

IAIA Land-Grant Agriculture and Ecology 3-year Plan

February 12, 2021

Overview

The IAIA Land-Grant program assists in educating our students, and the greater community in traditional and contemporary agriculture, its practices, and its uses. With the assistance of student workers, Land-Grant is seeking to expand its agricultural production, and increase its educational involvement and interaction with the IAIA community.

The IAIA Land-Grant program supports the IAIA Mission and Vision, and the mission of the USDA. The Biden administration is seeking to make agriculture a cornerstone of its climate agenda by asking farmers to take up farming methods that could keep planet-warming carbon dioxide locked in the soil and out of the atmosphere. In a Feb 2021 press release from NM Rep Teresa Leger Fernandez, she states that “The Biden Administration has taken bold action to combat the global climate crisis - and understands that we must do so through a framework of environmental justice. Environmental justice means that because communities of color are at the forefront of experiencing the harms of climate change, we can’t fight climate change without also fighting racism. One of Biden’s very first executive orders was directed at combating environmental racism. With Rep. Deb Haaland at the helm of the Department of the Interior - we will have not only a champion for the environment in this critical position but one who will make sure that the communities most impacted by climate change, including Indigenous communities and people of color, are centered in the work to fight climate change.”. Through our programming, the IAIA Land-Grant program supports these views as well.

Land-Grant also supports the IAIA Climate Action Plan that was signed in 2010 by increasing the revegetation and tree planting activities on our campus. A part of the Climate Action Plan seeks to reverse land degradation on the campus through improved agricultural practices. Land degradation reduces plant yields and reduces the carbon content in the soil. By working to replenish the soil with compost and increasing the vegetation, carbon dioxide will be stored in the vegetation and within the soil through carbon sequestration. Carbon sequestration secures carbon dioxide to prevent it from entering the atmosphere. Carbon is then stabilized in solid form and doesn’t cause the atmosphere to warm – thus reducing the carbon footprint and helping IAIA meet its Climate Action Plan goal.

Current Activities

The IAIA Land-Grant is involved in the following activities:

- 1) Growing vegetables and flowers for the campus using the greenhouse and the garden

Garden and Greenhouse provide fresh, organic produce to the students and their families free of charge. Produce has also been provided to the IAIA Café and a credit has been given back to the Land-Grant department for any future food prepared by the Café for Land-Grant. Produce includes: corn (sweet and posole), beans (black, Anasazi, Taos), spinach, kale, beets, carrots, swiss chard, sorrel, garlic, onions, tomatoes (various varieties), herbs (basil, oregano, thyme), amaranth, squash (zucchini, spaghetti), chili, tomatillo, apples, pears, and apricots. Students are

encouraged to come into the garden and learn about agriculture and nutrition. ***A small Harvest Station (out-building) needs to be installed next to the greenhouse to process the garden produce per health and safety standards. The floor can be gravel.*** With increased production, produce may be made available for sale to the wider community.

New produce is always being researched for inclusion in the garden. Land-Grant is partnering with area Pueblos to share seeds and grow varieties that may be in danger of becoming extinct. The resulting seeds will then be shared throughout Pueblo communities.

Flowers such as cosmos, sunflower, fire wheel, golden crown beard, zinnia, amaranth, daisy, and asters are also included in the garden. Seeds are harvested and saved each year for planting the next year.

2) Delivering the Junior Master Gardener program to youth around the country

The Junior Master Gardener program provides introductory agricultural programming to youth ages 5-17 across the country via Zoom. Native American concepts are incorporated in the lesson plans. Youth are encouraged to include concepts and traditions from their communities as well.

3) Working with the Continuing Education department to develop workshops that feature Native American agricultural themes.

Land-Grant has Agriculture related workshops offerings of Land-Grant workshops under our Continuing Education program will begin in February 2021. The workshops include:

- Seed Preservation and Protection
- Harnessing and Understanding Reciprocal Purposes of Native Plants
- The Importance of Learning How to Cook
- Finding Balance in our Resilience
- Restoration of Acoma Pueblo Food Systems
- Pueblo Food Experience
- Health Sovereignty Addressing Food, Herbalism, Counsel
- Columbia Plateau Traditional Foods
- 4 Bridges Permaculture
- Cedar as an Art Form

Land-Grant Expansion Projects

The Land-Grant program is looking to expand its operations. The expansion projects include: 1) Pollination with Bees, Bats, and Birds, 2) Increase Plantings Across the Campus, 3) IAIA Recruitment and Retention, and 4) Enrich the Existing IAIA Curriculum.

Pollination with Bees, Bats, and Birds

Pollinators will be encouraged to take up residence across the campus. Please see Attachment 1

