Australian Native Foods Kakadu Plum Project

by Amanda Garner and Russell Glover

June 2018

AgriFutures Australia Publication No 18/063
AgriFutures Australia Project No. PRJ-010103
The information contained in this publication is intended for general use to assist public knowledge and discussion and to help improve the development of sustainable regions. You must not rely on any information contained in this publication without taking specialist advice relevant to your particular circumstances.

While reasonable care has been taken in preparing this publication to ensure that information is true and correct, the Commonwealth of Australia gives no assurance as to the accuracy of any information in this publication.

The Commonwealth of Australia, AgriFutures Australia, the authors or contributors expressly disclaim, to the maximum extent permitted by law, all responsibility and liability to any person, arising directly or indirectly from any act or omission, or for any consequences of any such act or omission, made in reliance on the contents of this publication, whether or not caused by any negligence on the part of the Commonwealth of Australia, AgriFutures Australia, the authors or contributors.

The Commonwealth of Australia does not necessarily endorse the views in this publication.

This publication is copyright. Apart from any use as permitted under the Copyright Act 1968, all other rights are reserved. However, wide dissemination is encouraged. Requests and inquiries concerning reproduction and rights should be addressed to AgriFutures Australia Communications Team on 02 6923 6900.

**Researcher Contact Details**

Name: Amanda Garner  
Address: PO Box 12, Woolgoolga NSW 2456

Phone: 0448761867  
Email: chair@anfab.org.au

In submitting this report, the researcher has agreed to AgriFutures Australia publishing this material in its edited form.

**AgriFutures Australia Contact Details**

Building 007, Tooma Way  
Charles Sturt University  
Locked Bag 588  
Wagga Wagga NSW 2650

02 6923 6900  
info@agrifutures.com.au  
www.agrifutures.com.au

Electronically published by AgriFutures Australia at www.agrifutures.com.au in November 2018

AgriFutures Australia is the new trading name for Rural Industries Research & Development Corporation (RIRDC), a statutory authority of the Federal Government established by the Primary Industries Research and Development Act 1989.
Foreword

AgriFutures Australia has a goal to support the early stage establishment of high potential rural industries. The Australian native foods and botanicals industry has many species with potential. Kakadu Plum is one important native species with potential. This project has provided a foundation for accelerating establishment of Kakadu Plum as a world food ingredient. With disciplined investment Kakadu Plum could be one of Australia’s high potential emerging industries.

New industries face many challenges. These include developing product quality, producing at scale, developing markets, supply chains, and industry leadership. AgriFutures has invested in this project to facilitate overcoming these challenges in Kakadu Plum and other native foods industries. Particularly important is the growing opportunity for indigenous participants to work to overcome these challenges.

Australian Native Foods and Botanicals (ANFAB) provide a vital coordination point for these industries nationally. Through this project the directors and networks of ANFAB have been available to connect and coordinate the many, often isolated participants in Kakadu Plum as an emerging industry. This coordination has laid a platform of understanding to build effective industry networks.

This report is an addition to AgriFutures Australia’s diverse range of over 2000 research publications and it forms part of our Emerging Industries R&D program, which aims to establish commercially viable and sustainable new rural industries.

Most of AgriFutures Australia’s publications are available for viewing, free downloading or purchasing online at www.agrifutures.com.au.

John Harvey
Managing Director
AgriFutures Australia
About the Author

Amanda Garner is the Chair of ANFAB and a native food consultant and chef. Russell Glover is a Director of ANFAB and a native food grower and consultant.

Acknowledgments

The Project would like to acknowledge the Traditional Owners and Elders, past and present, of the lands where the Kakadu Plum occurs. Without their knowledge and participation, the industry would not exist.

Abbreviations

ANFAB – Australian Native Foods and Botanicals
CRC – Cooperative Research Centre
ILC – Indigenous Land Corporation
IBA – Indigenous Business Australia
KLC - Kimberley Lands Councils
KYG - Kimberley Wild Gubinge
UQ - University of Queensland
Contents

Foreword ........................................................................................................................................ iii
About the Author........................................................................................................................ iv
Acknowledgments........................................................................................................................ iv
Abbreviations............................................................................................................................... iv
Executive Summary......................................................................................................................... vi
Introduction .................................................................................................................................... 1
Objectives ........................................................................................................................................ 1
Methodology................................................................................................................................... 1
Results............................................................................................................................................. 4
Implications..................................................................................................................................... 4
Recommendations........................................................................................................................... 4
Appendix 1. Exciting news from the Indigenous Land Corporation............................................... 5
Appendix 2. Issues for protection and management of indigenous IP - cases..................................... 6
Glossary............................................................................................................................................ 9

