvesting is largely mechanized, certain permanent crops, as well as certain higher-value specialty row crops, like vegetables and strawberries, may require hand labor to pick and harvest the final product.

A number of factors affect how we manage and oversee stakeholders within the farmland portfolio. As we seek to establish sustainable and responsible practices across all our properties, a few conditions that can occasionally limit our abilities:

- We have varying degrees of influence over tenants and operators based on the nature of the relationship (i.e., leased row crop farms vs. custom farmed permanent crop farms). Nuveen can exercise greater control over permanent crop properties where we custom farm and where the investment cycle can take years to produce returns.

- We face different dynamics across the regions and countries where we invest. For example, a more competitive tenant market (as in the U.S. Midwest) allows our asset manager to dictate more terms in the lease as compared to less developed markets. Geography also makes a difference in how labor is employed. In some regions such as Brazil, the farm operator is also required to provide housing for laborers.

- Size limitations of tenants and operators can impact their ability to justify and afford compliance or staff to gather and report additional data. Small family operators may not have the resources or expertise to establish documented policy and procedures, relying instead on generational knowledge in the business and operations. Our ESG audit in Brazil confirmed this observation.
Nuveen’s due diligence process

As investors and farmland managers, Nuveen and its partners seek to be good stewards of the land we own and manage. We believe that ethical conduct, responsible stewardship of the environment, and respect for those with whom we do business are essential to the long-term performance of our farmland investments. While we do not directly operate most of the farms we own, we work with our asset managers, tenants, and custom operators to promote sound agricultural management practices and look to meet or exceed all environmental standards, labor regulations, and legal requirements.

Our rigorous due diligence process facilitates fundamental analysis of each property prior to acquisition, and we monitor the performance of each farm individually over time through our management and governance process. We understand that we must continuously evaluate our due diligence and oversight approach, and Nuveen revisits its procedures to assess their rigor, appropriateness, and scope in each market. In 2015, we added several new KPIs to our annual evaluation process, and in 2016, we adopted a newly developed code of conduct in Brazil that we communicated in person to tenants through a series of site visits. For further information on these changes see page 26 “Tracking progress on the guidelines.”

Pre-acquisition due diligence

Our formal investment process examines each investment opportunity prior to acquisition and applies a set of criteria for determining whether to acquire a property. This process includes an assessment of the suitability of any third-party managers, joint-venture partners, tenants, or operators, as well as an analysis of the property to ensure it meets our investment risk-return criteria.

This due diligence process, where relevant and applicable, also includes a title search and review process to help ensure the land we seek to own has been part of a verified chain of ownership for a minimum of 20 years. Over the past year, we have taken additional steps to enhance our evaluation of ownership in Brazil. While our previous process met industry standards for legal and commercial due diligence, we have added several steps to obtain additional types of information on each seller. If we find any reason for concern we will engage a qualified third party to conduct additional background checks. Only in cases where we are satisfied with these checks on the seller will we move forward with a land purchase. For further information on this process see page 40 “Respecting existing land and resource rights.” If we discover
any fact-based and documented unacceptable or illegal practices, and/or circumstances through this research and review process, we will not purchase the property.

As part of the property analysis, we assess the environmental impacts and risks of each farmland investment using an environmental site assessment. These include an assessment regarding hazardous substances that complies with the standard for Phase I assessments by the American Society for Testing and Materials (ASTM) or the local country equivalent. AECOM, a third-party auditor and global leader in environmental property assessments, performs the assessments to ensure and verify the findings.

Our property site assessments and due diligence also use extensive pre-acquisition checklists that consider a range of issues pertaining to farmland-specific properties, such as pesticide storage practices, harvesting practices, water rights, vehicle-emissions standards, and mineral ownership rights. This process also accounts for any potential environmental liabilities relating to hazardous conditions or other relevant issues such as the presence of wetlands and endangered species. If a property does not meet our strict standards for acquisition, we will not complete the purchase. In certain cases, we have turned down transactions because a property was not managed in an environmentally sound manner.

**Attestation documents:** Westchester is required to follow certain Nuveen policies and procedures relating to agricultural investment governance and compliance. Each year, Westchester is required to review and confirm adherence to a variety of property conditions, ranging from infrastructure maintenance and harvesting practices to compliance with legal, employment and other local regulations.

**Site visits:** Westchester also conducts regular property site visits to confirm that conditions meet or exceed our standards. Westchester is key to this process as its employees provide direct, local access and management for our farms.

Since 2013 we have regularly evaluated our site visit process to drive continuous improvements, particularly in Brazil. This has resulted in a more comprehensive internal certification process that is expected to contribute to a higher level of labor compliance, as well as efficiently indicate if a farm is operating sustainably.

**Farmland Guidelines KPIs:** In 2013, Nuveen developed a set of KPIs to identify, assess, mitigate, and monitor the relevant risk factors for sustainable farmland investing. These KPIs were developed in conjunction with Westchester and were specifically designed to allow us to assess our performance against the Farmland Guidelines moving forward. In 2015, we updated these KPIs to improve our ability to monitor our progress against the Guidelines and an evolving set of farming practices. Going forward, we will continue to update and enhance these KPIs based on industry trends. (See the “Tracking progress on the Guidelines” section on page 26 for further detail on our KPIs and our latest performance. Additional information on exact KPI changes can be found throughout our 2015 report and in detail in the 2015 report appendix at TIAA.org/2015report.)
Brazilian site visit process evolution

In 2013, we began developing a specific methodology to improve site visits in Brazil, hired additional staff, and established four sub-regional offices to maintain better oversight of properties across the country. The methodology established a process for each office to conduct a site visit using a checklist of items across several functional criteria, which cover each of the five Guidelines. The result was a more comprehensive internal verification process implemented from 2013 onward.

In 2014, we recognized the importance of strengthening site visits of our Brazilian properties, and Westchester’s predecessor firm in Brazil, Radar Propriedades Agrícolas SA, hired a Head of Sustainability to develop and implement Nuveen’s farmland investing sustainability strategy.

