# College of Agricultural, Consumer and Environmental Sciences

# Fall 2024 Newsletter

Department of Plant and Environmental Sciences I https://aces.nmsu.edu/academics/pes/

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December, 2024

## Introduction

**On December 13th, 2024, the Department of Plant and Environmental Sciences recognized and celebrated the graduation of nine undergraduate and six graduate students (five MS and one PhD). We all know it was a long journey for them, they had to go through some challenging situations at times, especially during the Covid pandemic. Many of the students started during the Covid pandemic, but they made it! We must acknowledge their great accomplishments and help them on their way to their next experience. There are many recognitions and awards including the faculty and staff activities that are highlighted in this newsletter. Notably, Katrina Arguello who received the NMSU Academic Achievement Award, Maya Gabitzsch who received Dean's Award of Excellence for Undergraduates, and Harmanpreet Kaur who received Dean's Award of Leadership Excellence for Graduates and Dean's Award of Excellence for Graduate Students. Our Outstanding Departmental Students for this year include Mariela Estrada, Natalie Franco, and Francisco Montano Rodriguez.**

**We know that our graduates will do very well in their respective career plans and desires. As usual, our faculty and staff are highly engaged in academic, research, training and workshop, outreach, and collaboration including international activities. There are other excellent stories in the newsletter, and I encourage you all to read them. I sincerely thank our faculty and staff, who spent significant hours mentoring and coaching our students and participating in all the excellent activities. Also, I thank our alumni, friends, and supporters of the department who provide financial and other resources in support of our student activities and academic and research programs.**

### Department Head

**Dr. Anowar Islam**

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## In This Issue:

# Students Attend and Present Research at DOE Workshop in Augusta Georgia

Dr. Carroll (PES department faculty) traveled with two students August 6th and 7th to the 3rd Annual DOE Environmental Management Minority Serving Institution Partnership Program (EM MSIPP) Achievement Awards Workshop, which was in Augusta GA near the Savannah River National Laboratory. Environmental Science undergraduate student, Makani Araujo, learned about the DOE job opportunities and job search skills. Graduate student, Gladisol Smith Vega, participated in the STEM IGNITE presentation series, where students had only 5 minutes and two presentation slides to communicate their research project to the audience, which included over 300 participants this year during the workshop. Gladisol did an excellent job with her presentation, and both students were able to utilize this opportunity to gain knowledge of DOE programs while also building their professional support network.

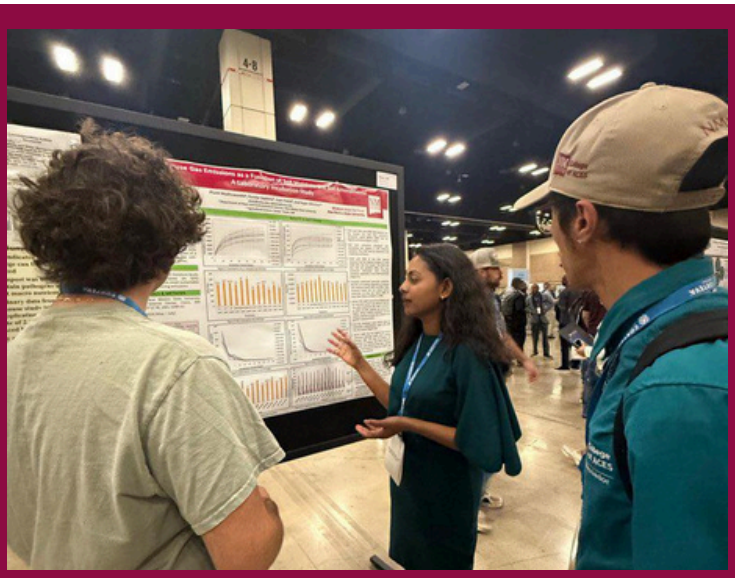

# NC140 Annual Meeting

Shengrui Yao (PES/Alcalde Center) and Robert Heyduck (Alcalde Center) hosted the 2024 NC140 Annual Meeting from November 5-8, 2024, at Santa Fe, NM. There were 32 attendees from 18 states in the US and one province in Canada. The NC140 is a fruit tree rootstocks (apple, peach, pear, and sweet cherry) evaluation group. Attendees had engaging discussions about rootstock trial data, problems, rootstock/cultivar selection, and future trials. Dr. Jay Lillywhite, Associate Dean and Head of Agricultural Experiment Station, and Dr. Anowar Islam, PES department head, presented and welcomed the NC140 group. At the end, they also had a fun tasting of fresh jujube fruit, dry jujube fruit, and various processed products and pastries which will further promote jujubes in the United States.

