

BINYIN ‘PATRICK’ DI

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SUMMARY

A highly versatile and motivated agricultural professional in agriculture, an avid bibliophile specialising in tropical agriculture and farming systems with a passion for emerging technologies, and a track record in delivering research and extension activities on various topics, including Integrated Pest Management (IPM), Climate-Smart Agriculture (CSA) and Precision Agriculture (PA), having extensive research on crop phenotyping, field data collection and genomics specialising in data analytics and remote sensing by using multiple computer languages and software, rapport with academic, government and industry stakeholders and a career commitment for effective science communication.

AREAS OF EXPERTISE

Farming Systems, Precision Agriculture, Spatial Analysis, Data Analytics & Virtualisation

QUALIFICATIONS

Bachelor of Agricultural Science (Honours) – *The University of Queensland, Gatton Campus, QLD*

February 2017 – December 2020

CAREER HISTORY

Cropping Engagement and Adoption Officer – *The Department of Industry, Trade and Tourism (DITT) of the Northern Territory Government, Katherine Research Station, NT*

March 2024 – Current

Providing regional and aboriginal engagement and support services for developing broadacre cropping opportunities in the Northern Territory.

Duties

- Assisted in the development and implementation of an engagement plan to work with local communities, current and potential stakeholders in relation to broadacre cropping in the Northern Territory.
- Followed Free, Prior and Informed Consent, engaged with local development corporations, land councils and landowners to build and maintain effective relationships to develop a sound understanding of sustainable agricultural opportunities, particularly in the context of future demand for food and other agricultural products.
- Worked with participating local communities to establish demonstration sites of crops of interest on their land, collect and analyse data, and prepare reports.
- Coordinated and attended community events and consultations, and highlighted opportunities for commercial cropping opportunities in the Northern Territory.
- Reported success stories of agribusiness development outcomes through appropriate communications channels like newsletters, bulletins, and social media to participating communities and stakeholders.

Achievements

- Produced extension and newsletter materials, technical bulletins and factsheet on broadacre cropping.
- Engaged with various stakeholders and attended industry meetings, forums and conferences.
- Organised field days and demonstration sites and received high satisfactory feedback.
- Established the personal connections to the local farmers across the regions in the NT.

Biosecurity Industry Liaison Officer – *The Northern Territory Farmers Association Inc.*, Darwin, NT

February 2023 – February 2024

Supporting the development and pilot of on-farm biosecurity standards for NT plant industries (primarily horticulture). This will be undertaken through research to develop effective and relevant tools and messaging to implement biosecurity standards across the plant industries and develop and deliver key messages to the industry through a risk-based approach for training and on-farm support to ensure growers are best placed to prevent, prepare, respond and recover from plant pest incursions and meet regulatory responsibilities.

Duties

- Participated in the development and implementation of on-farm Biosecurity Plans and assist with updating plans where applicable. Gathering relevant feedback to inform the review of the current plans and identify any impediments.
- Kept the industry informed of Biosecurity developments and target engagement and delivery of communication materials locally and nationally.
- Consulted with industries to determine likely methods of disease spread, options for pest control, the effect of pest control policies and programmes on industry and gather feedback on the progress of the response.
- Sought and encouraged industry endorsement of pest control policies, cooperation with control activities and dissemination of information to their members.
- Supported the delivery of operational activities including surveillance and removals on commercial properties including securing access, compliance with response procedures, and liaison with contractors and response personnel.

Achievements

- Created, administered, and maintained an on-farm biosecurity management plan to meet the national industry standards.
- Provided technical updates about emerging and existing biosecurity threats to the broader farming community, including NT Farmers' members.
- Enhanced communications amongst key stakeholders, particularly between the industry participants and governments.
- Raised and promote on-farm use of integrated pest management (IPM) against pests, diseases and weeds.
- Successfully obtained “Industry Liaison Officer e-learning” and “Plant Biosecurity in Australia” micro-credential accreditations.
- Delivered several workshops, extension events and farm visits for improving on-farm biosecurity and updating technical information on plant biosecurity risks.
- Efficiently communicated with relevant stakeholders about the latest biosecurity risks across the sectors in plant industries.
- Successfully organised the “Northern Australia Food Future Conference 2023: Northern Myths, Opportunities & Realities”.
- Represented the organisation on various occasions, such as forestry national workshops, National Biosecurity Forum, Plant Pests Surveillance and Diagnostic Network, conferences.
- Contributed to organisational communication materials and activities.

Skills Developed

- Plant Biosecurity

- Science Communication
- Stakeholder and Community Engagement/Outreach
- Professional Networking
- Project Management
- Event Planning and Organisation

Precision Agriculture Specialist – *Rocky River Ag Services (EFMG)*, Crystal Brook, SA

November 2021 – November 2022

Influencing the technology platform of the business incorporating sales, service, parts and training functions related to precision agriculture.