In 2015, Nuveen commissioned BSD, an independent consultant specializing in farm evaluations in Brazil, to conduct an assessment of labor, human rights, and environmental sustainability practices across half of our Brazilian holdings. Using the observations gleaned from this assessment, the team developed a more robust internal verification system and Farmland Principles Verification tool which is expected to be fully implemented in 2017. Site visits are now structured around the five Guidelines, with reports incorporating more granular information and photo documentation of environmental and working conditions. In addition, the team created a detailed tenant code of conduct which was shared and discussed in person with each tenant starting in mid-2016, and will be incorporated into a follow up process with each tenant going forward. An important part of this process has been educating tenants on the value and benefits of pursuing sustainability practices. This enhanced communication with our tenants allows for increased transparency and a strong platform for continuous improvement.
Sugarcane Block One

BR 64,219
BRAZIL GROSS AREA
55,236 CROP AREA
Snapshot of Nuveen’s farmland portfolio

At the end of 2016, Nuveen managed nearly 1.7 million gross acres of globally diversified farmland valued at $6 billion.

We continue to implement our core investment strategy that targets the acquisition of high-quality row crop-producing assets in the principal grain-exporting regions of the world. We also seek additional diversification through purchases of farmland for specialty row crops, such as berries and vegetables, and permanent crop investments, such as wine grapes, tree nuts, and tree fruits in premier growing regions.

Nuveen managed entities acquired several properties in 2016 across the U.S., Australia, Brazil, Chile and Poland, including permanent and row crop transactions. These properties range in size from as little as 15 acres to as much as 39,000 acres. In the U.S. and Chile our permanent crop portfolio has expanded with crops such as avocados, cherries and grapes. Our purchases in Australia, Brazil and Poland have increased our acreage in the row crop sector with additional sugarcane, grains and oilseeds.

We focus on entering markets that have a good legal structure in place and operate in harmony with local regulations. It is important to note that as we expand our portfolio into new geographies including Chile and Poland, we continue to apply our existing pre- and post-acquisition due diligence and management procedures in accordance with the local laws and practices of each country. We treat new geographies with the same care and evaluation as our core geographies and expect the same level of performance and adherence to our guidelines as we do from our existing properties.
Portfolio transparency

As part of our ongoing efforts to increase transparency around our farmland portfolio we have recently added the below interactive map to our website.

This new mapping tool gives users a closer look at the locations and types of crops grown on each of our properties.

Access the map online
https://www.tiaa.org/public/assetmanagement/strategies/alternatives/agriculture/farmlandmap
Portfolio diversification

Since our first investment in farmland in 2007, we have built a portfolio diversified by geography and crop type. The following charts detail our current farmland holdings as of December 31, 2016

Agriculture Acreage

Based on gross acreage of 1,697,219 as of 12/31/16
Illinois 24,163 ACRES
Indiana 4,168 ACRES
Ohio 6,845 ACRES
Idaho 10,483 ACRES
California 58,701 ACRES
Oregon 332 ACRES
Washington 11,961 ACRES
Florida 36,022 ACRES
Mississippi 33,768 ACRES
Louisiana 8,732 ACRES
Arkansas 55,991 ACRES

United States
NUVEEN FARMLAND HOLDINGS
Australia
NUVEEN FARMLAND HOLDINGS

Western Australia 303,129 Acres

Victoria 17,605 Acres

New South Wales 290,482 Acres

Queensland 73,519 Acres

Oil Seeds
Grains
Poland

NUVEEN FARMLAND HOLDINGS

Warmian-Masurian 17,351 ACRES
Pomeranian 2,330 ACRES
Lubusz 2,963 ACRES
West Pomeranian 9,276 ACRES
Chile
NUVEEN FARMLAND HOLDINGS

Region VI 1,306 ACRES
APPLE  NUTS  AVOCADO  CITRUS  CHERRIES
PARTNER PROFILE

Greenwich and the Guilisasti family

Nuveen began partnering with the Guilisasti family and its commercial farm management division Greenwich, in late 2015 to identify and evaluate properties for acquisition. The Guilisasti family is well known in Chile as a leader in responsible farming. The family founded Greenvic S.A., a fresh fruit export company which is among Chile’s top ten fresh fruit export companies and number one in organics. The family also runs Agrofarming, a recently formed commercial farm management division that leverages the multi-generational farming, packing, crop marketing and business experience of the Guilisasti family.

We are pleased to have expanded this partnership to include Agrofarming S.A. as a key on-the-ground partner, whereby Greenwich is helping us manage the properties we have acquired. We see this partnership as a great example of our desire to work with best-in-class, well-respected service providers and tenants.

The Guilisasti family takes a holistic approach to farming and considers the interaction of natural resources and agricultural inputs as a system. The family and its companies believe that soil nutrition, integrated pest management, efficient irrigation technologies and cover cropping can interact to improve soil health and water retention, minimize erosion and reduce weed and insect pressure. Greenvic’s leadership in organics demonstrates the company’s commitment to sustainable farming practices. Moreover, two of the wineries within the family portfolio, Emiliana Winery and Fetzer Winery in the U.S., have long been recognized for their sustainability practices.

Emiliana Winery is the world’s largest organic grape grower and a pioneer in establishing sustainable and biodynamic practices in the wine industry. Fetzer Winery, based in the U.S. was the first winery to operate on 100% renewable energy and recently obtained B-Corporation certification. With the B-Corporation certification, Fetzer Winery demonstrates its dedication to rigorous standards by integrating social and environmental performance, accountability and transparency commitments into company governing documents.

Beyond sustainable agriculture practices, the family is widely known for its professionalism, integrity and fair treatment of employees. In addition to ensuring healthy and safe working conditions, they also offer developmental programs in English and computer skills and educational scholarships for the children of employees. The family has built a legacy of trust and reputation for quality and we look forward to reinforcing our relationship in the coming years.
FARM PICTURED

Rancho El Paraiso

CL  294

CHILE  ACRES
Tracking progress on the Guidelines (KPI results)

In adherence with Guideline Five, Nuveen has committed to report publicly on our activities related to implementation of the Farmland Guidelines. This section provides greater detail on how we put each Guideline into practice and gives examples of our activities.

Improving our KPIs to meet evolving needs

In 2013, we introduced our initial set of KPIs, and we are now in our fifth year of using KPIs to monitor our performance against the Farmland Guidelines. We originally created the KPIs to enable us to effectively measure our progress and provide evaluation metrics on how we are performing against each of the five Guidelines.

