

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

Chulalongkorn University & Worcester Polytechnic Institute



WPI

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

An Interactive Qualifying Project/ Social Science Project Proposal submitted to the faculty of
WORCESTER POLYTECHNIC INSTITUTE in partial fulfillment of the requirements for the
Degree of Bachelor of Science

&

An Education for Climate Change and Socio-Economics Project for CHULALONGKORN
UNIVERSITY

By:

Atirun Burana
Kanyarut Despongpoichit
Chloe Foucault
Paige Grissom
Julia Horrocks
Lydia Ponomarenko
Naraphan Prothongnak
Phanita Tangsiriwattanakul

Date:

27 February 2024

Submitted To:

Professor Ulrike Brisson
Professor Kim Hollan
Professor Dr. Supawan Tantayanon

This report represents work of WPI undergraduate students submitted to the faculty as evidence of a degree requirement. WPI publishes these reports on its web-site without editorial or peer review. For more information about the projects program at WPI, see <http://www.wpi.edu/Academics/Projec>

Abstract

The Baan Noan Rang Burapha Learning Center, in the Nakhon Ratchasima Province, faces a lack of youth interest in herbal knowledge. The team established a goal of preserving herbal wisdom and achieved this by conducting interviews and surveys. We created new packaging, a TikTok account, an instructional guide, detailed content plan, and submitted funding grant applications for updating facilities to gain Good Manufacturing Practice approval. Implementing this, it's believed the herbal wisdom of the center will be sustained throughout generations.

Acknowledgements

We would like to thank our sponsor, The Baan Noan Rang Burapha Learning Center, for their hospitality and enthusiasm.

We would also like to acknowledge Kim Hollan, Professor Dr. Ulrike Brisson, and Dr. Professor Supawan for their guidance and support throughout this project.

Additionally, we would like to thank the senior researcher at InnoHerb for their guidance in shaping our project direction, as well as Assistant Professor Kwanrat Suanpong at Chulalongkorn University, for providing marketing wisdom. Lastly, we would like to acknowledge each of our interview and survey participants for their participation and contribution to this project.

Meet the Team



**Atirun
Burana
(Jerry)**



*Applied Chemistry,
B.S.*



**Kanyarut
Despongichit
(Now)**



*Applied Chemistry,
B.S.*



**Chloe
Foucault**



*Computer Science,
B.S.*



**Paige
Grissom**



*Chemical
Engineering, B.S.*



**Julia
Horrocks**



*Mechanical
Engineering, B.S.*



**Lydia
Ponomarenko**



*Environmental
Engineering, B.S.*



**Naraphan
Prothongnak
(Vevy)**



*Applied Chemistry,
B.S.*



**Phanita
Tangsiriwattanakul
(Pat)**



*Applied Chemistry,
B.S.*

"Fostering Self-Reliance: Empowering Community for a Sustainable Tomorrow"

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

Authorship

Section	Primary Author	Editor(s)
Abstract	Chloe	Lydia
Executive Summary	W.P.I.	W.P.I.
Introduction	Julia	W.P.I.
Literature Review		
Thai Agricultural Communities	Lydia, Atirun	Julia, Naraphan
The Baan Noan Rang Burapha Learning Center	Kanyarut	Chloe
Young Adult Generational Trends	All	Paige, Phanita
Herbal Market	Paige	Lydia, Atirun
Methods		
Identified the Current Situation at the Baan Noan Rang Burapha Learning Center	W.P.I.	All
Created a Promotional Plan to Spread Herbal Knowledge	W.P.I.	BSAC
Explored Certification Options to Increase the Viability of the Learning Center	BSAC	W.P.I.
Explored Funding Options to Further Develop the Learning Center in Order to Gain GMP Certification	BSAC	W.P.I.
Findings		
Identified the Current Situation at the Baan Noan Rang Burapha Learning Center	Paige, Phanita	W.P.I.
Created a Promotional Plan to	Kanyarut	Naraphan, Phanita

Spread Herbal Knowledge		
Explored Certification Options to Increase the Viability of the Learning Center	Naraphan	W.P.I.
Explored Funding Options to Further Develop the Learning Center in Order to Gain GMP Certification	Julia, Atirun	W.P.I.
Findings Summary	W.P.I.	All
Recommendations & Conclusion	W.P.I.	W.P.I.

Executive Summary

Introduction & Background

The Baan Noan Rang Burapha Learning Center is located in northeastern Thailand and has an extensive past in herbal knowledge and wisdom, an aspect of Thai culture that needs to be preserved due to its fading interest as well as its wide-spread usage among the older generations of Thais. The center also engages with the local community regularly through their outings and workshops. However, the center has low levels of young adult engagement and aims to increase engagement to preserve herbal knowledge. To achieve the center's goal, the goal of this project was to increase young adult interest and engagement in herbal products for the purpose of sustaining the wisdom and knowledge of the learning center.

To carry out this goal, the team established and carried out four main objectives: (1) Identified the current situation at the Baan Noan Rang Burapha Learning Center, (2) Created a promotional plan to spread herbal knowledge, (3) Explored certification options to increase the viability of the learning center for young adults, (4) Explored funding options to further improve the learning center.

Interviews, surveys, and online research were conducted to obtain data to develop deliverables. The team developed a plan to engage young adults through an updated packaging design, the creation of a social media account, grant applications on the behalf of the center, and a certification plan to increase center viability.



Figure 1
The Baan Noan Rang Burapha Learning Center

Framework of the Philosophy of Sufficiency Economy

The sufficiency economy philosophy is a way of thinking that serves to guide Thai people in every aspect of life by prioritizing dialectical thinking over a black and white approach (Piboolsravut, 2004). When correctly applied, Thai communities can ‘walk the middle path’ and become more resilient and successful.

Community Learning Centers In Thailand

Community Learning centers serve as a hub for the collection of community knowledge and data that will support the educational process for local residents. Additionally, it provides a range of community services, such as workshops and events which increases community interest and highlights the importance of education in order for the community to adapt to current societal changes.

The Baan Noan Rang Burapha Learning Center History and Purpose

The center provides training on herbs and aims to spread herbal knowledge while upholding the principles of the sufficiency economy. The center holds workshops and attends festivals to spread herbal knowledge and sell their products outside the community. The center aims to preserve knowledge between generations through increasing the engagement of young adults.

The Center’s Herbal Oil

Herbal products are widespread in Thailand. The unique herbal oil the center manufactures contains 23 types of herbs. It is packaged in glass and plastic bottles with stick-on labels and is sold at events and festivals.