# NMSU Students Attend 2024 ASA, CSSA, SSSA International Annual Meeting in San Antonio, TX

From November 10th to 13th, nine graduate and undergraduate students from New Mexico State University embarked on a rewarding trip to San Antonio, Texas, to participate in the 2024 ASA, CSSA, SSSA International Annual Meeting, themed "AI Innovations for a Changing Climate". The event brought together researchers, scholars, and students from around the world, providing a valuable opportunity for networking, knowledge-sharing, and showcasing their research.

During the meeting, NMSU students had the chance to attend a variety of seminars and symposium sessions focused on cutting-edge topics in agriculture, soil science, and environmental sustainability. In addition to learning from experts in the field, they presented their own oral and poster presentations, exchanging ideas with peers and professionals from other universities across the United States and beyond.

The trip was made possible thanks to the generous support of Dr. Anowar Islam, Head of the Department of Plant and Environmental Sciences, who approved the use of NMSU's van to transport the group. This initiative marked the first time such a facility was provided for a student conference, and the students expressed their hope that it will be available for future events, enabling more students to attend conferences and present their research.

The students were also grateful for the unwavering support of Dr. April Ulery and Dr. Kulbhushan Grover, who remained in contact throughout the trip and were always ready to assist. Their encouragement and timely responses made the experience even more enriching for the students, ensuring they made the most of their time at the conference.

Proud to represent NMSU at this prestigious event, all students returned with new insights, enhanced skills, and lasting memories. The experience was a testament to the importance of student involvement in academic conferences and the impact of strong institutional support.

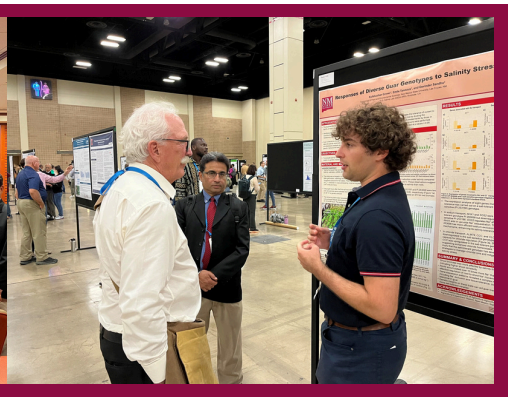
This trip to San Antonio was not only a chance to grow professionally but also an opportunity to explore the rich cultural heritage of the city, adding an extra layer of enjoyment to an already successful conference experience.

# Students from Advanced Sustainable Crop Production, AGRO/HORT 483 course attended 2024 ASA-CSSA-SSSA International Annual Meeting, in San Antonio, TX

Undergraduate students from AGRO/HORT 483 participating in Networking with Certified Crop Advisors session in the ASA-CSSA-SSSA Annual Meeting, San Antonio, TX


From left to right: Christopher Zubiate, Benjamin Lopez Garcia, Dr. Kulbhushan Grover, Aminou Saibu, Emile Tannous, Cesar Jara, Miguel Alejandro Nuñez Mendoza

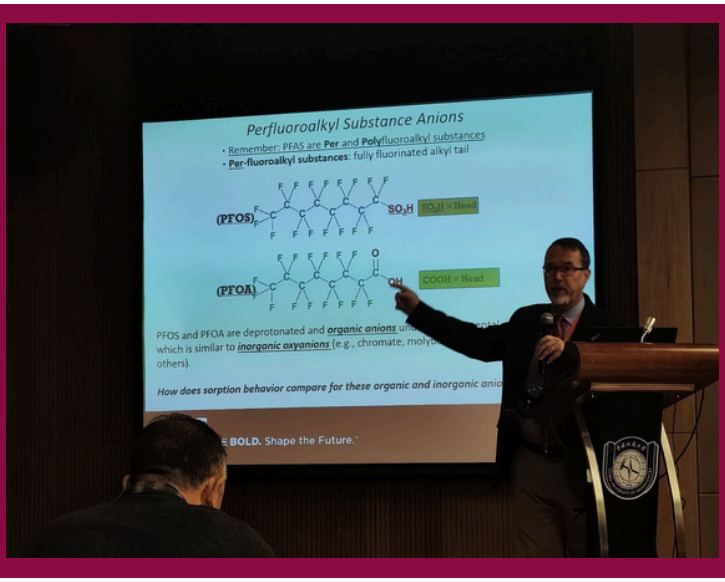
Students from AGRO/HORT 483 participated in an Indo-US Collaboration for Global Agriculture Symposium organized by Dr. Grover and his colleagues, where the students interacted with dignitaries from India and the US involved in international collaborations for research and education in sustainable agriculture.