In 2015, we revised our KPIs, working closely with Westchester as well as SustainAbility, a think tank and advisory firm. Several KPIs were revised to be more specific and others were tied to existing certification standards or third-party programs as a proxy for good management. Detailed explanations for these KPI changes are included in the 2015 report, which you can find at TIAA.org/2015report (starting on page 15). We will continue to revisit these KPIs to ensure they are relevant and consistent with our strategy and operations. We expect they will evolve further as we work with our partners to set higher standards for managing our properties.

2016 KPI progress

We have seen significant improvement across several KPIs in the past year. Two of the KPIs where we saw the most improvement are KPI 1.4: Chemical and production inputs for permanent crops and 2.2: Worker health and safety. Both of these were driven by increased certification across several of our properties. We also improved on KPI 1.3: Chemical and production inputs for row crops, KPI 1.5: Soil Health and KPI 4.1: Staff training business and ethics. For the second year in a row we have fallen behind on 1.6: Water management and conservation: accounting, which we are working to address. We have consistently been strong in water management/conservation in water constrained areas, but have more work to do in areas where water is plentiful. We provide further detail on our KPI performance by Guideline in the following sections.
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<tr>
<th>Number</th>
<th>Topic</th>
<th>KPI</th>
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<td>Guideline 1: Promoting environmental sustainability</td>
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<td>1</td>
<td>Pre-acquisition environmental integrity</td>
<td>Percentage of acreage acquired during reporting period that had appropriate environmental assessment conducted by an independent third party prior to acquisition</td>
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<tr>
<td>1</td>
<td>Post-acquisition assessment</td>
<td>Percentage of acreage owned longer than one year with annual property inspection completed by the asset manager</td>
</tr>
<tr>
<td>1</td>
<td>Chemical and production inputs: row crops</td>
<td>Percentage of acreage used to grow row crops that use variable rate or equivalent technologies to efficiently apply fertilizer and/or pesticides</td>
</tr>
<tr>
<td>1</td>
<td>Chemical and production inputs: permanent crops</td>
<td>Percentage of acreage used to grow a permanent crop, vegetable, or berries certified under a third party that verifies the farm is maintaining good management of fertilizer/pesticides</td>
</tr>
<tr>
<td>1</td>
<td>Soil health</td>
<td>Percentage of total acreage with ongoing testing (at least every 4 years) to monitor soil health and assess pH and nutrient levels</td>
</tr>
<tr>
<td>1</td>
<td>Water management and conservation: accounting</td>
<td>Percentage of acreage using irrigation with detailed records of annual water usage maintained</td>
</tr>
<tr>
<td>1</td>
<td>Water management and conservation: technologies and innovation</td>
<td>Percentage of acreage using irrigation with practices in place for water conservation (e.g., water-conserving technology)</td>
</tr>
<tr>
<td>Guideline 2: Respecting Labor and Human Rights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Labor compliance</td>
<td>Percentage of on-site managers and tenants/operators agreeing to comply with state and federal labor laws</td>
</tr>
<tr>
<td>2</td>
<td>Worker health and safety</td>
<td>Percentage of acreage used to grow a permanent crop, vegetable, or berries certified under a third-party good practices verification program that verifies worker health and safety issues</td>
</tr>
<tr>
<td>Guideline 3: Respecting existing land and resource rights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ownership and local land rights</td>
<td>Percentage of total acreage with formal title search and review completed to verify chain of title/ownership</td>
</tr>
<tr>
<td>3</td>
<td>Ownership and local land rights</td>
<td>Percentage of total acreage that is compliant with Federal Reclamation Law (Western U.S.) or assessed against applicable aboriginal heritage registers (Australia) or other indigenous rights depending on region</td>
</tr>
<tr>
<td>Guideline 4: Upholding high business and ethical standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Staff training on business and ethics</td>
<td>Percentage of company staff completing one annual business ethics course or industry best practices course</td>
</tr>
</tbody>
</table>

Progress against the KPIs is rated based on the following scale:
- 95+% (satisfactory)
- 80-94% (opportunities for improvement exist)
- <80% (improvement needed)
Promoting environmental sustainability

As long-term investors, we believe that responsible stewardship of the environment is essential to the long-term performance of our farmland investments. Therefore, many of the KPIs we track under the promoting environmental sustainability Guideline are ones that we have adhered to for quite some time, including soil health and water management.

Within Guideline 1, we achieved 100% ratings across KPIs 1.1 and 1.2, pre- and post-acquisition assessments, inclusive of properties acquired in 2016. This ongoing high level of achievement on both KPIs is a testament to our management practices. Across chemical and production inputs for row and permanent crops, we saw solid improvements. In the past year there was a slight increase in KPI 1.3 for row crops from 97.3% to 99.7% and a significant increase in KPI 1.4 for permanent crops, which jumped from 56.2% to 79.4%. The increase for KPI 1.3 for row crops was driven by good recent profitability in Australia which has allowed several of our smaller operators there to upgrade machinery and adopt technology for variable and/or controlled rate applications of nutrients and chemicals. These practices help to better match inputs with row crop requirements, minimize leaching and runoff during heavy rain and irrigation events, and avoid input waste from application overlap. The large increase for KPI 1.4 was driven by additional third-party certifications on our wine-grape properties.

Many of the new properties acquired this year were operating under existing certifications, including Bonsucro in Brazil and USDA Good Agricultural Practices (“GAP”) in California. In addition, several new properties acquired in Poland are currently pursuing GLOBAL G.A.P. certification. We will continue to emphasize the importance of third-party certifications and hope to see more operators achieve certifications in the coming years.
We performed well on KPI 1.5: soil health at near 100% with only three small properties not yet in adherence. In addition to testing soil health over time, our tenants adhere to necessary crop rotations — generally on multi-year cycles — that help protect soil fertility. Rotations are fundamental to the sustainable and resilient crop production systems of our tenants as they: reduce the risk of pest and disease build up and resistance to herbicides, build soil fertility and are key to profitable farming. Further, our investments support farmers and tenants who use the latest technologies and farming practices, which helps lower the use of fertilizers, water, and other inputs while generating higher yields.