Young Adult Generational Trends

Economic Trends

As a result of the economic appeal of cities and a negative perception of agriculture, Thailand is facing rapid urbanization (Vasoonrara et al, 2011). Young people are drawn to the economic appeal of cities as they prioritize salary when pursuing a career and have academic ambitions (Sukhansa et al, 2022). The pursuit of financial stability often drives young individuals to seek employment opportunities in urban centers rather than their local communities. This migration towards cities has significant implications beyond economic factors, affecting cultural and traditional knowledge transmission as well. One such consequence is the diminishing understanding and practice of herbal wisdom among young adults.

Promotional Trends

Branding and packaging are critical to market success. In Thailand, naturalism, decoration, and balance are popular in product design (Andrews & Siengthai, 2009). Product certifications are also important to consumers. Young adults have been noted to engage more with catchy promotion methods and “eye candy” (Fletcher, 2023). They often engage with brands and companies via online platforms, especially TikTok, Instagram, and YouTube (Fletcher, 2023). TikTok specifically has been noted as a dominant social media platform for promoting to young adults in Thailand (Statista, 2023).

Herbal Market

Thai Herbal Market Trends

Since the beginning of the COVID-19 pandemic, the Thai herbal market has rapidly expanded as Thai young adults have become increasingly interested in herbal products and natural health remedies. Thai consumers have shifted their interest toward finding natural and organic health products and away from synthetic ones (Wresearch, n.d.). This spike in demand can be linked to an increasing understanding of the effectiveness and advantages of herbal products, which have long been a significant aspect of Thai culture. This development indicates a return of respect for herbal medicines among young adults, as it symbolizes a reconnection with cultural history and an understanding of the wisdom inherited from older generations.

Thai FDA Standards for Herbs

Herbal products require a certification of standardization (Admin-Law, 2019). In 2019, the Thai Food Drug and Administration (Thai FDA) released the Herbal Product Act, which regulates the development and sale of herbal products to ensure they are safe (Food and Drug Administration, n.d.). Within Thai FDA regulation, there is a sub-unit called the Good Manufacturing Practice (GMP) certification that is needed to obtain Thai FDA approval. This certification is given to products that are manufactured in a clean and safe environment. As long as the production building has a specific amount of rooms and room types and is sufficiently large and clean, then it is awarded GMP certification.

Background Summary:

The Baan Noan Rang Burapha Learning Center operates under the principles of the sufficiency economy, specializes in herbal agriculture, produces and sells herbal oils and balms, and lacks engagement from young adults. These young adults are moving towards urban areas and away from

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

agriculture, value informative packaging and certified products, and are engaged by social media. The center is concerned about preserving its herbal knowledge due to the lack of interest among young adults. Thus, this project aimed to address the center's goal of preserving local knowledge by engaging the young adults both in and outside of the learning center.

Methodology

The goal of this project was to help the Baan Noan Rang Burapha Learning Center pass on their wisdom and knowledge to young adults. To meet the outlined objectives, the team conducted interviews, surveys, and online research. Informed consent was obtained from all interviewees. For the purposes of this project, young adults were defined as Thai people between 18 and 25 years old.

Identified the Current Situation at the Baan Noan Rang Burapha Learning Center

To identify opportunities for increasing young adult engagement at the center, the team conducted interviews with the center leaders, young adult members of the center, a community local, the leader of Baan Saeng Chan learning center, a marketing expert, and a senior researcher at a herbal product research institute.

The center's leaders were interviewed to understand the center's current operations and needs. The other interviews were used to understand a variety of perspectives on the center in order to find ways to preserve and spread their knowledge. A Chulalongkorn University marketing professor was interviewed to gain insight on marketing strategies. An interview with a Senior Researcher at InnoHerb was conducted to discuss certification. All interview questions can be found in *Appendix A: A1.0-A7.0*. All interview results were compiled into a table listed in *Supplemental Materials: 8.1*.

Created a Promotional Plan to Spread Herbal Knowledge

To promote the center to Thai young adults and increase their interest in herbal cultivation, updated packaging to be more informational, was created for the center's herbal oil and a social media platform was created. To update the packaging, two surveys were conducted on and around the Chulalongkorn University campus, Samyan Mitrtown, and Chamchuri Square – 2 shopping malls located near the university. The first survey focused on young adult preferences in packaging, product promotion, and herbal products. The survey questions can be found in *Appendix A: A8.0*. The survey was analyzed using pie charts and bar charts and the results were utilized to generate three packaging prototypes: one with a beautiful/bold pattern, one simple black and white design, and one cute/aesthetic style. The prototype designs were compiled in a second survey alongside the questions in *Appendix A: A9.0*.

The second survey was performed to gauge the relative popularity of the proposed packaging styles among young adults and was analyzed using pie charts and bar charts. The most popular prototype was selected as the final design. To further validate the final prototype's appeal to young adults, a market survey questionnaire was conducted around Chulalongkorn University and Samyan Mitrtown. Survey questions can be found in *Appendix A: A10.0*.



Explored Certification Options to Increase the Viability of the Learning Center

To increase young adult engagement with the center in order to preserve herbal knowledge, certification options were investigated to increase the center's viability as a career path. This research was primarily conducted using the Thai FDA website, specifically areas regarding the Good Manufacturing Practice (GMP) certification.

Explored Funding Options to Further Develop the Learning Center in Order to Gain GMP Certification

To investigate funding options for the development of the center, both online databases and information from the center leaders was used, covering topics such as application requirements, how the funding could be used, and timelines for each funding application. The proposal guidelines and previously funded projects of each opportunity were also investigated. Cost analysis was conducted using online sources as well as information provided by the Chulalongkorn University marketing professor.

Findings

The results of the enacted methodology were reviewed in order to generate deliverables for the sponsor. The key themes of the findings are as listed: informative packaging increases young adults' willingness to buy a product, utilizing social media can increase young adult interest in herbal

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

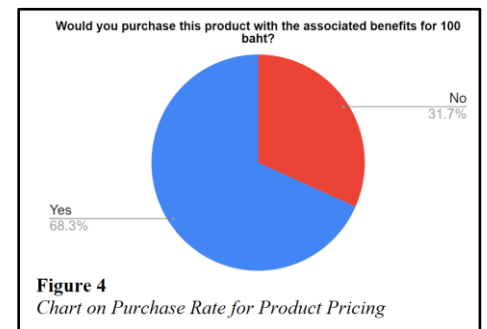
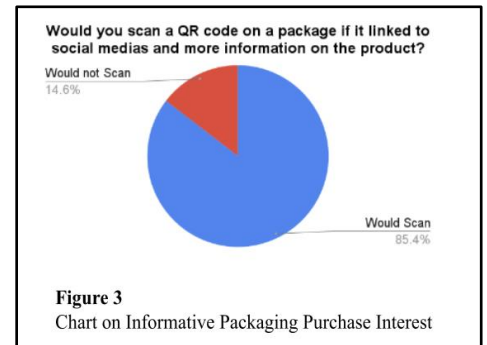
knowledge, certifications may attract young adults to the center, and improving the center's facilities can lead to more engagement with the young adults as well as potential certification opportunities e.g. GMP when the necessary funding is achieved.