Figures

Figure 1. Kimberley Wild Gubinge site visit October 2017 - Mayi Harvesters Broome- Pat Torres .................................................................................................................. 2
Figure 2. Kakadu Plum frozen fruit ................................................................................................ 2
Figure 3. Kakadu Plum Indigenous Network image ...................................................................... 5
Figure 4. Kimberley Wild Gubinge products ................................................................................ 8
**Executive Summary**

This report indicates the results of a three-year project to facilitate the development of the Kakadu Plum industry carried out by Australian Native Food and Botanicals (ANFAB), the peak industry body. This has been very important to build on past and current research into the industry and to provide a mechanism through the industry body to develop commercial production in a sustainable manner.

The actions carried out as part of the project have been aimed at helping participants involved in the harvesting, growing, processing, product development, marketing and research of Kakadu Plum to take the industry forward.

**Background**

Kakadu Plum grows from just south of Broome Western Australia across the top end of Australia to the Gulf of Carpentaria in Queensland and is basically a coastal species. It is a small to medium tree that produces fruit that has been traditionally used for both food and medicine. It is predominately wild harvested by Aboriginal people who have a traditional connection with its use as a food and a medicine. There are some trial and commercial plantations near Broome and Darwin. There is an increasing demand for this fruit and its associated products.

**Methods used**

Facilitation and communication through site visits, presentations at workshops and events, teleconferences, personal interaction and providing a common point of contact for industry participants.

**Key findings**

- It has been shown that using facilitation on an industry-wide basis can be very successful in delivering research both from actually carrying out of the research through to the extension and adoption of results.
- Industries based around traditional uses and involving indigenous participation need research, development and extension to be delivered in an appropriate manner to be successful.
- This research has already benefited the industry as that was the rationale behind the process. Actions and processes put in place will help to take the industry forward.

**Results**

- Satisfactory conclusions to the process of facilitating synergistic and enhanced outcomes for previous projects dealing with the Kakadu Plum industry.
- Formation and development of a Kakadu Plum alliance of indigenous organisations who participate in the harvest, processing and marketing of the fruit. This has been formalised under the auspices of the Indigenous Land Corporation who have now have a position dedicated to formalising a marketing body and are partnered by ANFAB.
- Successful projects developed though Cooperative Research Centre Northern Australia with ANFAB as partners.

**Implications for relevant stakeholders**

- Industry participants are aware of research and have a common point of reference for industry issues through ANFAB.
- Communities, and in particular indigenous communities are better engaged in the industry.
• Policy makers should put in place the opportunity for projects that use this type of interaction to achieve extension and production outcomes from research activities.

Recommendations

• Where suitable, AgriFutures should consider continuing funding for this type of project to enhance research outcomes applicable to enabling development and extension of new and emerging industries.
Introduction

Kakadu Plum projects that had been funded by AgriFutures were having various levels of success in achieving their outcomes. ANFAB, as the peak industry body was asked to facilitate better outcomes and connectivity between these projects and across the industry generally. The overall purpose of the project was to provide facilitation through interactions with native food industry participants to further develop commercial production of native species with a particular emphasis on the Kakadu Plum.

Objectives

To establish links and facilitate connectivity between the current Kakadu Plum projects and to identify any blocks and assist in the development of solutions for the projects.

To facilitate interactions of all stakeholders involved in the Kakadu Plum industry with a view to delivering benefits for the whole industry.

To facilitate the implementation of potential business models suitable for the Kakadu Plum industry and other enterprises that are currently focused on Kakadu Plum and associated native food species in the north of Australia.

Methodology

A combination of methodologies was used at different times to produce suitable outcomes. Facilitation and communication through site visits, presentations at workshops and events, teleconferences, personal interaction and providing a common point of contact for industry participants were used.

In dealing with an industry sector that involves a majority of the players that are Aboriginal and Torres Straight Islanders, it is preferable to use approaches that suit those participants. Personal interaction through Traditional Owner approval can be very successful in getting meaningful interaction that is suitable for the purpose.

Chapters

Over the past three years the Kakadu Plum industry has seen many changes and the project has played a role in delivering many positive social, research & economic developments.

The AgriFutures Project of facilitating the commercial development of the Kakadu Plum industry over the past three years has had enormous social and economic impact to many of the industries wild harvesters and small product developers in developing connectivity and up to date Kakadu Plum research outcomes that has enabled the views, knowledge and issues of many Traditional owners across the top end to be heard.