There was a slight decline this year for KPI 1.6: water management and conservation accounting from 80.7% to 78.4%. This reduction was due to the acquisition in 2016 of one property in the southern United States that did not have a well monitor. In that region, well monitoring systems have traditionally not been used as water scarcity risk is low, but we expect these properties will adopt water accounting procedures over time. We continued to achieve 100% across KPI 1.7 for water management and conservation technology use on our irrigated properties.

Within environmental sustainability, there are several issues we focus on, including the use of third-party certifications as a proxy for good farm management and practices, effective water management through conservation technologies, and managing nutrient runoff. We discuss some of our practices around each of these areas of focus in the following sections.
Third-party certifications

In 2015, we began tracking the number of properties with a third-party sustainable farming certification. Across our row crop portfolio, we encourage adoption of widely accepted certifications, including Bonsucro, the Better Cotton Initiative and the Round Table on Responsible Soy for our sugar, cotton and soybean-producing tenants respectively. Across permanent crops and many specialty row crops, such as vegetables and berries, USDA Good Agriculture Practices (GAP) and GLOBAL G.A.P. are widely used standards in the industry. For wine grapes, we look for crop-specific certifications such as Certified Sustainable (by CSWA, the California Sustainable Winegrowing Alliance) and Sustainability in Practice (SIP) as a measure of good practice. As of this year we are also pleased to include the Rainforest Alliance in this list as well.

While the specifics of each certification vary, some general categories appear across several standards, including legal compliance, worker health/safety and labor standards, water management, environmental practices (including aspects like pesticide and fertilizer application among others), and community relations. The chart below outlines several of the certifications Nuveen properties have achieved.

### Nuveen property certifications

<table>
<thead>
<tr>
<th>Crop</th>
<th>Certifications</th>
<th>Certification link</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wine grapes</strong></td>
<td>Certified Sustainable (CSWA)</td>
<td>sustainablewinegrowing.org</td>
</tr>
<tr>
<td></td>
<td>Sustainability in Practice (SIP)</td>
<td>sipcertified.org</td>
</tr>
<tr>
<td><strong>Vegetables/berries/combinable crops</strong></td>
<td>USDA GAP and GHP</td>
<td>ams.usda.gov/services/auditing/gap-ghp</td>
</tr>
<tr>
<td></td>
<td>GLOBAL G.A.P.</td>
<td>globalgap.org</td>
</tr>
<tr>
<td><strong>Sugarcane</strong></td>
<td>Bonsucro</td>
<td>bonsucro.com</td>
</tr>
<tr>
<td><strong>Cotton</strong></td>
<td>Better Cotton Initiative (BCI)</td>
<td>bettercotton.org</td>
</tr>
<tr>
<td><strong>Soybean</strong></td>
<td>Roundtable on Responsible Soy (RTRS)</td>
<td>responsiblesoy.org</td>
</tr>
</tbody>
</table>

As certification procedures and guidelines improve, our ultimate goal will be to identify all applicable third-party certifications for farmland and eventually aim for third-party verifications of any applicable Nuveen assets.
Currently, certifications vary across crop type and geography. In the absence of a single standard, we continue to look toward widely adopted third-party certifications as a benchmark of good practice among tenants and as a reference for KPIs 1.4 and 2.2. For example, in KPI 1.4 we elected to use a certification for our permanent crop properties as a measure of whether our properties are utilizing good fertilizer/pesticide practices.

In the past year, several thousand acres of land in our portfolio were certified or acquired with an existing certification. In the US, over 3,500 acres of our almond cropland achieved GAP certification and almost 9,000 acres of wine grapes were certified with Certified Sustainable or SIP. In Brazil, we acquired over 5,500 acres of sugarcane properties that already had the Bonsucro certification. We are also proud to announce that our sole citrus property in Brazil was the first in our portfolio to achieve the Rainforest Alliance certification. The GLOBAL G.A.P. certification is also active in Chile, and one that we are considering pursuing on producing lands and on any lands that will begin producing crops in the next several years. While none of our Polish properties are currently certified, we are actively pursuing GLOBAL G.A.P. and hope to see several properties achieve certification in the next year.

We will continue to monitor and evaluate regulatory changes, industry standard practices and the evolution of these crop certifications to inform our KPIs. We recognize that some companies further down the value chain are also creating their own questionnaires or certifications to address sustainability issues in their farmer supply chain. However, because of wide variability in scope, we continue to watch for industry standardization that will facilitate better understanding and adoption.
Loma del Rio
CA 2,893

FARM PICTURED
In the Central Coast of California, Westchester partners with the farmland management firm Monterey Pacific Inc. (MPI) to manage Nuveen’s vineyards with a high standard of sustainability. Owned and managed by Steve McIntyre, a viticulturist, enologist, and industry veteran of nearly four decades, MPI operates 12,000 acres across Monterey County, in areas such as the Saint Lucia Highlands, Arroyo Seco, San Bernabe and Hames Valley. Under Steve’s leadership and vision to reshape the industry, MPI recently certified 6,000 acres to Sustainability in Practice (SIP) Certified or Certified California Sustainable Winegrowing with a commitment to certify the remaining managed acreage this year.

The SIP certification, born from the Central Coast Vineyard Team of which Steve is a founding member, is a highly-regarded standard for sustainable vineyard and wine certification. The rigorous certification helps farmers and winemakers demonstrate dedication and improvement in social and environmental practices. Winegrowers that apply for certification are assessed against strict requirements that measure performance against issues such as habitat conservation, energy efficiency, pest management, water conservation, economic stability, and human resources.

In addition to pursuing and achieving certification, MPI hires a full-time agronomist as part of its staff, who leads implementation of an innovative program to incorporate year-round no-till cover crop. This program utilizes compost from local green waste and winery waste to improve soil fertility and keep carbon sequestered in the soil. MPI also hires a full-time sustainability staff member to oversee activities and the certification process, while working with managers and employees to implement farm data management systems. These efforts were recently recognized as MPI was awarded the Sustainable Winegrowing Green Medal Leadership Award in Business which recognizes the leadership of wineries and vineyards committed to sustainability.