Packaging Redesign

Key finding: Informative packaging increases the chance of spreading herbal knowledge in young adults

A marketing professor at Chulalongkorn University stated that updating the packaging on herbal products would be an effective method of engaging young adults and connecting them to the herbal knowledge as packaging could carry important information which could increase young adult interest over time. Additionally, as found through Survey 3, the majority of young adults are drawn to buy products with more informative packaging Figure 3. This indicates that packaging would be an effective means to increase young adult sales and get people to know more about the story and local wisdom behind the product.

According to the interview with a Chulalongkorn University marketing professor, using a QR code to connect to the customer may be a viable method to enhance the herbal wisdom of young adults towards the product as it is a form of storytelling. As a result of market testing with 100 young adults around Samyan Mitrtown and



Chulalongkorn University regarding their opinions on the proposed packaging prototype, it was found that the new redesigned product was preferred over the old one.

Key finding: Young adults prefer simple designs on products, roller bottle style oil products, and value informative labels

In terms of packaging features, it was shown that when buying an herbal product, the information on the label is crucially important to young adults. Additionally, it was noted that having the exact ingredients in products on the label is very important to young adults and that QR codes would be a great tool to provide additional

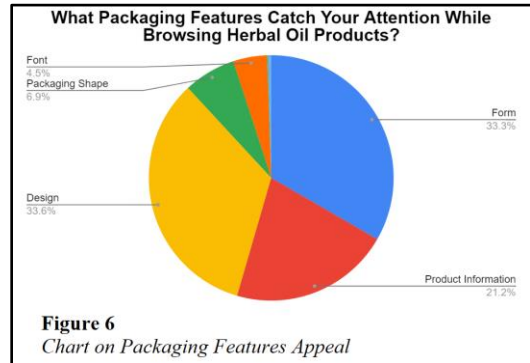


Figure 6
Chart on Packaging Features Appeal

information on products. Further representation of young adult preferences on packaging features are seen in Figure 6 below.

Young adults prefer roller bottles for oil-based products and designs that feature beautiful patterns, are aesthetic and cute, or are simple/black and white, as shown in Figure 7.

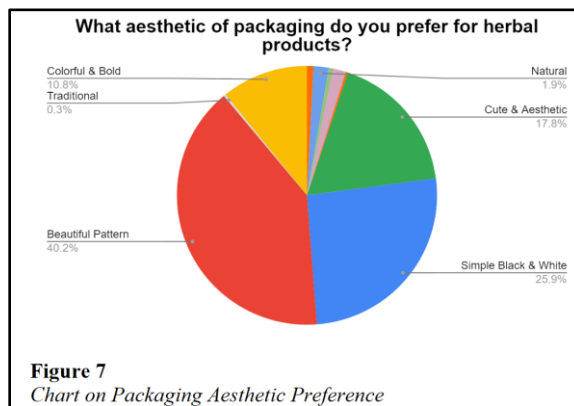


Figure 7
Chart on Packaging Aesthetic Preference

It was found that young adults prefer the simple black and white prototype. The survey questions additionally revealed the herbal product purchasing habits of young adults, most notably that

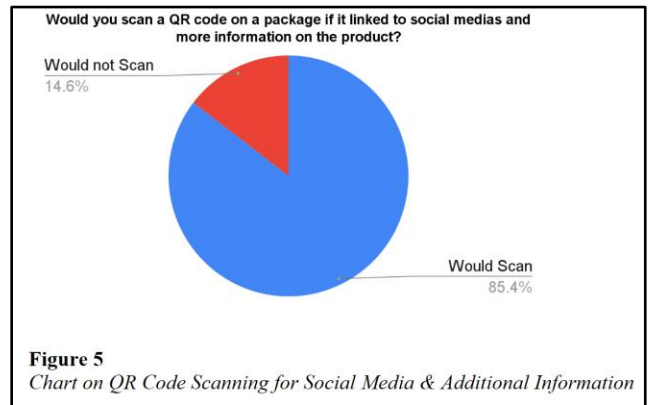
94.5% of young adults use herbal products, and within this group, 70% uses herbal products only as needed. This confirms that there is a market for the sale of herbal products to young adults. These survey results are graphically depicted in *Supplemental Material 8.2* and *Supplemental Materials 8*.

When the simple black and white design was proposed to the sponsor, they stated that they preferred green colors to highlight the connection to nature and herbs more. This redesign was not an issue because when analyzing the survey results, it was stated the reasoning behind this popular design was due to the minimalistic design, not the color. A new design was created utilizing this minimalistic design in order to meet both sponsor and young adult preferences. This new design is included in Figure 8.

Key finding: Increased sales increase QR code scans

Young adults who purchase the product were found to be likely to scan the QR code and thus access additional information about the center. Therefore, QR codes can be considered a viable method of providing young adults with additional information and sharing herbal wisdom of the learning center.

This data can be seen in Figure 5.



Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

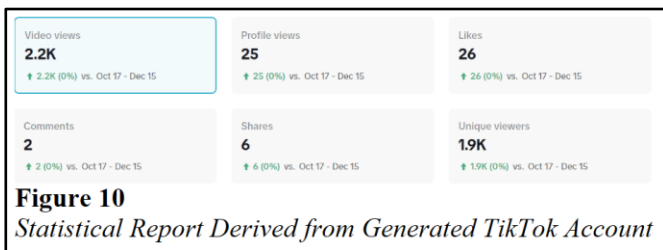
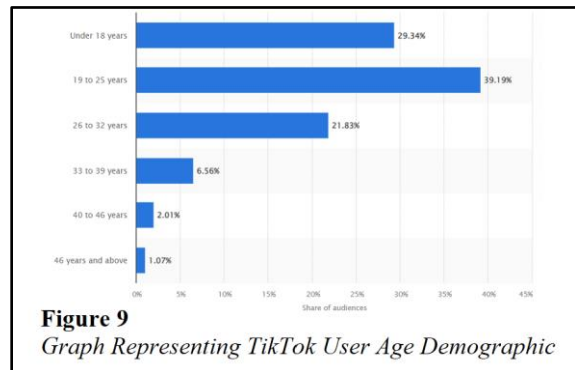
Social Media

Key finding: Social media is a valuable avenue to reach a young adult audience

In an interview with the leader of the Learning Center, he stated that they believe that utilizing social media can increase young adult interest and further engagement moving forward. Through interviewing local young adults, local community members, and a neighboring community center, it was found that improving the social media presence would help increase young adult interest. The young adult interviewed stated that they believed social media would be an effective method of spreading herbal knowledge and increasing young adult interest and engagement.