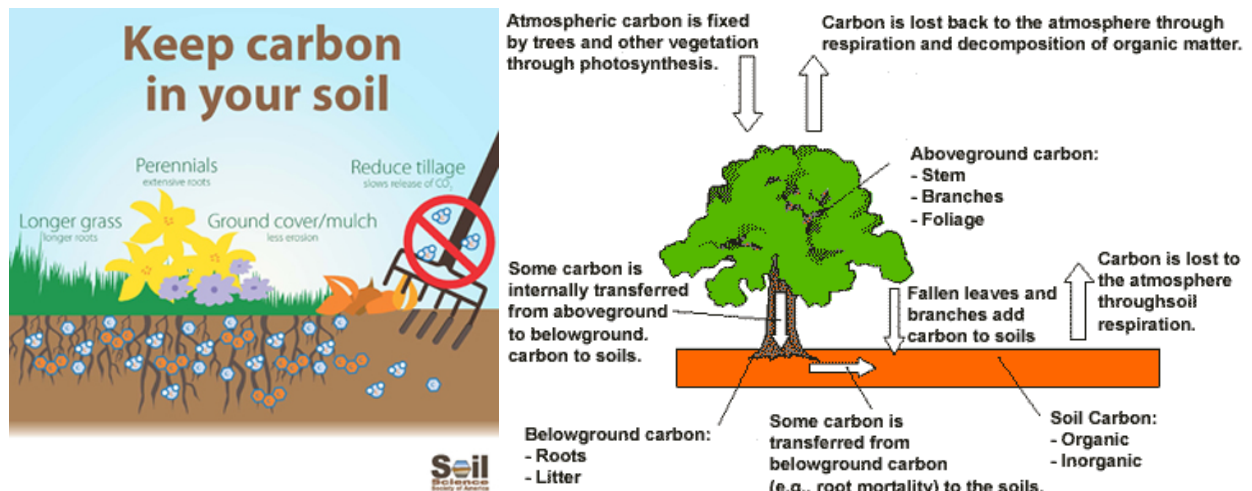
- 1) Pollinator Bees – Blue Orchard Bees that are native to New Mexico will be collected from similar habitat and relocated to the campus. Their purpose is to increase the biodiversity in the area and pollinate the native wildflowers that will be planted, along with the fruits and vegetables in the garden.
- 2) Honey Bees – several hives of European honey bees will be managed near the garden. While they are not native to New Mexico, their products of honey, wax, and propolis can be harvested. The resulting products can then be used in the Café, art projects, and possibly made available for sale. Additional workshops in Bee Management and Honey Harvesting will be offered when the hives have been established and bee products can be safely taken from the hives. ***A small out-building on a concrete pad near the greenhouse will have to be erected to process the bee products per health and safety standards.***
- 3) Bats will also be encouraged to reside in the area and assist with pollination. Bat boxes will be installed in several areas on campus. The bats already live in the area and have been seen resting in several of the doorways of the buildings across the campus. By providing them adequate housing, they will stay and assist in plant pollination, eat insects, and increase the biodiversity on campus.
- 4) Bird houses will be built and incorporated into the landscape as appropriate.

Increase Plantings Across the Campus

Native pollinator plants will be introduced across the campus along the existing drip irrigation lines (Please see Attachment 1). Seeds of native New Mexican plants (including grasses) will be spread throughout the Spring and Fall. Small native trees and shrubs, such as Pinon and chokecherry, will be supplied by the US Forest Service program and planted in appropriate habitat. Student workers in the Land-Grant department will assist in creating and installing signage to identify plant names and potential uses.

A small plant nursery will be established in the next two years. Land-Grant will start growing deciduous (mainly fruit) trees along with other pollinator and herb plants for the pots around the Performing Arts Building in the greenhouse. This will provide trees and plants for the campus, and possibly for sale to the greater community.

The soil on the campus is bleak. Restoring carbon to the sandy dirt through the gradual addition of compost along with the addition of native, non-invasive plants could potentially sequester carbon in the soil. Compost from the Café and the garden will be used across the campus. With time, the plants will hold in more water, prevent erosion, increase the number of microbes, grow more food, and sequester carbon to offset our carbon footprint.



IAIA Recruitment and Retention

The Land-Grant Program will provide Physical and Educational Activities for students in the Summer Bridge Programs. Participants will meet several times with the Land-Grant staff and learn how to identify the Native plants around the campus and their uses. Students will walk around the campus to identify the plants on their own, and bring back samples for identification and for use in art projects. The activities help students make a connection with IAIA and gives them additional reasons to keep the campus clean and stay and complete their educations.

Enrich Existing IAIA Curriculum

The IAIA Greenhouse and Garden have been a part of the Ethnobotany class and the Undergraduate/Graduate orientations. Students are welcome in the garden to draw, explore, and work with Land-Grant to collect plant material for projects. Land-Grant is expanding this relationship by working with the Ceramics department to use old/extra clay to make seed balls for “seed bombs”, and to create ceramic seed vessels for storage.

Planning is currently underway to have students work with the Land-Grant to create wildflower seed bombs and throw them in strategic open campus spaces. Students can also take seed bombs with them to do “guerilla gardening” in other places to encourage revegetation activities. Seeds will include those harvested from the garden in previous years, and new seeds that are native to New Mexico that we do not have on campus.

The garden and the plants on campus provide educational opportunities for students to learn about agriculture and nutrition, paying Student Worker positions, and natural material for art and classroom projects. The ILS and Drawing classes use the garden to supplement their curriculum. With the assistance of the Land-Grant Program Associate, students are encouraged to collect flowers, seeds, corn husks, and other plant material for their classes and projects.

Future Projects

Rain water harvesting and water catchment will be investigated. This would decrease the use of city water on the landscape.

References:

[Compost Key to Sequestering Carbon in the Soil - Science and Climate \(ucdavis.edu\)](#)

[Carbon dioxide Sequestration - Follow Green Living](#)

[Allan Savory: How to fight desertification and reverse climate change | TED Talk](#)

[Pam Warhurst: How we can eat our landscapes | TED Talk](#)