Outside of managing the vineyards, Steve McIntyre also dedicates much of his time to engaging with the other winegrowers across California, frequently traveling around the state to speak about the sustainability practices he implements in his vineyards. For example, Steve attends the annual Wine & Grape Symposium in Sacramento every year where he leads talks with other winegrowers, and holds quarterly meetings with the Central Coast Vineyard Team to bring in speakers from organizations such as the Natural Resource Conservation Service (NRCS) and the U.S. Department of Agriculture (“USDA”) to educate growers on how they can improve their practices.

Looking forward, Steve aims to establish partnerships with other companies to provide childcare to agricultural workers, many of whom have both parents working full time. He also continually pursues development and implementation of technology in MPI’s managed farms to drive efficiency, improve operations, and reduce carbon footprint.
Ensuring effective water management

Water will always be an important consideration and, at times, a challenge for agricultural producers. Global water crises and shortages are demanding new solutions and better metrics to track usage and ensure responsible management. Water availability and reliability are two factors we carefully consider before any property acquisition and are also elements that are embedded into our ongoing management practices. While efficient water use is always imperative for any farmer, it is even more important for irrigated properties and those in regions with higher water risk such as California and Australia.

In this section, we outline some of our general water conservation practices. Because there are few, if any, irrigated properties in Brazil, we have highlighted some efficiency practices specific to Australia and the U.S. For additional examples please see our previous reports.

*Nuveen’s efforts: water conservation technologies*

Nuveen’s farmland managers use a variety of techniques to improve water efficiency. Managers work to minimize soil erosion and rainfall runoff by building properly designed roads, berms, culverts, and terraces. Across the permanent crop lands (tree fruits, nuts, citruses, grapes), we implement efficient drip-line and micro-sprinkler irrigation systems. On farmlands using flood or furrow irrigation, our tenants use recyclable polyethylene piping. When combined with other water-management techniques, these pipes can improve water-use efficiency by 25%. Where appropriate, we implement low-pressure, center pivot irrigation systems with drip nozzles, perimeter pads and flashboard-riser culverts, as well as cutting-edge technologies like moisture probes that monitor soil moisture levels and inform the farmer to apply water only when necessary. On some properties in the southern United States and Australia, techniques like precision land leveling and tailwater (leftover water from irrigation or rainfall not absorbed by the soil or crops) recovery systems are being introduced to improve drainage, control erosion, and reduce overall water usage.

*Australia*

In Australia in particular, well-maintained tailwater systems are used to ensure any runoff can be collected and reused in the system with the highest efficiency. This practice can result in 10-20% water savings. Although this water conservation technique is common in Australia, Westchester works to ensure that purchased irrigated properties have tailwater recovery systems in place, and also invests in improving these systems over time to make them as efficient as possible.
Mississippi River Delta

In the Mississippi River Delta region of the U.S., we have several tenants utilizing 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, understand the impact on the aquifer, and ensure it remains healthy. Nuveen met the YMD 10% well metering target at the end of 2016 for its properties and also established a policy to add flow meters when appropriate to new wells drilled in the region.

California

Although the drought in California officially ended in 2016, our California managers continuously strive to be as water efficient as possible. Every permanent crop property in our California portfolio is either drip-irrigated or micro-sprinkler irrigated to maximize efficiency. In the past year, we re-lined one water reservoir because it was losing approximately 2,500 gallons of water per minute due to leakage. Now fully re-lined, the reservoir loses only minimal water through evaporation. In the past few years one of our California vineyards installed a pipeline to utilize locally treated wastewater for irrigation. In the Central Valley, operators have begun using sophisticated imaging technology to evaluate water stress at the plant level which enables more efficient irrigation and, ultimately, water savings. For further information on some of these examples, please see our previous reports.

While we try to be as efficient as possible in this water stressed area, we are also aware of the importance of maintaining groundwater sources. The passage of California’s Sustainable Groundwater Management Act (“SGMA”) in 2014 laid the foundation for regulation of groundwater throughout the state. The goal of SGMA is to achieve sustainability among the state’s water basins by eliminating over-drafting. We generally acknowledge that there will be increased costs associated with these regulations, but we also understand the longer-term benefits of the regulations. Implementation of SGMA will promote a drought reserve stock for perennial crops such as nuts, reduce or prevent land subsidence, and reduce long-term agricultural pumping costs. Nuveen intends to operate properties in compliance with both the letter and spirit of SGMA.
Managing nutrient runoff effects
Nutrient runoff is an ongoing concern in certain areas of our portfolio, and an unfortunate side effect of rain that washes critical fertilizer nutrients (mainly nitrogen and phosphorous) into surrounding bodies of water. Excessive amounts of nitrogen can cause algae growth, which depletes oxygen levels and adversely affects water quality. Consumption of nitrogen-heavy water can lead to health issues and can even be toxic at certain levels. Nuveen plays a part in efforts to reduce runoff by seeking to ensure that tenants comply with more stringent nutrient reduction regulations and through our revised KPIs.

In California, the Irrigated Lands Regulatory Program (ILRP) regulates discharges from all irrigated agricultural lands and requires corrective actions when impairments are found. In the Mississippi River watershed, states continue to develop nutrient reduction strategies for reducing nutrient runoffs. Some states have completed their strategies, while others continue to work on completing drafts and final documents.

In 2015, to better understand the impact of and methods for reducing nutrient runoff, we revised our chemical and production inputs KPIs (1.3 and 1.4) to account for how our tenants are applying fertilizer and pesticides efficiently. We set a higher standard than in previous years and made two separate KPIs, allowing us to account for the varying practices across row and permanent crops. For row crops such as corn, cotton, sugarcane, and soy, we evaluated how many of our tenants use Variable Rate Technology (VRT), or equivalent practices (e.g., split rate nitrogen application) to efficiently apply fertilizers. This differs from techniques such as blanket application, where fertilizer is applied consistently across an entire area. In the case of permanent crops, we use certifications (when available) as a proxy for efficient chemical and production applications. KPI 1.4 now reports how much acreage in our portfolio has attained some certification that verifies efficient application of fertilizer and/or pesticides.