Key finding: Utilizing TikTok can increase young adult interest in herbal knowledge

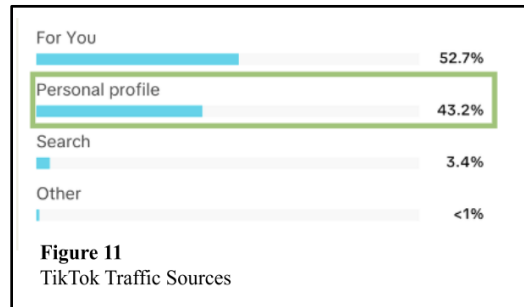
TikTok was found to be a popular social media app amongst young adults. According to the 2023 TikTok Thailand data statistics in Figure 9, the majority age demographic was between the ages of 19 to 25 (Statista, 2023).



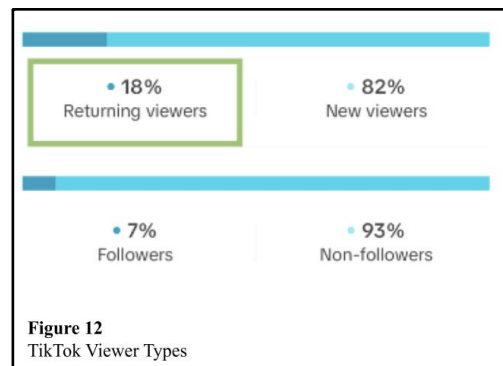
The team has created a TikTok account for the Baan Noan Rang Burapha Learning Center. In terms of the learning center’s statistics, the account has reached over 2000 views in just a week, along with over 25

new profile visits. There were also 1900 unique viewers, meaning that over 300 viewers watched the TikTok videos more than once, as seen in Figure 10. As the sponsor continues to post and the account becomes more established, the team anticipates that this engagement will increase.

The traffic sources on Tiktok reveal how viewers discover content, allowing for engagement tracking. Figure 11 indicates that 43.2% of viewers visit the center’s profile after watching a TikTok, suggesting that they have an interest in the content.



Furthermore, TikTok provides insight into the types of viewers revisiting and rewatching the center’s content. As seen in Figure 12, 18% of revisiting viewers are returning viewers, this indicates that the center’s content has potential for audience retention.



Certification

Key finding: Certifications will attract young adults to the center

Increasing the viability of the center through gaining certifications was identified as a key beneficial method of increasing interest among the young adults. The center leaders stated that they felt gaining certifications would help entice young adults by making the center seem more reliable and interesting. Interviews with young adults involved with the community center further supported this idea as it would make agriculture seem like a more viable career option and would make the center’s workshops seem more credible. This certification serves as a key factor influencing the decision-making process of young adults, who prioritize transparency and accountability when selecting products or services. Furthermore, the certification acts as a signal of professionalism and credibility

and enhances the center's appeal. This opens the door for the center to spread herbal knowledge through bigger audiences.

Key finding: GMP approval is the most feasible form of certification for the center

Methods of gaining certifications were discussed during the InnoHerb interview. According to the interviewee, the most feasible certification is the Good Manufacturing Practice (GMP) approval, rather than total Thai FDA approval. GMP standards provide a comprehensive framework for ensuring the quality, safety, and consistency of manufacturing processes. As such, GMP certification offers a more streamlined and cost-effective solution for ensuring product quality and compliance within the manufacturing of herbal processes. It is a fundamental starting point for the center to establish its further development in the future. Following this recommendation, the checklist guidelines for GMP approval can be found in *Supplemental Materials: 8.4*.

Key finding: Updating the center's facilities can lead to GMP certification

In order to comply with the regulations and acquire GMP approval, the Learning Center must update the facilities where they currently make their herbal products. The requirements for the facility can be found below in Figure 11

(กองผลิตภัณฑ์สมุนไพร, n.d)

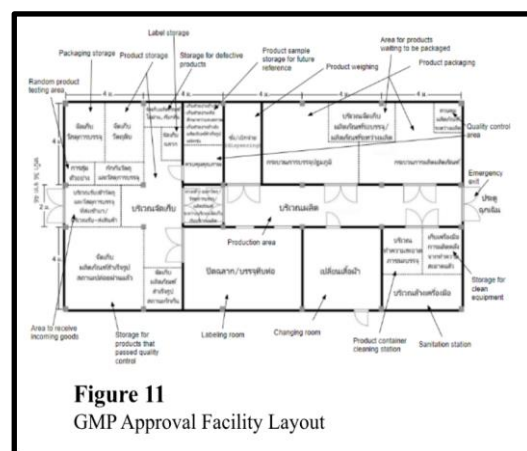


Figure 11
GMP Approval Facility Layout

The size of the facility does not matter as long as it can safely fit all of the required rooms (CGMP, 2023). A proposal detailing how funds can be used to update the center's facilities has been created based on GMP guidelines and is found in *Appendix E: E3* and the registration form can be found in *Appendix E: E4*.

Funding Proposal

Key finding: Grants can allow the center to gain GMP approval

Through both interviewing the Senior Researcher at InnoHerb as well as through digital analysis, it was determined by the team that securing funding is necessary in order for the Center to gain GMP approval. After conducting a brief cost-analysis, the team estimated that the center would need a total grant of 1,350,000 baht to construct a GMP certified facility(Pharmacy PSU, 2019). As estimated using online research, grants could provide an estimated 1.5-3 million baht. Since this is much higher than the estimated costs of facility upgrades, the team considers grants to be a feasible method of gaining GMP approval for the learning center. Furthermore, the excess funds can be used to upgrade the center's other facilities to make them more attractive towards future visitors.

Key finding: King Power Thai Power, SCG Foundation, and ThaiBev are viable funding corporations

Through online analysis into potential grants for the learning center, three NGOs were determined to be feasible as outlined below. These three were determined based on considerations of timeline, budget, and audience of grants. These are King Power Thai Power, SCG Foundation, and Thai Beverage. Each of these three companies have corporate social responsibility grants that focus on supporting local communities, such as the learning center.