With the funds available the project has been able to engage, communicate, inform and propagate many productive conversations around developing the industry. It has had some great outcomes with developing a new entity in Broome over the past 6 months bringing together over 22 participants from the Dampier Peninsula and into the East Kimberley’s region.

Through the project, ANFAB has also had the opportunity to attend the 2017 Kimberley Lands Councils (KLC) Rangers forum bringing many philanthropic Australians and all Rangers groups
reaching as far as the central desert to Cape York in attendance. The Project Leader, Amanda Garner ran one of the workshops at this event last year. The event had over 1000 guests in attendance.

The women rangers at the event were very interested and described a variety of activities and interests mainly in bush medicine product development, seed collecting and species mapping with many interested in and developing essential oil production. The outcomes of that particular workshop inspired the Kimberley environment group to join forces with WA Agriculture Department, KLC and ANFAB to bring the regions interested native foods industry participants together with Northern TAFE in attendance to begin a regional body to trademark and support a localized group in business. They are also developing a conduit through ANFAB with the Developing North CRC and CSIRO and numerous research institutions to develop a framework for Intellectual Property.

![Figure 1. Kimberly Wild Gubinge site visit October 2017 - Mayi Harvesters Broome- Pat Torres](image1.jpg)

![Figure 2. Kakadu Plum frozen fruit](image2.jpg)

**Issues**

The Indigenous Land Corporation (ILC) had been working on ascertaining in-house the opportunities for the Kakadu Plum industry over the past 2 years for economic development on country. They had been working only with a select group of participants in research and government and it was felt to be really important that the Project Leader was supported by the ANFAB board to assist the ILC team to broaden their scope and understanding of the Kakadu Plum industry to date.

The Project Leader met with the National Projects Manager of ILC in Adelaide in June 2017 and was able to give their team an overview of the past and current situation of the industry inclusive of the participants and current research. In May 2018 they appointed an Individual to work specifically on developing product and market opportunities to support the National Kakadu Plum Network.
The ILC has set about constructing a National Kakadu Plum Network. Information on this network formation and activities are presented in Appendix 1

**Kakadu Plum Economic Opportunities.**

The Project funding enabled the Project Leader to attend and present at the Kimberley Economic Development Forum held in Kununurra WA. We were inundated with queries after the presentation from mining companies, aboriginal corporations, government, and training provider’s with enquiries ranging from:

- Market fragmentation – industry fragmentation
- Selective / specific communication transfer – knowledge loss
- Communication disparities between growers and institutions
- Perception by growers of unsupported development
- Low levels and narrow focus of institutional R&D
- Queries around public research findings for indigenous corporations to access opportunities to
- All the agronomic research needed

Commissioning and implementing on ground and field research to identify optimum agronomic systems and practices that will increase Kakadu Plum yields, product quality and ensure consistent supply of product to domestic and international markets is paramount for the industry to develop. The objective of this approach is to increase reliable and sustainable market supply which would build the Kakadu Plum commercial market profile and lift the native fruit and botanicals from its cottage industry status to that of a fully-fledged industry.

University of Queensland (UQ) Food innovation team being headed up by Dr Yasmina Sultanbawa is in the process of beginning a group of PHD students to begin the Intellectual Property work in Dr Daniel Robinson Sydney University of Technology who has also just been successful in acquiring an ARC linkage grant to continue his work in this space – he spear-headed up the Mary K Patent court case some years back to protect IP of our indigenous species.

Appendix 2 contains some case studies based on current and proposed research are indicated in and reflect and illustrate some of the outcomes of the Facilitating Kakadu Plum Project.
Results

The Project has been very successful in achieving the objective of facilitating the development of the Kakadu Plum industry. What it has identified is that for the industry to further develop and mature, there needs to be on-going research, development and continuing overall facilitation of the industry.

This should include:

- The development of the agronomic science behind the growth of native foods species in orchard conditions, wild harvesting, savannah enrichment plantings, science and access to current information, education
- The interrelationship of soil, soil fertility, species suitability and plant growth
- Fruit and seed production, quality, and yield
- Measurement of fruit characteristics/chemistry of fruit and seed.
- Genetic analysis of leaf and seed – selection of the most promising genetic material to match (variation of cultivar seed and fruit samples undertaken by UQ)
- Analysis of data and market research
- Development of best-practice ‘growing and harvesting’ guidelines
- Environmental impact of production methods

Implications

The implications are that:

- There needs to be a continuing focus on integrated development of the industry.
- A common point of contact for industry participants has been created through the project by ANFAB and particularly for indigenous participants through the ILC and ANFAB partnership developed as part of this project.
- The Indigenous Land Corporation has become involved in further development of the industry focusing on indigenous participants.
- ANFAB could provide support for further development of the industry through continuing AgriFutures funding.