Last year we saw improvement across both KPIs 1.3 and 1.4, indicating that overall across the portfolio, our tenants are using more efficient nutrient and pesticide application practices, which we hope means we are contributing less to runoff issues. We will continue promoting improved practices and work with our asset management team to ensure industry best practices on our properties.

This challenge is an example of how portfolio diversification helps mitigate risks. In Brazil, the soil in tropical climates has a distinctly high capacity for absorbing nutrients. The high amount of clay particles containing iron oxide drives Brazilian farmers to apply small amounts of nutrients, thereby reducing waste of fertilizers and nutrient runoff issues. Several of our Brazilian tenants also employ sustainable agricultural practices such as planting over straw and terraces that further limit nutrient runoff. While some areas of Brazil do have nutrient runoff problems associated with a more temperate climate, we do not currently invest in those regions.
Respecting labor and human rights

Farmers are at the core of the long-term sustainability of our properties, so it is essential that we respect their rights as well as those of their employees and local communities. By requiring a variety of consistent practices across our farmland portfolio, we strive to ensure that our tenants and operators maintain a high standard of practices around labor and human rights:

- Our standard lease agreement for farm operators requires compliance with national and international health and safety standards such as USDA, OSHA, and EPA requirements.
- Lease and crop management agreements specify adherence to applicable state and federal labor laws and require tenants/operators to maintain proper permits and licenses.
- Our farm operators provide safety training to their employees and ensure all relevant custom farm operators are certified as required and trained for potentially hazardous activities, such as applying chemicals or operating machinery.
- Annual property inspections are completed to confirm that management of the property is meeting expectations with regard to safety, appropriate signage, and the safe handling of chemicals and pesticides.

We maintained strong performance against KPI 2.1 this year and saw dramatic improvement in our performance against KPI 2.2 increasing from 56.2% to 79.4%. This increase was achieved by additional certifications across several properties in the U.S., as outlined on page 30 (certifications pages). For newly acquired permanent crop properties, our managers work diligently to obtain certifications as soon as possible (usually within our second full year of ownership).

In our newest geographies of Poland and Chile, we incorporate the same labor and human rights practices that we have applied to our existing portfolio. In Poland, our operators abide by the Polish Labor Code, which provides protection for employees on aspects including social security, working conditions, maternity leave and dismissal procedures. As part of operating in this country they adhere to the European Convention on Human Rights. In Chile, our operators also abide by the Chilean Labor Code, which is among the most comprehensive in the LATAM region. Worker protections are monitored extensively and include minimum wage requirements, maternity leave and established guidelines for maximum work hours per week.
2015 Brazil property assessments

In 2015, Nuveen engaged a consultant to evaluate several properties in Brazil. BSD is an independent, global sustainability consulting firm with long-standing experience in reviewing labor and environmental conditions within agricultural operations in Brazil and broader South America. Together with BSD, we established a thorough and detailed assessment scope to review operational compliance across half of our Brazilian portfolio. Eleven criteria were identified to measure performance across the Farmland Guidelines. Seven of the criteria relate to Guideline 2, including: child labor, forced labor, freedom of associated/collective bargaining, hours of work, health and safety, compensation, and working and living conditions.

Since Nuveen’s Brazilian farms are leased and operated by third parties, the assessment took place in collaboration with our local tenants and operators, as they were ultimately the focus. To ensure thoroughness, site visits were conducted both on Nuveen farms and at the primary base of operations for tenants. Findings that did not meet expectations were grouped into two categories by BSD:

- Physical non-compliance findings related to Brazilian regulations, defined as an actual event of non-compliance with a regulation or standard (e.g., first-aid kit missing)
- Policy/control non-compliance observations related to best-practice standards, defined as the lack of policy or control mechanism to manage risk (e.g., no policy for scheduled machinery inspections)

BSD’s findings from the assessment demonstrated that most our tenants were largely in compliance with the first category: regulations and good farming practices and meeting the standards to which we hold our tenants and Nuveen accountable. A majority of the issues identified were related to the second category: missing policies or controls, which we regard as seriously as an actual physical violation. In general, the number of non-compliance issues increased as the size of a tenant’s farm decreased. Our larger tenants, who are better capitalized and have well-developed operational procedures and policies commensurate with their scale and presence, had far fewer infractions.

Since the completion of the assessment, we worked with BSD to develop tenant assessment reports to address and correct identified issues. We also modified our site visit process to include additional aspects of our tenants’ operations, as detailed in “Nuveen’s due-diligence process–site visits” section on page 13. As we expand our farmland investment program into new geographies, the lessons learned from this assessment will enhance our adherence to this Guideline.
Respecting existing land and resource rights

Respect for existing land and resource rights is critical to our responsible investment strategy and continues to grow in importance. Competition for scarce resources such as arable land and water has intensified due to increasing global population, changing food consumption patterns, and extreme weather events.

For communities, land rights underpin social and economic stability and security. Yet in some places, land rights may be a source of conflict due to ambiguous laws, lack of clear documentation, or historical disputes. We do our best to avoid investing in areas with ambiguous land rights laws, and in regions where we do purchase land, we ensure that proper land title searches and ownership are confirmed prior to purchase. The due diligence process our manager uses to verify the chain of ownership seeks to confirm that there are no competing claims for the properties.

As in years prior we have maintained our 100% performance rating on both KPIs related to Guideline 3. These ratings mean that for any new property acquired in 2016, we conducted a formal title search and review as part of our due diligence process (KPI 3.1) and thus help to ensure that all properties were compliant with applicable land rights laws in the United States, Brazil or Australia (KPI 3.2). Land rights regulations vary across the geographies where we invest, but in each case we adhere to existing laws:

- **Western United States**: Federal Reclamation Law places limits on the acreage that can receive Bureau of Reclamation water. Nuveen has limited exposure to this law and complies across all properties to which this law applies.

- **Australia**: Where aboriginal heritage is an important consideration, the freehold land that Nuveen currently manages has all native title rights extinguished, as a matter of law. However, we do still ensure that all properties are assessed against applicable aboriginal heritage registers and that any remaining aboriginal heritage sites listed on these public registers are identified and protected under our stewardship.