Findings Summary

Based on the teams' research, it is clear that both promotional materials targeted towards young adults and increased certification and funding for the center will increase young adult engagement in herbal wisdom to preserve the center's knowledge. Targeted promotional methods include the creation of an updated packaging design and an increased social media presence plan. The GMP certification

will provide the center with a method of increasing their credibility thus engaging young adults in the center and ultimately the center's herbal wisdom. As outlined in 4.3.3, this certification can be obtained by applying for and using grants to update the center's facilities.

Recommendations & Conclusion

The Baan Noan Rang Burapha Learning Center is a community organization dedicated to upholding the principles of the sufficiency economy and spreading herbal wisdom. As the Thai herbal industry is facing a decline in young adult engagement due to rapid urbanization and a lack of interest in the field, herbal knowledge is at risk of being lost. With this goal in mind, the team addressed the following areas to preserve the center's wisdom: a promotional plan involving a packaging redesign and increased social media presence, funding applications to further develop the center's facilities, and a plan to help the center receive Good Manufacturing Practice certification.

The team conducted multiple interviews and surveys with locals in the area and experts in the field. Through this research, it was found that informative packaging increases Thai young adult willingness to buy a product, that young adults are likely to scan QR codes, and that utilizing TikTok can increase young adult interest in herbal knowledge. Additionally, the team found that obtaining funding to update the center's facilities can help the center receive the GMP certification and attract young adults to the center by increasing its credibility.

With the identified objectives and key findings in mind, the team created four deliverables that were identified to most effectively increase young adult interest in herbal wisdom and thus preserve the center's knowledge. These deliverables are a redesigned herbal oil packaging, a TikTok account with a guide on how to use TikTok, a plan outlining how to update the center's facilities to attract the

young adults as well as potentially gain GMP approval, and a submitted grant proposal in order to gain necessary funding for these updates.

By utilizing these findings to meet the stated objectives, the Learning Center will engage a new, younger audience to preserve their knowledge and sustain the sufficiency economy principles.

Table of Contents

Executive Summary	7
Introduction & Background.....	7
Framework of the Philosophy of Sufficiency Economy	8
Community Learning Centers In Thailand	8
The Baan Noan Rang Burapha Learning Center History and Purpose:	8
The Center’s Herbal Oil:	8
Young Adult Generational Trends	9
Economic Trends:.....	9
Promotional Trends:	9
Herbal Market.....	10
Thai Herbal Market Trends:	10
Thai FDA Standards for Herbs:.....	10
Background Summary:.....	10
Methodology	11
Identified the Current Situation at the Baan Noan Rang Burapha Learning Center	11
Created a Promotional Plan to Spread Herbal Knowledge	12
Explored Certification Options to Increase the Viability of the Learning Center	13
Explored Funding Options to Further Develop the Learning Center in Order to Gain GMP Certification	13
Findings	13
Packaging Redesign	14
Key finding: Informative packaging increases the chance of spreading herbal knowledge in young adults	14
Key finding: Young adults prefer simple designs on products, roller bottle style oil products, and value informative labels	15
Key finding: Increased sales increase QR code scans	16
Social Media.....	17
Key finding: Social media is a valuable avenue to reach a young adult audience	17
Key finding: Utilizing TikTok can increase young adult interest in herbal knowledge	17
Certification.....	18
Key finding: Certifications will attract young adults to the center	18
Key finding: GMP approval is the most feasible form of certification for the center.....	18
Key finding: Updating the center’s facilities can lead to GMP certification	19
Funding Proposal.....	19

Key finding: Grants can allow the center to gain GMP approval	19
Key finding: King Power Thai Power, SCG Foundation, and ThaiBev are viable funding corporations	20
Findings Summary	20
Recommendations & Conclusion	20
1.0 Introduction	28
2.0 Literature Review	30
2.1 Thai agricultural communities.....	30
2.1.1 Framework of the philosophy of sufficiency economy	30
2.1.2 Practicing the sufficiency economy in Thai communities	31
2.1.3 The Baan Noan Rang Burapha community	32
2.1.4 Community regional herbs	33
2.1.5 Community Learning Centers In Thailand.....	34
2.2 The Baan Noan Rang Burapha Learning Center	34
2.2.1 Learning center history and purpose	35
2.2.2 The Herb Seed Bank.....	38
2.2.3 The center’s herbal oil.....	39
2.2.4 Center goals	41
2.3 Young adults generational trends	41
2.3.1 Economic trends	41
2.3.2 Product packaging and branding in young adults	42
2.3.3 Certification and branding in young adults	43
2.3.5 Herbal interests of young adults in the area.....	44
2.3.6 Herbal interests of young adults urban area	45
2.4 Trends of the herbal market.....	45
2.4.1 Thai herbal market trends	45
2.4.2 Thai FDA standards for herbs	46
2.5 Summary	47
3.0 Methodology	48
3.1 Identified the current situation at the Baan Noan Rang Burapha Learning Center	50
3.2 Created a promotional plan to spread herbal knowledge	51
3.3 Explored certification options to increase the viability of the learning center	56
3.4 Explored funding options to improve the learning center’s facilities	56
4.0 Findings and Analysis	58
4.1 Understand the Current Situation and Identify Improvements to Preserve Herbal Knowledge.....	58

4.1.1 Key finding: The center’s herbal knowledge is their most valuable product that they want to preserve it	58
4.1.2 Key finding: The center has varieties of herbal products in the market but none are informative	59
4.1.3 Key finding: The center does not have an active social media presence to spread herbal knowledge	59
4.1.4 Key finding: Qualifications and good infrastructure increases credibility for young adults in the area.....	60
4.2 Created a promotional plan to spread herbal knowledge	60
4.2.1 Key finding: Informative packaging increases the chance of spreading herbal knowledge in young adults.....	61
4.2.2 Key finding: Young adults prefer simple designs on products, roller bottle style oil products, and value informative labels	62
4.2.3 Key finding: QR codes are an effective method of providing information to young adults ..	65
4.2.4 Key finding: Increased sales increase QR code scans.....	65
4.2.5 Key finding: Social media is a valuable avenue to reach a young adult audience	66
4.2.6 Key finding: Utilizing TikTok can increase young adult interest in herbal knowledge.....	66
4.3 Explored certification options to increase the viability of the learning center for young adults	69
4.3.1 Key finding: Certifications will attract young adults to the center	69
4.3.2 Key finding: GMP approval is the most feasible form of certification for the center	70
4.3.3 Key finding: Updating the center’s facilities can lead to GMP certification	70
4.4 Explored funding options to further develop the learning center in order to gain GMP certification	71
4.4.1 Key finding: Grants can allow the center to gain GMP approval	71
4.4.2 Key finding: King Power Thai Power, SCG Foundation, and ThaiBev are viable funding corporations.....	72
4.5 Findings summary	73
5.0 Recommendations & Conclusion	74
6.0 Bibliography	77
7.0 Appendix	83
Appendix A	83
A1.0 Questions for Leaders of Baan Noan Rang Burapha Learning Center.....	83
A1.1 Understand the Purpose of the Learning Center (Financial Profit, Knowledge Transfer, etc.).....	83
A1.2 Young Adult Participation.....	83
A1.3 Young Adult Product Promotion.....	83