Duties

- Installed a wide range of receiver, navigation controllers, display systems, Trimble and CNHi products in the workshop and the fields.
- Diagnosed and researched fault codes from the Advance Farming System in large tractors, harvesters, air seeders, and sprayers.
- Used Advanced Farming System software tools, like AFS Connects, AgLeader for mapping, editing field boundaries, and converted the farm data to a suitable format.
- Maintained RTK radio/ modem network to ensure the smooth operation throughout the peak seeding and harvesting period.
- Tested and repaired RTK radio / modem network with priority and urgency to minimise downtime.
- Installed of firmware into receivers, display systems and navigation controllers and other ISO implements for proper communication during the farming operation.
- Calibrated farming machinery, Advance Farming Systems after the installation. testing and fault findings of Electro-Mechanical parts used in farming Machinery.
- Maintained record-keeping of farm data, servicing records, installation, creating service requests on Technical Help desk on CNHi web portal.
- Uploaded / Downloaded farm data on AFS-enabled farming machinery through CNHi Telematics Service Portal.
- Assigned / released AFS products, Licenses, activation codes for navigation controllers, receivers, display system through Trimble / CNHi Dealer portal and vehicle management Systems.
- Ensured the usage of the RTK Network is maximised to company Policy and Terms. Proactively attended weekly meetings with the intention to resolve best performance outcomes for all departments and client.
- Answered telephone enquiries and provide technical support over a phone, test products, and provide instructions to customers on the proper usage of AFS products and systems.
- Used diagnostic tools to identify issues and evaluate the available information and support the sales staff in equipment set-up for test and drive days, trade shows and field days.
- Provided services during normal work hours, rostered weekends and emergency callouts particularly during critical seasonal peak periods to make sure timely and completion of documentation for all service work, in particular: timesheets; job cards; Quotes (where appropriate); completion of warranty records and parts requisitions.
- Contributed to the development and continuous improvement of Rocky River Ag Services.

Achievements

- Successfully obtained Trimble Accreditations, such as “Trimble RTX for Agriculture Resellers” and “GNSS Basics and Correction Services Overview”.
- Regularly travelled, located/mapped and maintained NTRIP/radio RTK base stations.

- Troubleshoot and calibrated a wide range of equipment and brands.
- Conducted and delivered basic training to the staff members.
- Executed the computer and machinery-based mapping software, modified and drew field boundaries and swath lines/layers, and extracted yield maps and coverage maps for end users' needs (customer base).
- Attended Society of Precision Agriculture Australia Annual Conference, National Farmers' Federation's Australia-China Agricultural Youth Programme (ACAYP) and Leaders' Summit 2023.

Skills Developed

- Precision Agriculture products, such as CNHi, Trimble, Ag Leader etc.
- Telecommunication protocols (NMEA 0183/2000) and parts (RS232/RS422)
- Proprietary Controller Area Network (CAN-BUS) and ISO-BUS
- Mapping Tools and AFS Cloud Portal
- File Management
- Troubleshooting
- Attention to details

Casual Research Assistant & Casual Academic – *The University of Queensland, Gatton, QLD*

March 2020 – November 2021

Specialised researcher on crop phenotyping and physiology

Duties

- Collected qualitative data, through ground surveys, plant partitioning, and UAV flights.
- Generated, analyse and visualise results.
- Created automatic pipelines for multiple research projects.
- Developed high-level report writing skills through submission of milestone report to supervisors.
- Liaised with key researchers and parties to facilitate and solve the issues.
- Installed and monitor sensors at multiple trial sites.
- Assisted other miscellaneous tasks.

Project Topics

1) *INVITA: A technology and analytics platform for improving variety selection* (Project ID: UOQ2003-011RTX)

2) *CropPhen: Remote mapping of grain crop type and phenology, Enabling analytics for grain crop monitoring applications - Crop classification and mapping of phenological characteristics* (Project ID: UOQ2002-010RTX)

3) *High throughput feature extraction from imagery to map spatial variability* (Project ID: UOQ2003-008RTX)

Jan 2021 - Nov 2021

Location: Gatton, Queensland, Australia

Supervisors: Prof Scott Chapman, A/Prof Andries Potgieter

Project Topic: *Subsoil constraint: Improving wheat yields on sodic soils* (Project ID: GRDC UA00159)

June 2020 - Dec 2020

Location: Toowoomba & Billa Billa, Queensland, Australia

Supervisors: Dr Jack Christopher, Dr Yash Dang

Achievements

- Successfully obtained CASA Remotely Piloted Aircraft (RPA) operator accreditation.
- Conducted independent research and collaborative research relevant to crop phenology and physiology specifically on wheats and sorghum.
- Active participation in academic teaching and learning for entry statistic courses.
- Debugged codes and advised data scientists for code improvement.
- Organised weekly meetings with supervisors and relevant researchers.
- Assisted other research groups to facilitate the equipment and provided training for the students.
- Implemented COVID rules and other policies on campus.

Skills Developed

- Plant Physiology
- Programming Languages (Advanced: R, Intermediate: Python, Beginner: Git, PBS etc)
- Data Collection, Management, Analysis, Visualisation
- Imagery Processing/RS software: Agisoft Metashape, Pix4D, ArcGIS, QGIS
- Research devices (Greenseeker, EM38)
- DJI Suites (GS Pro, GO Pro)
- Research (Trial Design, Literature Review, Academic Writing)

RESEARCH PAPER

Di, Binyin; Firn, Jennifer; Buckley, Yvonne M; Lomas, Kate; Pausas, Juli G; Smith, Annabel L 2022 The impact of roadside burning on genetic diversity in a high-biomass invasive grass, *Evolutionary Applications*, vol. 15, no. 5, pp. 790-803, <https://doi.org/10.1111/eva.13369>

HONOURS & AWARDS

2024 Delegate to the 14th Australia-China Youth Dialogue

2024 Northern Territory Young Achiever Award Finalist

2023 Crawford Fund Scholarship (NT)

2020 Employability Award

2020 UQ Science Leaders Award (UQ Science Leaders Academy)

2020 Winter Research Scholarship

2019 Leadership and Mentoring Program in Science

2019 Short-Term Experience Travel Grant

REFEREES

References are available upon request.