ID: NANB 11067
Cong Vu
Travel: Attend the 28th Annual green chemistry & engineering conference at Atlanta, Georgia, visit Silicon Valley, California and attend & present at the Nanoscale science and engineering for Ag & Food systems GRC conference New Hampshire, June 2024

Organisation: NanoSoils Bio
App Type: Travel, Conference & Scientific Exchange
Report Type: Small Grant Final Report
R&D Manager: Nicola Cottee

Due: 31 July 2024
Submitted On: 8 August 2024
Report ID: 1663
Grant Amount: $5,000.00

Due At: 31/7/2024

Extension Date: 15/8/2024

Status GM R&D Review

This report was previously in the **R&D Manager Review** workflow state.

▼ Table Of Contents

⚠ If you are going to send the report back, please provide comments to the R&D Manager as to why you are sending this back in the GM Review section field labeled "Comments to R&D Manager".

▼ Extension Request

Would you like to request an extension? Yes

If yes, please provide your justification and the date you would like the extension for. Note a request does not guarantee approval.

I am still on my business travelling trip in Vietnam to learn about the agricultural challenge in Vietnam and how nanotechnology will be adapted here so I would like to request to extend the report for 2 weeks (by 15 August 2024).

Extension Approved? Approved

Extension Approved? Approved

Comment to Grantee:

Hello Cong,
CRDC grant you an extension to submit your Travel report by the 15/08/2024.

Regards
Lynda

▼ Grant Summary

CRDC ID:	NANB 11067
Project Title:	Travel: Attend the 28th Annual green chemistry & engineering conference at Atlanta, Georgia, visit Silicon Valley, California and attend & present at the Nanoscale science and engineering for Ag & Food systems GRC conference New Hampshire, June 2024
Project Start Date:	1 June 2024
Project End Date:	30 June 2024
Principal Researcher:	Cong Vu
Email:	cong@nanosoils.com
Administrator:	Cong Vu
Organisation:	NanoSoils Bio

There is a document upload section at the end of this application if you need to provide further information that cannot be entered as plain text into Fluxx. If you have additional information not included in the responses, attach a project report with details of trials and results, materials and methods, conferences, presentations, photos, charts, feedback forms, attendance sheets, etc.

▼ Final Report

Project Summary:

I had the opportunities to attend 2 invited conferences in America.

1. ACS Green Chemistry & Engineering conference. I have learnt and explored how green chemistry and artificial intelligence (AI) have been used to design and optimise chemical reactions, particularly the talks from agrochemical industries such as Syngenta, Bayer, Corteva and FMC were most valuable for me because I experienced for the first time was that the combination of AI and green chemistry could be used to design greener pesticide and fertiliser. A new and sustainable way is to identify sustainable reaction conditions and eliminate the use of hazardous solvents first. The efficiency of the chemical reaction were optimised later. These learnings were very useful for NanoSoils to initiate AI and green chemistry in Australia to design green nano-agrochemical formulations for cotton.

2. Nanoscale Science and Engineering for Agriculture and Food Systems conference discussed how nanotechnology were applied for agriculture. Surprisingly, the applications have been explored intensively at both academic and industrial levels across the globe. Some of nano-fertiliser and nano-pesticide products have already been in the market.

An impressive talk was from an European Food Safety Authority - Reinhilde Schoonjans. She started by asking the audients “raise your hand if you want nanoparticles in your foods”. Of course, no one raised hands. Then she said “either you liked it or not, the nanoparticles have been already added to your foods. I had to double check what she said and found that in fact we consumed about 1.8 mg of silica nanoparticles/kg body weight a day (*J Nanobiotechnol* **22**, 45 (2024). I also had the opportunity to have a chat with U.S. Food and Drug Administration (FDA) officer-Raymond Briñas. He is very supportive the nanomaterials to be used in agriculture and food as long as the products satisfy the regulatory requirements.

Outcomes & Impact for Industry:

I did not expect to learn much of AI at the two conferences; however, there are many the talks there were related to AI in chemistry. For example, Plenary speaker at the ACS Green Chemistry Professor Alexei Lapkin shared how AI can be used for optimising chemical reaction. For the agricultural sites, AI can be used to rapidly assess the interactions between new active ingredients and plants to explore and verify the range of viable targeting approaches in plants. This is very useful tool that we need to explore for cotton. To do so, we need to build a data base for the uptake and translocation of different class of active substances on cotton.