Recommendations

The Project has been very successful in achieving the objective of facilitating the development of the Kakadu Plum industry. There needs to be on-going research, development and continuing overall facilitation of the industry.
Appendix 1. Exciting news from the Indigenous Land Corporation

The ILC has been working in partnership with indigenous landholders / corporations, philanthropic and other stakeholders and ANFAB to assess the feasibility of establishing an integrated supply chain in the harvest, processing and sale of Kakadu Plum/Gubinge. For the past two years the ILC has been working with Aboriginal groups, researchers and others to commercialise the development of Kakadu Plum/Gubinge. The purpose of the project is to:

- Build and supply new and large markets for Gubinge extracts.
- Explore opportunities to build an indigenous-controlled supply chain across the Kimberley and Top End.
- Have greater indigenous influence and control of the market.
- Maxime the flow of benefits back to indigenous communities.

Kakadu Plum/Gubinge barriers are:

- Reports of end buyers unwilling to pay a fair price for the fruit.
- Current ‘set prices’ not reflecting the harvesters input.
- Expanding research without compromising indigenous held knowledge.
- Traditional Owners knowledge not given fair acknowledgement by those wanting to develop Kakadu Plum/Gubinge products.

What are we doing about it? To address some of these issues the ILC recently approved funding in the following areas:

- The engagement of a ‘Kakadu Plum/Gubinge Business Development Manager’ to work with indigenous land owners, growers, harvesters and Kakadu Plum entrepreneurs to develop a cooperative supply chain model and market Kakadu Plums/Gubinge to target markets.
- The engagement of a consultant to produce a document that tells the story of Kakadu Plum/Gubinge and its cultural significance, traditional uses and how western science will help build new markets for harvesting businesses.
- Product development to support product development and market analysis of Kakadu Plum/Gubinge extract as a natural flavouring and preservative to extend the shelf life of processed meat and poultry. The ILC is working with an indigenous – owned native food and quality game meats producer and indigenous-community enterprises that wild harvests Kakadu Plum/Gubinge for testing and development of a number of new Kakadu Plum/Gubinge meat products. These products will help create new market opportunities and
increase market demand Kakadu Plum/Gubinge fruit.

- Access and Benefit Sharing is an area that has largely been unexplored in indigenous communities, in fact, indigenous communities are often exploited by research institutes and private enterprise with little or no benefits going back to the communities. The ILC is developing a best practice Access and Benefit Sharing agreement framework for Aboriginal groups to consider. These agreements are designed to provide protection of new Intellectual Property rights.

**Appendix 2. Issues for protection and management of indigenous IP - cases**

A recent discussion paper where Terri Janke and Company were commissioned by IP Australia & the Department of Industry, Innovation and Science 2018 titled “Misappropriation of genetic resources and associated Traditional Knowledge” is a notable addition to discussion of issues related to indigenous IP.

Indigenous people’s ecological and biodiversity knowledge of Australia’s flora and fauna is widely known to be valuable sources of knowledge and study by researchers, scientists and pharmaceutical companies. A great deal of academic and research activity is informed by solutions, insights and knowledge of Indigenous people into properties of genetic resources such as plants like the Kakadu Plum, or Gubinge.

**Case Study: UWA Kakadu Plum Access and Benefit Sharing Agreements (ABS)**

In 2013, the University of Western Australia (UWA) was awarded a government-funded research project to study the Kakadu Plum. Working with Indigenous communities, organisations and state and federal Government bodies, UWA is leading the project to develop the Kakadu Plum industry as a commercial industry for local indigenous people.

As part of government funding requirements for the project, UWA sought to obtain the free prior informed consent of indigenous communities in Western Australia and Northern Territory (where the Kakadu Plum is a native plant) by negotiating Access and Benefit Sharing Agreements. UWA identified that a barrier to working with indigenous groups was navigating and meeting the requirements for obtaining the free prior and informed consent. UWA engaged lawyers with expertise in indigenous intellectual property and facilitated discussions with indigenous stakeholders. Resulting from the discussions were template Access and Benefit Sharing Agreements for UWA that not only catered to the needs of the WA and NT communities, but also aligned with requirements under the United Nations Convention on Biological Diversity, the Nagoya Protocol, the Environment Protection and Biodiversity Conservation Act 1999 (Cth) and the Biological Resources Act 2006 (NT).