- **Brazil**: The Brazilian Federal Constitution governs the land rights of indigenous populations and quilombolas (descendants of slaves who inhabit the lands of the former quilombos — villages founded by slaves that escaped from farms during the slavery period). Indigenous land is recognized as the portion of a sovereign territory that is inhabited by one or more indigenous ethnic groups who utilize the land for
the development of productive activities and physical or cultural reproduction, regarding customs and traditions. We do not displace any indigenous people through our ownership of Brazilian farmland, do not own any properties with indigenous populations or quilombolas claims and will continue our due diligence to ensure we do not purchase any moving forward. Our processes help to ensure that the lands we acquire and manage meet all government requirements outlined by the Brazilian Forest Code. See call out box on page 42.

- **Poland:** Land titles are guaranteed by the Polish constitution, and all land is registerable. The regulations in Poland are quite robust and restrictive making this geography a low risk area for land/resource rights violations.

- **Chile:** Overall, Chile has a well-organized title system making land rights disagreements uncommon. In the far south of Chile, the Mapuche, an indigenous people, have had land rights issues with certain mining or agricultural companies in the past. We are aware of this issue and do not plan to invest in areas where land rights disputes are common.

As we continue to expand the geographic footprint of our portfolio, we will report on our practices as they relate to local conditions. To ensure we uphold existing land and resource rights, our due diligence process for every property includes several steps beyond the initial title search that includes:

- A review process to ensure the land we own is part of a verified chain of ownership for a minimum of 20 years.

- In Brazil, we also conduct an assessment of relevant outstanding legal, civil, tax cases, or criminal activities related to the seller and related business entities that are verifiable in the public domain. We also expanded reputational risk reviews to encompass a broader set of sources. If during this search we find any reason for concern we will engage a qualified third party to conduct additional background checks. Only in cases where we are satisfied with these checks on the seller will we move forward with a land purchase.

- For Brazil, which has continued to evolve its land rights legislation, we also review:
  - Licenses permitting land conversion to agriculture and an evaluation to ensure we are in compliance with Brazilian law
  - Satellite images, some dating back to the 1950s, to understand the historical use of land, cultivation patterns, any transformation or development, the presence of indigenous populations, and environmental issues
  - Global positioning system (GPS) demarcations as part of the Brazilian INCRA’s (National Institute of Agrarian Reform) electronic system, System of Land Management, which is in charge of validating, organizing, and regulating geo-referenced information on boundaries of rural properties
Brazilian Forest Code

In Brazil, Nuveen has processes in place to help ensure the lands we acquire and manage follow the Brazilian Forest Code (the “Code”). This legislation was passed in 1965 and governs protection of forests on private properties, which contain over half of Brazil’s remaining forests and savannahs. Revisions to the Code were passed in 2012, and one of the most important requirements focuses on accelerating the restoration of Legal Reserves for native vegetation. Leaving these protected areas intact preserves biodiversity, maintains water quality, and stabilizes soils.

In addition, the Ministry of Environment has developed an online land registry system, the Rural Environmental Record (“CAR”), as a way for landowners to register their property boundaries and environmental information.

Our asset manager verified that all agricultural properties in Brazil are in adherence with the registration requirements and is in the process of starting the restoration plan process for any applicable properties. It is Nuveen’s general practice to maintain the forests on the land it acquires in Brazil. As of December 2016, we had planted approximately 1,150,000 trees across 2,100 acres of land in Brazil.
Cosan Araçatuba

BR 9,868
BRAZIL GROSS AREA

7,447
CROP AREA
Upholding high business and ethical standards

Upholding high business and ethical standards is reflected in two of Nuveen’s six core values: Act with integrity and deliver excellence. We incorporate a number of business practices into our standard investment operating model that demonstrate our commitment to upholding and implementing this Guideline.

KPI 4.1 encompasses our investment manager’s entire staff and the type of training that staff may receive. Our investment manager instills an organizational culture of high business and ethical standards that goes beyond the investment staff, which is why we measure training across the entire organization. We believe that there may be many types of training appropriate to a given employee’s role and encourage our asset manager to make that determination.

Our target is 100% for this KPI, and we are proud to report that this year we have improved our performance over last year and have reached this target. We expect to maintain this high level of staff training in the next year as well.

Fruits of Employment hiring initiative

The Fruits of Employment hiring initiative was started in 2009 to provide a skilled, safety-conscious, and stable workforce for Nuveen’s farmland investments. It encourages and facilitates the recruitment and hiring of people with disabilities onto our custom-farmed agriculture properties. Disability experts provide training to farm managers on how to source, hire, train, and support persons with disabilities to perform many of the general tasks required to maintain the farm.

Since its inception at one of Nuveen’s apple properties in Washington state, the initiative has grown to include six locations and over 30 full-time workers. This initiative offers true employment to individuals with disabilities. In an environment where there are limited work opportunities available, we offer competitive employment opportunities that meet a business need within integrated worksites.

All applicants are pre-screened for job compatibility prior to being hired and must be able to perform the essential functions of the job with or without accommodation.
Workers are then trained to perform all standard tasks on the properties, including pruning, suckering, wire moving, leaf pulling, harvesting, and hoeing. They are provided opportunities to learn other skills such as tractor driving and irrigation maintenance, which enable them to further cultivate their careers in agriculture.

We ensure workers are paid a commensurate wage, and some have become skilled enough to earn even more when they are compensated on a per-unit rate. For some workers, this job is the first time they are expected to perform at the same level as individuals without disabilities, and we have found that they rise to those expectations. In some cases, the work skills that the crew members learn on our properties enable them to progress to other job opportunities in their career paths, and we view that as a success.

Engaging experienced disability consultants, like the Association of People Supporting EmploymentFirst (APSE), has been critical to our success. APSE was founded in 1988 with the goal of promoting, establishing and expanding employment opportunities for all people through local, regional and national networks. They assisted us in not only engaging with the disabled community, but also strengthening our internal business practices as they relate to hiring people with disabilities. With their help, Nuveen and its ranch managers have built partnerships with both publicly and privately supported employment agencies to source qualified candidates and support them after hiring.

Widespread outreach has increased awareness of the program and established the business case for hiring people with disabilities in agriculture. The farm managers engaged in the initiative have found that hiring these employees has made business sense, as they more easily stay on schedule to complete the myriad tasks required to maintain a productive farm. The development of paid internships has not only benefitted transition-age students, but also supported our long-range goal of creating a stable workforce.