Mr. Emile Tannous, a Master's student in the PES department, also presented a poster discussing research work on salinity tolerance in guar genotypes that he was involved with Dr. Grover and colleagues from US Salinity lab.

# Dr. Carroll Attends and Presents Research at Organic-Water-Rock Interaction Workshop in China

Dr. Carroll (PES department faculty) traveled to China for the second international workshop on Organic-Water-Rock Interaction. This workshop was held in November 22 -24, 2024, in Beijing. Participants presented and discussed new findings in the field of organic-water-rock interaction, and it served to establish and strengthen friendships with international colleagues. Dr. Carroll's invited keynote presentation was "Comparison of Subsurface Sorption of Per- and Polyfluoroalkyl Substance (PFAS) Organic Anions to Inorganic Oxyanions." This visit allowed for research translation of NMSU research to a wide range of students and scientists across China.




# The NM WSARE Workshop

The NM WSARE (Western Sustainable Agriculture Research and Education) program held it's annual workshop at the Fabian Garcia Science Center on December 12th and 13th. The event brought weed management to life with engaging presentations and hands-on demonstrations. Experts Leslie Beck, Casey Spackman, Brian Schutte, and Marisa Thompson shared cutting-edge strategies for identifying and controlling noxious and invasive weeds, managing urban landscapes, and implementing sustainable practices in rangeland and agricultural settings.

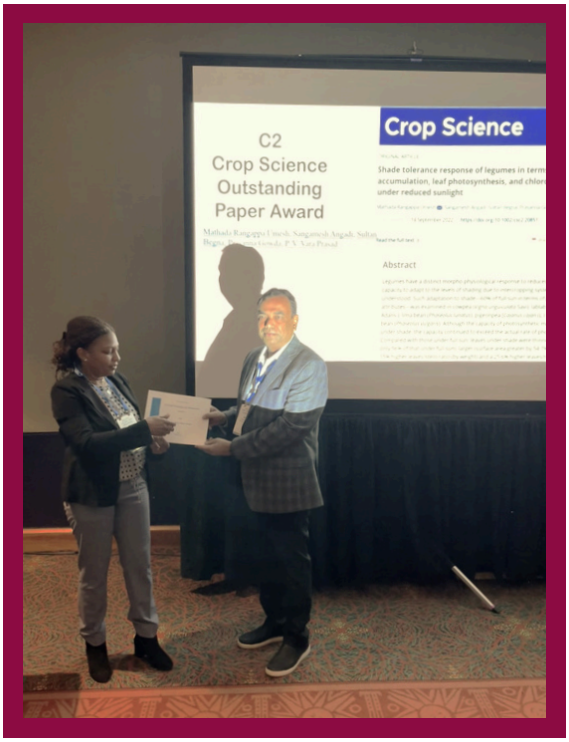
Attendees experienced interactive walking tours featuring drone technology and seed bank management techniques, gaining practical insights into how these innovative tools can be applied to real-world challenges. The collaborative atmosphere encouraged participation as attendees asked questions, exchanged ideas, and left inspired to incorporate sustainable weed management practices into their work. The workshop was a true success, equipping participants to make a lasting impact on land productivity and environmental stewardship.

Dr. Leslie Beck guided participants on a walking tour, demonstrating techniques for identifying different grass species.