A1.4 Knowledge Transfer	83
A2.0 Questions for 18-25 Year Olds That Are Related to a Founder of the Baan Noan Rang Burapha Learning Center	83
A3.0 Questions for 18-25 Year Olds That Are Involved With the Baan Noan Rang Burapha Learning Center(Pok).....	84
A3.1 Their Views on the Learning Center	84
A3.2 Opinion on the Learning Center	84
A3.3 Experiences With the Learning Center.....	84
A4.0 Interview Questions for the Locals in the Area.....	84
A5.0 Questions for the Leader of Baan Saeng Chan Community Learning Center	84
A5.1 Understand What the Learning Center is for: Money or Knowledge Transfer	84
A5.2 Young Adult Participation/Promotion.....	84
A5.3 Knowledge Transfer	85
A6.0 Questions for Marketing Professor at Chulalongkorn University	85
A7.0 Questions for the Senior Researcher at InnoHerb	85
A8.0 Survey About Packaging Appeal for young adults	85
A8.1 Practicality	85
Appendix B: Interview Participation Consent Form Consent Script for Interview	88
Appendix C: Introduction to The Baan Saeng Chan Community Learning Center.....	89
Appendix D: Important Herbal Content in the Center’s Current Oil	90
Appendix E: Final Generated Deliverables	93
E1 Deliverable: Prototype of Label and Label Printout	96
E2 Deliverable: TikTok Instructions	97
E3 Deliverable: Proposal to be Sent to Organizations for Funding	109
E4 Deliverable: GMP Approval Document	113
8.0 Supplemental Materials	119
8.1 Interview Questions and Answers with Thematic Coding	119
8.2 Survey 1 Charts	127
8.3 Survey 2 Charts	128
8.4 GMP Checklist: Approval Documents.....	129

Table of Figures & Tables

Label	Content	Page
Figure 1	The Pillars of The Sufficiency Economy.....	30
Figure 2	The Cultivation Field of the Learning Center.....	35
Figure 3	The Baan Noan Rang Burapha Learning Center.....	36
Figure 4	The Herb Seed Bank Created by BEDO for Learning Center.....	38
Figure 5	Beautiful/Bold Pattern Prototype.....	53
Figure 6	Simple Black and White Prototype.....	53
Figure 7	Cute Aesthetic Prototype.....	54
Figure 8	Chart on Appealing Packaging.....	62
Figure 9	Features Young Adults Pay Attention to on Herbal Oil Packaging.....	63
Figure 10	Favored Prototype with Green Design.....	64
Figure 11	Market Testing: Likelihood of Purchasing the Prototype.....	65
Figure 12	Market Testing: Likelihood of QR Code Scanning.....	66
Figure 13	Chart on TikTok Age Demographic.....	67
Figure 14	TikTok Profile Engagement Statistics.....	68
Figure 15	Tiktok Traffic Sources	69
Figure 16	Tiktok Viewer Types	69
Figure 17	Requirements for Facility Guidelines.....	71
Table 1	Comparing Essential Oil Products.....	40
Table 2	Methodology Structure.....	49

1.0 Introduction

In the heart of Thailand, residents in impoverished areas cater to a unique way of life centered around the ideologies of the sufficiency economy, a concept developed by the late King Bhumibol Adulyadej. In this setting, the sufficiency economy is more than an economic concept; it is a way of life consisting of simplicity, sustainability, and the everlasting nature of Thai resilience while fostering the promotion of self-reliance, moderation, and perseverance.

Farmers in Thai rural areas use this philosophy to expand their knowledge on their environment. In many cases, this knowledge is about herbs in general. The relationship between local life and herbs in rural Thailand is strongly rooted in tradition and a profound connection to nature. Herbs are more than just plants in these communities; they are guardians of health, keepers of cultural wisdom, and symbols of persistence. Herbal treatment knowledge is passed down through generations, and community members frequently rely on the therapeutic capabilities of native plants because access to modern medicine can be difficult in these villages due to their remote locations. Herb gardens serve as open-air pharmacies, providing a natural alternative to modern medicine. Oftentimes, communities rely on herbs to maintain their livelihoods.

The village of Baan Noan Rang Burapha is located in northeastern Thailand and is a community with an extensive past in herbal knowledge. However, like many others, the village suffers a number of challenges related to health, finances, maintaining cultural traditions, sustainable development, and urbanization. Understanding the issues faced by the residents of the Baan Noan Rang Burapha is essential to creating targeted solutions that address their specific needs.

Community-based learning centers in Thailand educate locals and foster self-sufficiency. Ideally, these centers will economically empower local communities and educate community members.

However, in recent years, Thai young adults, who are individuals between the ages of 18-25 years old, have been moving to cities and moving away from local communities and agriculture. This has led to diminishing interest in these centers among young adults. This poses a challenge to the Baan Noan Rang Burapha Learning Center. To address the center's concerns regarding low levels of young adult engagement and to help them reach their goal of preserving their herbal wisdom in the community, the team established a goal of the Baan Noan Rang Burapha Learning Center increase young adult interest and engagement in herbal products for the purpose of sustaining the wisdom and knowledge of the learning center's leaders.

To carry out this goal, the team established and carried out four main objectives:

1. Understand the Current Situation and Identify Improvements to Preserve Herbal Knowledge
2. Spread Herbal Knowledge to Young Adults through Promotional Means
3. Increase the Viability of the Center through Certifications
4. Improve the Center's Facilities by Exploring Funding Options

When pursuing these objectives, the team placed a focus on finding solutions to the challenges the center faces and also on developing an understanding of the learning center's values, struggles, and relationships with the surrounding villages. The team conducted interviews, surveys, and online research to obtain data and develop deliverables in order to address the needs of the learning center with a sustainable plan to spread and preserve its herbal knowledge and wisdom.

2.0 Literature Review

2.1 Thai agricultural communities

Most agricultural communities across Thailand are focused on the principles of the sufficiency economy (Piboolsravut, 2004). This is due to many existing examples of farmers who successfully adopted the idea into their way of living.