The templates were also provided with a suite of supporting documents developed particularly for the project, such as a Communications Protocol and FPIC Document. These documents are guides for researchers to help them understand the communication requirements of local communities. For example, the Communications Protocol identifies and provides strategies for what communication channels to use, how to disseminate information, and what time frames to expect for responses from local communities. These are fundamental aspects to understand in obtaining the free, prior informed consent of indigenous knowledge holders.

This case study demonstrates the potential challenges faced by those seeking access to indigenous Knowledge – even those who want to do the right thing and engage with communities to enter into
access and benefit sharing agreements with them. Problems often arise in understanding indigenous authority systems and negotiating free prior informed consent for use of indigenous knowledge. However, the case study also shows that there are mechanisms and approaches that can be put in place to overcome these barriers.”

**Case Study: University of Adelaide and The Orana Foundation research partnership**

Chef Jock Zonfrillo, founder of The Orana Foundation, has partnered with the University of Adelaide for a research partnership into developing the Australian native bush foods industry that benefits indigenous communities as part of a $1.25 million grant from the South Australian State Government.

The research partnership has four components which will involve direct consultations with Indigenous communities:

- Creating a native food database to compile knowledge about native plants used by indigenous communities;
- Research and assessment of nutritional profile for bioactive compounds of Aboriginal food plants;
- Assessment of food flavours and development of cooking and preparation techniques; and
- Plant growth assessment and production techniques.”

The Orana Foundation are in the process of beginning their database project on native foods, and part of their project is involving the trial of Kakadu Plum in the Kimberley’s with Northern TAFE as the service training organization: through working for the dole programs, which initiated the Bidydanga community Gubinge project some 10 years ago.

Although over the years there has been many issues with maintenance of the orchard, there has been many issues around community engagement, so the Project Leader encouraged the community council to sell direct to market with GoWild from the U.S who have agreed to purchase all of the fruit currently available for a contract of 5 years as the crop tonnage increases. All fruit is sorted on site, frozen and freighted to Melbourne for processing into extract for export to the States.

This has been a short-term fix for the community and well received however, It felt that it was really important for them to develop a business model for expansion of the orchard and market segmentation so the Project Leader has been mentoring and working with Many Rivers remote business advisory group over the past 12 months to work on a long term strategy for the community south of Broome.

Note: This 2018 Seasons Harvest was absolutely decimated from a couple of cyclones and bug infestation. This has led to GoWild purchasing from other Wild harvesters in the region this season.

**Case study: Economic development - Kimberley Wild Gubinge**

Kimberley Wild Gubinge (KWG) - Philosophy and Ideals.

At KWG we are committed to creating the World’s Finest Kakadu Plum products that our customers can trust to be the most ethical, social and environmentally responsible. As Stewards of the Land we are compelled to create our products and business with the lowest possible carbon footprint and to actively practice cultural land care.

KWG is committed to providing real economic opportunities for Aboriginal people from our community and the wider region through preserving and promoting cultural food knowledge. By only sourcing our fruit from the Dampier Peninsula, Western Australia, customers are assured of the Provenance of our product. Through investing in scientific analysis of our KWG products and processing procedures and storing those in Industry Best practice methods customers are guaranteed what they are buying and we can offer a world class product.
Jacinta Monck and Lenny O’Meara own and run the Whale song café and camping site in a remote area of the Dampier Peninsula and have been wild harvesters as a family unit for many years. Jacinta and family have had a purpose build harvesting, processing facility built on their property completed for the 2018 harvest season, to increase production and employment in her region. She has developed the brand and marketing campaign which has been sold online as dehydrated powdered (no seed) product and wafers which are all harvested, processed and value added onsite without the many issues surround cool storage, impassable roads during harvest and also assured market by way of developing their own.

Through this project the Project Leader has been lucky enough to be enabled to mentor this uniquely talented women over the past three seasons and is absolutely proud of her superior product range of Gubinge on the market.

KWG has utilised Dr Yasmina Sultanbawa’s science to provide the best shelf life and shelf long-life storage units, each batch is tested independently for quality and composition assurance. She also has been utilising Griffith University to develop her science independently of UQ, she has developed a high end and shelf stable product.
Glossary

Kakadu Plum, or Gubinge - fruit of the Australian native tree species *Terminalia ferdinandiana*. 
Australian Native Foods Kakadu Plum Project

by Amanda Garner and Russell Glover
June 2018

AgriFutures Australia Publication No. 18/063
AgriFutures Australia Project No. PRJ-010103
ISBN: 978-1-76053-019-8