## 2024 Crop Science Outstanding Manuscript Award to Our Research Team

By Sangu Angadi

Dr. Sangu Angadi is receiving 2024 Outstanding Papers in Crop Physiology and Metabolism award during the recent ASA-CSSA-SSSA Annual meeting at San Antonio, TX from Dr. Haydee Laza, 2024-CSSA-C2 Award Selection Committee Chair. He received the award on behalf of his research team and Dr. M.R. Umesh, main author of the manuscript titled "Shade tolerance response of legumes in terms of biomass accumulation, leaf photosynthesis, and chlorophyll pigment under reduced sunlight" (Crop Science, 63, 278–292. https://doi.org/10.1002/csc2.20851). The research work was part of a USDA grant that Dr. Sangu Angadi received to develop Sorghum-Legume Intercropping system for the Southern High Plains to sustain Ogallala Aquifer. Previously, the manuscript was also recognized as one of the top ten highly cited manuscripts of Crop Science in 2023.




## Patricia Wallace Wins "Most Creative Costume" in ACES College Halloween Costume Contest


We're thrilled to share that our very own Patricia Wallace took home the Most Creative Costume Award for this year's Halloween celebration across the entire ACES College!

Patricia hand made her costume as a bouquet of flowers, complete with a variety of different flowers and even a card reading "*Witching You a Happy Halloween*". Her outfit stood out among the many outstanding costumes showcased by departments across the college.

Please join us in congratulating Patricia on this well-deserved recognition. A huge thank you to everyone who participated and congratulations to the contest's other winners!

# Summer Events

## Projects supporting NMSU's Education and Outreach Mission:

**On June 27, ASC Farmington hosted its annual field day event. There were 260 registered guests. The event featured field talks about potato, cereal grain, corn, cover crop, and specialty crop research by NMSU ASC Farmington faculty and cooperators including Navajo Mesa Farms, the NMSU IR4 program, and Land Institute. The field tour was supported by a mobile DJ who provided the microphone service, Bonnie Hopkins from San Juan County CES moderated and Clair Francs provided Diné language translation services. The event also featured several tabling vendors under one large tent and smaller canopies. Lunch was provided by Infinite BBQ and the event also included live music and introductory talks on behalf of the Agricultural Experiment Station. Plant and Environmental Sciences and Extension Plant Sciences Department (Dr. Anowar Islam) also provided a departmental and ACES overview. In addition, the Department of Hotel Restaurant and Tourism Management featured a barley salad and cherry spritzer themed foods for guests from cherries harvested out of research plots. Navajo Agricultural Products Industry provided a raffle, and Wonders on Wheels mobile museum also made a stop to round out the festive atmosphere.**

## Florida Students Visit the ASC Farmington

Kevin Lombard

**On July 15, nine students from Florida traveled to the ASC Farmington as part of a 10 ½ day Summer Ag Tour program. The tour is organized by Karen Hamilton of Tampa Bay, Florida. She is an agricultural high school educator for several decades and creates a tour to educate and inspire Florida-based students about all aspects of agriculture at a specific regional view of the U.S. This year they chose the Four Corners States. They started and ended their large "loop" of touring agricultural enterprises from Colorado Springs airport. ASC Farmington hosted the group on "Day 8" of their tour. Brandon Francis provided an overview of Diné agricultural perspectives, and we covered topics about the role of the Agricultural Experiment Station in New Mexico and specifically Northwest, NM. We were one of about 20 tour stops and the students created a blog about their journey: https://summeragtour2024.blogspot.com/**

## ASC Farmington Hosts Diné College "Ag 101" class

Kevin Lombard

**The ASC Farmington hosted 10 students and 4 faculty from Diné College as part of an inaugural "Ag 101" class for incoming college freshmen. Students received classroom instruction in week 1 at the Diné College main campus in Tsaile. On July 22 and 23, students traveled to the ASC Farmington for facility tours, field plot demonstrations and hands-on learning activities in the greenhouse. They also received an overview and tour of Navajo Agricultural Products Industry facilities. This is part of a collaborative project between NMSU and Dine College entitled New Beginnings for Navajo Students funded through USDA/NIFA. The project is supporting two graduate students in the NMSU AXED department with NMSU's role to support credentialing of Indigenous Agricultural Educators.**

# Crops, Crops, Crops

## 2024 ASC Farmington Corn Variety Trial by and Koffi Djaman and Margaret M. West

The Agricultural Science Center at Farmington's 2024 Forage Corn Variety Trial is a collaboration with Agricultural Science Center at Tucumcari, NM. The trial was planted on May 16, 2024 with four entries from Bayer Company-DeKalb brand forage corn seed. The seeds were planted in four plot replications. Data collected will include plant populations, morphological data (corn plant physical data) such as silk dates and plant and ear heights. Samples from the forage corn trial will be analyzed for nutritional components.