Re-purposing classic active ingredients by encapsulating them into a nano-size particle can be a shorter way to bring nano-pesticide and nano-fertiliser into the market. The classic active ingredients are off-patent, cheap, and their toxicity are well-recorded. The efficiency and efficacy of active ingredients encapsulated into nanoparticles can be improved compared to the active ingredients by understanding of how nano-size particles affect their interactions with plant surfaces and biomolecules, and their ability to carry and deliver cargo to specific locations. This innovation can help minimise the time and money for the trials in glasshouse and field and to help speed up the commercialisation pathway.

There was a variation away from the original application plan was that I did not visit Silicon Valley. At first, I planned to visit this

Silicon Valley because I want to learn about AI. However, the ACS Green Chemistry covered AI, particularly in agrochemical areas so visiting Silicon Valley was not necessary. Instead I travelled to Vietnam to learn about the agricultural challenges in there and how nanotechnology can be adapted in Vietnam. I visited Can Tho university (where I did my undergraduate) and talked to scientists there and also visited some farms (rice farms, durian farms) and learnt about the challenges in Vietnam agriculture-which are salinity stress particularly in Mekong area (my hometown), emerging plant disease outbreaks (mostly fungal disease), and heavy metal contamination in soils. One thing I noticed: a big difference between Australian farms and Southeast Asian farms is that most of farms in Southeast Asian are small-holders and the farmers there are still heavily replying on human labour-intensive production methods and family labour. Something I need to pay attention when I expand to Southeast Asian agricultural market in future.

M&E Outcomes: Number of outcomes achieved. 3

People Connections:

Three significant connections:
Rajni Aneja- Managing Director, CIFS-IPP, Cornell Institute for Food Systems, Cornell University. She helps run the Grow-NY | Grow NY Food and Agriculture Competition . The program helps startups all over the world explore New York food and agricultural market. I did apply for the Grow-NY competition in 2021 but I did not get into the final round. Now I had the opportunity to talk to her and she agreed to support for my application in 2025. Surprisingly she knew Sparklabs Cultiv8- one of NanoSoils investors. Actually, Sparklabs Cultiv8 visited Cornell Institute for Food Systems early 2024.
Founder of Vive- Dr Jordan Dinglasan: we had a chat about his experience when he founded his startup company. His company has more than 30 patents now and the way his company raise money to fill these full patents are amazing. Vive Crop Protection was the most interesting companies at the conference, in my opinion. Vive Crop Protection is one of the first and successful nano-agrochemical companies in Canada. The founder of Vive- Dr Jordan Dinglasan was a chemical PhD candidate and spinned out his startup from a university- a similar pathway of NanoSoils. His experiments about how he worked with university and his patent strategy was valuable for me.
The chair of Nanoscale Science and Engineering for Agriculture and Food Systems conference- Professor Melanie Kah- University of Auckland. We are exploring the potential trials of NanoSoils's nanoparticles and she is keen to run the trails with us- a step to explore New Zealand market.

M&E People: Number of connections achieved. 3

Learnings:

As mentioned above from people connection, I am going to explore New York and New Zealand markets. I am still communicating with Rajni Aneja and Melanie Kah and we are planning to run the trials together, applying for internation grants, and preparing for the GROW-NY competition in 2025.

M&E Learnings: Number of learnings and planned actions from the project. 2

Do you have recommendations for CRDC (eg RD&E gaps)?

I think the application of AI for cotton and greener pesticide and fertiliser should be considered.
For example, how AI can be used to explore the mode of action of different class of active substances. This will help manage pesticide resistance, particularly fungicide resistance, and shorter the pathway to look for new active substances.
AI can be used to rapidly assess the interactions between new active ingredints and plants to explore and verify the range of viable targeting approaches for both cotton and pest. We need to build a data base for the uptake and translocation of different class of active substances on cotton and cotton's pests.

Green pesticide and fertiliser should be considered to be used for cotton. Greener agrochemicals do not mean it will be more expensive. Renew classic off-patent active ingredients in combination with new tool such as nanotechnology should be considerred.

Comment on project expenditure, noting any changes from the application budget.

The $5000 was proposed to use for the two conferences and it has been used as proposed.