2.1.1 Framework of the philosophy of sufficiency economy

The sufficiency economy philosophy is a way of thinking that serves to guide Thai people in shaping their lives to prioritize walking the “middle path” (Piboolsravut, 2004). For Thailand, this commonly applies to agricultural and economic practices, and is especially relevant on a community level. Overall, this philosophy can be used as a guide to help Thai people make decisions in every aspect of life.

The framework of the sufficiency economy is split into three key pillars: moderation, reasonableness, and self-immunity as seen in Figure 1 (Mongsawad, 2010).

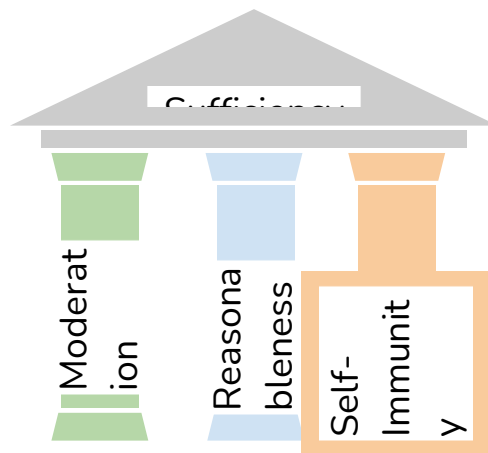


Figure 1 *The Pillars of The Sufficiency Economy*

The pillar of moderation, which is the practice of avoiding overindulgence by taking only what you need, guides people to avoid extremes in all aspects of life. The second pillar of reasonableness advises people to rely on their knowledge and capabilities for self-awareness when making decisions. To be reasonable is to consider all impacts when making a decision, both personal impacts and the impacts on others. The third pillar of self-immunity guides people to protect themselves from harm from outside influences . To be self-immune is to be self-reliant; to be able to adapt to changing situations. It is through the simultaneous application of all three of these pillars that one should be able to practice the sufficiency economy, either as an individual or as a community (Mongsawad, 2010).

These three pillars are applied in two ways. Firstly, these pillars are applied through knowledge. This involves not only the gathering of information, but the fundamental understanding of the meaning of the information. Secondly, the three pillars must be applied through morality. Once one sufficiently understands information and the meaning behind it, they must decide how to best put that information to use. According to Mongsawad, this decision should be guided by “integrity, trustworthiness, ethical behaviour, honesty, perseverance, and a readiness to work hard”. Through the application of these principles, a person should be able to achieve a harmonious, secure, and sustainable life (Mongsawad, 2010).

2.1.2 Practicing the sufficiency economy in Thai communities

On a community-wide scale, the sufficiency economy is practiced both through agricultural techniques and community support. Agriculturally, an application of the sufficiency economy could be switching their crops from being a single product to being a variety of products. While single crops often maximize income, they are vulnerable to market price changes, diseases, and pests (Piboolsravut, 2004). By switching to a variety of crops, the farmers may lose immediate income from upfront

investment, but they are more protected in the long term. This decision applies to all three pillars of the sufficiency economy, because it is more moderate, based on reason, and provides self-immunity to the farmers.

For community support, agricultural wisdom is often shared between community members, rather than kept for individual use. For example, if one farmer develops a technology for reliably and inexpensively watering crops, they would share that knowledge free of cost in order to support their community. This practice allows the entire community to prosper, instead of solely bringing profit to the individual. Both the knowledge and morality present in this example show the ideals of the sufficiency economy. Overall, when the sufficiency economy is correctly applied, Thai communities should be able to successfully ‘walk the middle path’ through life and become a stronger and more successful community.

2.1.3 The Baan Noan Rang Burapha community

As is common in rural Thailand, the members of the Baan Noan Rang Burapha community primarily base their income on the cultivation and selling of agricultural products. The members of the learning center primarily consist of people from 19 villages in the Talatsai sub-district. Other learning centers in and around this region also benefit from the support and assistance provided by the Baan Noan Rang Burapha Learning Center. This is in part due to the geography of the area, which primarily consists of nutrient-rich soil. Combined with their wide range of herbal knowledge, they can accurately take care of and maintain their herbal garden. While the adult members work in agriculture, the children and young adults in the area are primarily students (สถาบันสารสนเทศทรัพยากรน้ำ & K., 2018). Students in that area have courses that specialize in agricultural practices and herbal knowledge. Most of the community members, both young and old, actively engage and collaborate with the center. As mentioned by Mr.

Suwattachai, a sage and a senior member of the learning center, during an interview on December 13, 2023, the community members are actively involved in the development of their community. Also, they equally dedicate themselves to their roles in voluntary activities and their own agriculture as well as other community-oriented work.

Mr. Suwattachai shared that to become an expert or a sage within the learning center, individual villagers must undergo training prior to joining, organized by the center's previous sage. This training includes both cultivating their own herbs and having proficiency in herbal plants, as well as having knowledge accumulated from many years of agricultural practices.

2.1.4 Community regional herbs

There are abundant and diverse natural plants in the Baan Noan Rang Burapha community. Among the noteworthy herbal plants found in this region are herbs such as Wan Sao Long (*Alpinia Mutica Roxb*), an herb known for its distinctive and pleasant smell (S. Champamun, personal communication, December 13, 2023). Other noteworthy plants that enhance the landscape are Wan Phaya Wan (*Curcuma Phrayawan Boonma & Saensouk*), Wan Krachaidam (*Kaempferia parviflora Wall*), Wan Maengmoom (*Curcuma Viridiflora Roxb*) and Wan Hom Daeng (*Eleutherine Bulbosa*). They bring both their appeal and medical significance with their healing properties – headache and nausea relief.

There are also aromatic plants such as Wan Phlai Champoo (*Zingiber Mekhongensis Gagnep*) and Wan Maha Saneh (*Amomum Wandokthong*) that have distinctive fragrances and unique qualities. Because of their pleasant smell, they can also be used in some herbal products to alleviate the strong herbal scent that it usually has. Another herb, Wan Kamin Chan (*Curcuma Longa L*) is also well-known for its practical applications. It holds a prominent place in local cultivation practices and also within

the learning center. This is because of both practicality and superstitious reasons regarding the bringing of good fortune and luck. These herbal species are carefully preserved for the local community.

2.1.5 Community Learning Centers In Thailand

Community Learning centers serve as a hub for the collection of community knowledge and data that will support the educational process for local residents. Additionally, it provides a range of community services, such as workshops and events which increases community interest and highlights the importance of education in order for the community to adapt to current societal changes. Furthermore, it also helps establish a sense of growth and self-reliance within the community. All in all, a community learning center is a center made by the people, for the people (kochan, 2021).