## Chile Pepper and pumpkin response to irrigation and its susceptibility to Phytophthora capsici and development of phytophthora blight

Peppers were planted by Dr. Djaman, May 31, 2024. The goal of this research is to develop chili pepper and pumpkin responses to three irrigation regimes: growth, total and marketable yields, and yield components. This work also will determine varietal tolerance to drought conditions and impact of irrigation regime on the susceptibility to Phytophthora capsici, a major disease issue in chili pepper.

## Evaluation of five dry beans for double objective: cover cropping and seed production

Five dry beans were planted by Dr. Djaman on June 19, 2024. The objective of this study is to examine 1) cover cropping to improve soil health, 2) weed suppression, 3) seed production, and 4) diversity to improve farm revenue and human nutrition.

## Using cover crops in transitioning from traditional agriculture to climate-adaptive organic farming in the southwestern US.

On July 12, several cover crop mixes were planted in replicated plots in the ASC Farmington Transitional Organic Plots by Dr. Koffi Djaman. The aim of this project is to identify summer cover crop species suitable for limited irrigation under semi-arid conditions, the role of the cover crop species in improving soil health, and measurements of soil and water conservation.

# New Mexico Soil Judgers Compete at 2024 Regional Collegiate Soil Judging Competition

New Mexico State University hosted the Region VI Regional Collegiate Soil Judging Competition at the USDA-NRCS Plant Materials Center in Los Lunas, NM on Saturday, November 2nd, 2024. Students from NMSU competed against teams of soil judgers from University of California – Davis, University of California – Fresno, Humboldt State University, and California Polytechnic Institute – San Luis Obispo. This year, a total of 38 students competed at the Plant Material Center, along with 8 coaches from the 5 schools.

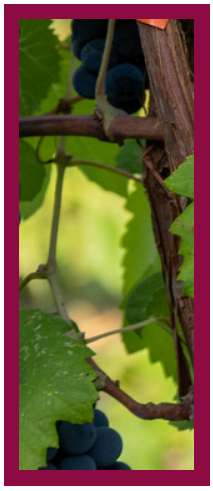
To "judge" a soil, students spend one hour in a 5-foot-deep pit describing the characteristics of the various layers that have developed in the soil, the soil's ability to transmit and retain water and support roots, the geological history of the site, the long-term processes of soil development, the classification of the soil, and the potential challenges of using the soil for various land uses. Students are then scored on the accuracy of their answers in comparison to a description done by a team of professional soil scientists. The soils that the students judged were formed in parent materials consisting of alluvium and eolian sediment along the Rio Grande floodplain. Some of the challenging features described by the students included buried horizons, gypsum and calcium carbonate accumulations.

NRCS Resource Soil Scientists Alyssa Besser and Janella Cruz grading score cards

Soil judging brings out many essential elements of career preparation that are difficult to replicate in a classroom. Soils in the field rarely match our textbook descriptions; they offer complications that confuse even the best soil scientists. Students are put into a high-pressure, high-stakes situation and must work both individually and collaboratively to tackle this complex problem. To succeed, students not only need to develop the skills to execute but the ability to function as a member of a team that can endure and thrive through long workdays, varying weather, and all the challenges associated with fieldwork. This year, contestants described 5 soils formed in the Rio Grande stream terraces which included multiple depositional environments and classified as Aridisols and Entisols.

Soil judging results were ranked for individual performances, pits that were judged as a team, and overall results. The top team for group pits was California Polytechnic Institute – San Luis Obispo, followed by California State University – Fresno and Humboldt State University for second and third place, respectively. Top individual performances included Tanner Ozuna, Adrian Gutierrez and Hannah Chamberlin from Fresno in the top 3 positions, and Nicholas Baham and Molly Bressler from Cal Poly-SLO in fourth and fifth places. Overall, Fresno took first place, followed by California Polytechnic Institute – San Luis Obispo in second and University of California – Davis in third place. The top 3 teams will compete in the National Collegiate Soil Judging Competition this spring, hosted by University of Wisconsin – Stevens Point.