We are proud that the accomplishments of this initiative have been recognized by state and local government agencies as well as private organizations, and highlighted in publications such as The Economist.
**Nuffield Scholarship**

Since 2015, Nuveen, through its TCGA farmland investment entities, has supported three Nuffield International Scholars. Nuffield is an organization that sponsors overseas travel and study designed to develop agricultural sector leaders and innovators of the future.

Each year a scholar is chosen from a pool of candidates. Through the Nuffield International Farming Scholarship, our scholar participates with 75 other Nuffield Scholars in a week-long conference to discuss the most current topics related to global agribusiness and completes a one-and-a-half-month tour to seven countries across four continents to see firsthand and learn from differing global agribusiness practices.

In 2015, we supported Cecilia Fialho, a young Brazilian economic analyst at the Uberlandia, Brazil based Celeres Consultancy. Ms. Fialho completed a research paper focused on four different countries and their current GMO-related legal processes, public perception of GMOs, and upcoming developments regarding the use of GMOs.

In 2016, we supported Luciano Loman, the founder and partner at Metos Brasil, whose research focused on irrigation management and new water management technologies. We congratulate Ms. Fialho and Mr. Loman on their work and look forward to seeing the work of our latest scholar, Carla Borges, who is focusing on intelligent agriculture machinery and making equipment maintenance more efficient.

Nuveen and its investors intend to continue supporting young agriculturalists through the Nuffield International Scholarship program in the countries where Nuveen operates farms. We are proud to support the scholarship as it broadens each Scholar’s horizons, builds capacity, and allows them to bring back ideas which will benefit their nation’s agriculture. Nuveen believes that this effort ultimately serves to ensure that there is a sustainable return from its investments in farmland.
University of Illinois Partnership

Since 2013, the TIAA Center for Farmland Research at the University of Illinois has supported research that informs agricultural policy and aims to drive long-term and sustainable investment practices by institutional investors, businesses, and farmers.

The Center helped implement the Precision Conservation Management initiative (PCM), designed to be an innovative service program that will make use of farm business and financial practices, in combination with developing precision technology and data management to help farmers manage, adopt, and adapt conservation practices and improve on-farm decision making. The goal is to integrate conservation into commodity crop operations through financial impact analysis of conservation practices, technical assistance, financial assistance, and data assessment tools, all specifically applied to conservation.

The Center is involved in developing the economic projections of the impacts of conservation practices inside the Illinois portion of the program. Farmers have signed up in the PCM and will be the only group to our knowledge that have the equivalent of experimental data at field size for the impact of cover crops and conservation tillage on soil characteristics through time. In addition, the Center will be involved in evaluating how the rating system for crop insurance can include soil and soil health issues, which will represent a major change in the way that crop insurance ratings work, if the project moves forward.
Reporting on activities and progress toward implementing and promoting the Guidelines

The Guidelines for Responsible Investment in Farmland form a cornerstone for how Nuveen builds and manages its global farmland portfolio. Our 2016 report demonstrates Nuveen’s commitment to implementing and promoting the Guidelines. Since our first report was released in 2012, we have continually strived to improve transparency and engagement with our stakeholders.

In the current report, we have continued to use KPIs that address the significant differences between row and permanent crops and provide transparency on our activities. We continue to use voluntary third-party certification as a way for our stakeholders to ensure that defined and appropriate industry best practices are being followed. We will continue to evolve the KPIs to account for shifting challenges as we operate under the Guidelines.

Beyond reporting, Nuveen continues to sponsor research on environmental, social, and governance practices, and to sponsor conferences. We also work with regulators, legislators, self-regulatory organizations and other institutional investors to educate the business community about responsible investing. We regularly submit written comments on regulatory proposals and testify before various governmental bodies, administrative agencies, and self-regulatory organizations.

We participate in public and industry debates, as well as related conferences and symposia. In addition, the TIAA Center for Farmland Research (farmland.illinois.edu) makes information on farmland returns and its impact on an investment portfolio, available to all interested parties. The Center’s longer-term strategy to participate in agricultural policy formation, particularly related to conservation and stewardship of agricultural land, targets an audience of farmers, investors, and policy makers.

Investment in farmland continues to gain more attention globally, and many investors now understand the benefits of including this asset class in a broad investment portfolio. However, we strongly believe that following the Farmland Guidelines is key to preserving the productivity of the world’s farmland and simultaneously producing investment returns that can be sustained over decades.
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By applying lessons learned through our own asset management experience, as well as recognizing the concerns of the broader stakeholder community, we hope to achieve improved outcomes on the farm, for our investors, and for the broader community.
Looking ahead

We are pleased with the progress we have made in the past year especially the improvements achieved on KPIs 1.4 and 2.2 and our efforts to improve transparency with additions to this report and our website. As our portfolio grows and we expand into new geographies, we will continue to uphold a high standard for the local partners that we choose to work with. Partners like Greenwich and the Guilisasti family in Chile help to strengthen our portfolio and ensure our dedication to responsible farming and investment practices. We are also proud to have farm managers like Steve McIntire in California who continues to inspire our team with his work to expand sustainable certifications across our properties, and his personal efforts to share best practices with other farmers.

As we look to the future there are several initiatives we hope to build upon in the next year. We will continue to aim for improvements across our KPIs, but also want to explore how we can support larger initiatives like the UN Sustainable Development Goals. Given the lack of a single certification which we can apply across all our crops and properties, we are investigating partnerships with existing certification bodies that may offer a solution. We also recognize the growing concerns regarding climate change globally and are evaluating ways to assess the carbon footprint of our farmland portfolio in the coming years.

We look forward to sharing more details of our progress on these initiatives in our next report.

This report was developed in consultation with Nuveen staff responsible for farmland investments, as well as through research involving our asset manager, Westchester, and stakeholders, all of whom provided insight and context on key issues. We thank SustainAbility, Inc. for its assistance with developing this document. As in prior years’ reporting, our intent is to improve our stakeholders’ understanding of how we invest in farmland over the long term. We believe this report is a key part of providing transparency regarding our practices.
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