Expenditure Incurred

Expenditures

Air ticket			
Date	**Amount ex-GST**	**GST**	**Total**
19 May 2024	2126.97	235.21	2362.18

Ticket 2			
Date	**Amount ex-GST**	**GST**	**Total**
22 June 2024	1908.6	211.9	2120.5

Hotel			
Date	**Amount ex-GST**	**GST**	**Total**
22 June 2024	385.2	42.8	428.0

Taxi from and to the airport to conference venues			
Date	**Amount ex-GST**	**GST**	**Total**
1 June 2024	580.0	58.0	638.0

Expenditures Total: $5,000.77

Grant Amount Approved: $0.00

Remaining Award Balance: $-5,000.77

Grantee Admin Review

Comments to Grantee:

Comments to Grantee:

▼ Documents

REPORT ATTACHMENTS

Conference 1-1.jpg

Supporting Evidence
Added by Cong Vu at 12:20 PM on 8 August 2024

Conference 1.jpg

Supporting Evidence
Added by Cong Vu at 12:20 PM on 8 August 2024

Pic from conference 2-whole.pdf

Supporting Evidence
Added by Cong Vu at 12:19 PM on 8 August 2024

certificate-of-participation.pdf

Supporting Evidence
Added by Cong Vu at 12:19 PM on 8 August 2024

Air ticket 1.pdf

CRDC Financial Report
Added by Cong Vu at 12:19 PM on 8 August 2024

Air ticket 2.pdf

CRDC Financial Report
Added by Cong Vu at 12:19 PM on 8 August 2024

Hotel for the second conference.pdf

CRDC Financial Report
Added by Cong Vu at 12:19 PM on 8 August 2024

▼ R&D Manager Review - Internal Only

Is this a final report? Yes

Is the Project Summary suitable for public release? Yes

Is the Final Report suitable for public release? Yes

Comment on project; expenditure, notable achievments and potential for extension of achievements for CRDC internal and Board.

Project was to support Cong Vu (once of CRDC's ABARES participants) to build research capability by attending two international conferences:
1. ACS Green Chemistry & Engineering conference.
2. Nanoscale Science and Engineering for Agriculture and Food Systems conference .

Comment on project; notable achievments and potential for extension of achievements for CottonInfo, Program Committees & Cotton Panels. Note that these should be low risk commentary.

Project was to support Cong Vu (once of CRDC's ABARES participants) to build research capability by attending two international conferences:
1. ACS Green Chemistry & Engineering conference.
2. Nanoscale Science and Engineering for Agriculture and Food Systems conference .

Does the report require to be sent back for edits? No

Note: Only one comment to grantee field should be completed if requiring both edits and clarification and the matching workflow button is to be selected.

Does the report require clarification? No

Are there any other follow up actions required by CRDC including IP or management of capital items, not already noted above? Yes

If yes, provide comment.

Please provide receipts for accommodation (noting that the document labelled hotel accommodation is actually a conference registration receipt).

Accept report? Yes

R&D Manager rating of project progress status: Green

Feedback to Researcher (Approval or Decline):

Thanks, Cong, for submitting this final report which is approved pending the receipt to support travel expenditure for accommodation. Can you please email the accommodation receipt to research@crdc.com.au? Thanks, Nicola

Paid Payments

Payments for Grant		
Amount Paid	**Paid Date**	**Financial Year**
$5,000.00	24 May 2024	2024

▼ GM Review - Internal Only

Comments to R&D Manager:

▼ Communications - Internal Only

ALERT COMMUNICATIONS

Report Extension Request Response
Sent to "Cong Vu" <cong@nanosoils.com> at 10:29 AM on August 1, 2024

Report Extension Request Response
Sent to "Cong Vu" <cong@nanosoils.com> at 10:27 AM on August 1, 2024

Report Due in 28 Days
Sent to "Cong Vu" <cong@nanosoils.com> at 10:59 AM on July 3, 2024

► Signals (0 Signals)

▼ Notes/History - Internal Only

NOTES

R&D Manager Review → GM R&D Review
Created by Nicola Cottee at 10:15 AM on 3 October 2024

Draft → R&D Manager Review

Created by Cong Vu at 12:30 PM on 8 August 2024

NOTES

Extension Request → Draft
Created by Lynda George at 10:28 AM on 1 August 2024

Draft → Extension Request
Created by Lynda George at 10:27 AM on 1 August 2024

Extension Request → Draft
Created by Lynda George at 10:27 AM on 1 August 2024

Draft → Extension Request
Created by Cong Vu at 10:37 PM on 31 July 2024

HISTORY

Show History

Search terms:

NANB, 11067, Cong Vu, Template Report.

Updated At:	3/10/2024
Updated By:	Nicola Cottee
Created At:	13/5/2024
Created By:	Lynda George
Submitted to Grantee Admin:	
Submitted to CRDC:	8/8/2024
Submitted RD Review:	3/10/2024