# New Mexico Soil Judgers Compete at 2024 Regional Collegiate Soil Judging Competition



Group pictures of all soil judgers and coaches

NMSU Soil Judging Team: L to R – Lucas Trujillo, Joshua Propfe (assistant coach), Estella Gomez, Katie Bernard, Brooke White, Michael Rodela, McKenzie Stock (assistant coach).

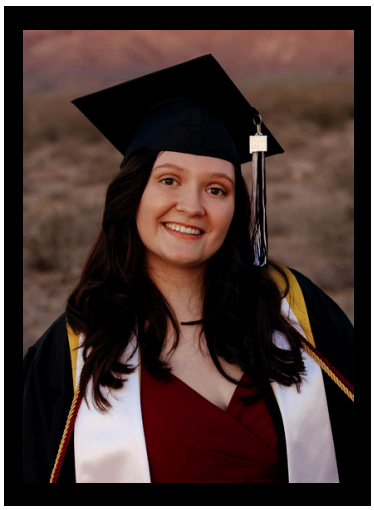
Students listening to Santa MLRA Soil Survey Office Leader Aaron Miller explain the pits after the competition

# Student Awards and Honors

**Academic Achievement Award**

**Katrina Arguello**

Bachelor's of Science:
Horticulture



**Deans Award of Excellence for Undergraduates**

**Maya Gabitzsch**

Bachelor's of Science:
Biology
Bachelor's of Science:
Environmental Science
Minor:
Chemistry

**Deans Award of Leadership Excellence Graduate & Deans Award of Excellence for Graduates**

**Harmanpreet Kaur**

Doctor of Philosophy
Plant and Environmental Science

## Outstanding Departmental Students

**Mariela Estrada**

Master's of Science:
Plant and Environmental Sciences

**Natalie Franco**

Master's of Science:
Plant and Environmental Sciences

**Francisco Montano Rodriguez**

Bachelor's of Science:
Agronomy

# PES Fall 2024 Graduation Ceremony

The Department of Plant and Environmental Sciences held its Fall 2024 graduation ceremony on Friday, December 13th, in the Skeen Hall Rotunda. Friends, family, and faculty, gathered to honor the accomplishments of the graduating students and recognize their dedication to academic excellence.


The ceremony began with remarks from Dr. Anowar Islam, who congratulated the graduates and acknowledged their hard work. Faculty members and advisors were also in attendance to support and celebrate the students' graduation.

This semester, 15 students graduated across multiple programs:
**Bachelor of Science**: Five in Agriculture (four specializing in horticulture and one in agronomy) and five in Environmental Science.
**Master's Degrees**: Four in Plant and Environmental Sciences and one in Water Science.
**Doctor of Philosophy (Ph.D.)**: One in Plant and Environmental Sciences.

We're incredibly proud of our students in the Department of Plant and Environmental Sciences. Over the years, they've shown resilience, dedication, and passion for their fields. This celebration marked not only the conclusion of their hard work but also the beginning of exciting new opportunities.

As our graduates step into careers, research, or further studies, they carry with them the skills and experiences they've built during their time here. Congratulations to the Fall 2024 graduates! We can't wait to see the amazing things you'll do in the future.

## PES Graduating Class:

**B.S. (Agriculture)**
Katrina Arguello, Elizabeth Gamez,
Francisco Montano Rodriguez, Leonardo Perez
**B.S. (Environmental Science)**
Samuel Bustillos, Angelina Chacon,
Carlos De Santiago, Maya Gabitzsch, Alizae Watson
**M.S (Plant and Environmental Sciences)**
Mariela Estrada, Natalie Franco, Abdullahi Liman,
Barsha Sharma
**M.S. (Water Science & Management)**
Charles Mahady
**Ph.D. (Plant and Environmental Sciences)**
Harmanpreet Kaur

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# PES Fall 2024 Graduation Ceremony














*Plant and Environmental Sciences congratulates all of our graduates, and wishes you success in all of your future endeavors.*
*Once an Aggie, Always an Aggie!*

# Congrats Grads!

**Start Your Journey with Plant and Environmental Sciences!**

Scan to connect!

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