Learning center activities can vary based on the needs of people in the community. They act as places for learning activities, these may be carried out both in the center building and outside the center building. Learning activities are organized in the community, such as the village sage's house to demonstrate learning activities such as growing vegetables, raising animals, etc. (kochan, 2021)

2.2 The Baan Noan Rang Burapha Learning Center

At the Baan Noan Rang Burapha Learning Center, these herbs can specifically be found in the herbal cultivation field as seen in Figure 2 below. This herb seed bank is considered a community learning resource where individuals can receive herbal education.



Figure 2 *The Cultivation Field of the Learning Center*

2.2.1 Learning center history and purpose

The Baan Noan Rang Burapha Learning Center, which, as stated, is an herbal community training center (Figure 3) was established by Chanthi Prathumpha, who is an award winning sage in agriculture and the receiver of the “Best Adaptation of the Sufficiency Economy Principle” award (ศูนย์อนามัยที่ 9 นครราชสีมา, 2014). He later then spread his knowledge to the community. This is the reason the center is based on the principles of the sufficiency economy. At the time of the center’s founding, Prathumpha’s primary objective was to instill and generate a new economic philosophy and an innovative agricultural model within his community (K, P., 2018, December 18). With this objective in mind, the learning center evolved into a non-formal community training center which started with seven members on a voluntary basis and now consists of 20 expert members and another 200 members who are from the local community.



Figure 3 The Baan Noan Rang Burapha Learning Center

When the learning center and community management began, with their own water source, there was no need to venture outside the community for resources (กรมอนามัย, 2014) (S. Champamun, personal communication, December 13, 2023). However, to encourage a conscious awareness of sufficiency economy principles within all members of the community, it was necessary for all to maintain household accounts to track income and expenses. This led to strategically and thoughtfully planting crops, ensuring the cultivation of everything needed for the independent operation of the center, including meals and herbs for medicinal use. If there was surplus produce, it was consumed by members of the center, shared with members of the community, or sold. A detailed planting schedule was established on a daily, weekly, monthly, and yearly basis to predict crop outcomes within the community. Water usage was optimized, employing various planting methods and rotating different types of plants. This approach aimed to yield daily produce and yield different produce from their competitors, diverging from conventional farmers who faced market oversaturation and price competition. Detailed planning created a continuous income flow, distinguishing the community from ordinary farmers. The process over time has transformed into wisdom gained through practical learning, embodying a philosophy rooted in real-life experiences rather than formal academic study.

The center caters specifically to local and marginalized groups, providing instruction on simple methods for cultivating herbs, spices, and plants. The learning center was officially registered as a community enterprise to create positive outcomes for economic challenges. Their plant-focused training initiatives are intended for people of various backgrounds and have been highly effective. The resultant payoff has seen the community successfully develop and market several products (including oils and balms derived from cultivated herbs) in their local community and at outreach events in Thailand. The center's current goals are to develop a more sustainable plan, long term, plan for preserving its knowledge and wisdom.

The primary focus of Baan Noan Rang Burapha Learning Center is to spread herbal knowledge to the surrounding community while simultaneously upholding the principles of the sufficiency economy. To achieve this goal, the center has previously held workshops as well as attended herbal community center festivals to enhance the efforts of spreading their knowledge while also gaining new insight on other centers around them. Currently, even as the center strives to educate others through the running of workshops, they face a lack of interest from young adults in carrying on their practices and knowledge. This has worried the founders and community members as they want their knowledge to be inter-generational and passed on for years to come.

One of the main reasons the center currently lacks young adult engagement is due to a lack of proper facilities in order to accommodate center visitors, lowering the viability of the center. Since the center has no funding to assist their activities and upkeep of facilities. Prior to the outbreak of the COVID-19 pandemic, the learning center received financial assistance from the Ministry of Agriculture. However, following the pandemic, they no longer receive any support from the Thai government directly as the government had reallocated the funding towards other initiatives.

Alternative organizations, such as the Thai Health Promotion Foundation (สสส), have assisted the learning center with funds in the past, but currently, the learning center is not directly supported by them (S. Champamun, personal communication, December 13, 2023).

2.2.2 The Herb Seed Bank

Through collaboration, BEDO (Bio-reliability, Economic/Ecosystem balance, Deliverable, and Openness), a public organization of economic development from biological foundations and the Baan Noan Rang Burapha Learning Center created the 'herb seed bank' as pictured in Figure 4. This herb seed bank contains various herbs that have been researched by the center, and can serve as a failsafe method to preserve the center's herbs, in the case of an emergency. This is because the center has intricate knowledge on every single herb in the herb seed bank, including ways to use said herbs to repopulate or substitute for damaged or dead ones. This has led workshop visitors and the locals who stop by to explore the varieties of herbal plants and the diversity of herbal plant species.



Figure 4 *The Herb Seed Bank Created by BEDO for Learning Center*

2.2.3 The center's herbal oil

Throughout Thailand, herbal products such as essential oils and balms are widespread in today's market. As each brand competes for sales, the ingredients and advertising methods are what allow their products to stand out. In terms of herbal products specifically, when people buy herbal products they often focus on the mixture of the herbs in the products and the uses of the product (Pandey et al., 2019). With this in mind, the ingredients of the product must be high quality and unique.

The herbal oil the Baan Noan Rang Burapha Learning Center manufactures contains 23 types of herbs, the combination of which makes the properties of the oil unique. Purely natural and organic extraction methods are utilized. Information regarding the most crucially important characteristics of these 23 herbs can be found in *Appendix D*. The herbal oil is then packaged in glass and plastic bottles with stick-on labels, which are then showcased and sold at local events and festivals. Within the herbal oil market, the Baan Noan Rang Burapha Learning Center's current oil can be competitive to other essential oil products. The similarities and differences can be seen in Table 1 below

(*การทำน้ำมันเหลืองหรือน้ำมันนวดสมุนไพร สูตรพื้นฐาน*, n.d.). Most crucially noted here is the Baan Noan Rang Burapha herbal oil contains 23 unique herbs at a cheaper price, while competitors have 9-10 herbs at over double the cost. On the downside, the competitor, Chiangdao Herb, has Good Manufacturing Practice Certification (GMP) - a certification to prove that their products are made in a safe and clean environment, yet the learning center does not (เชียงดาวเฮอร์บ, 2019). Through these comparisons, it is clear that the herbal oil product produced by the sponsor has higher marketable

appeal. The reason Chiangdao Herb was chosen as a competitor is because of its availability within the market as well as its similar properties to our sponsor's product.

Table 1 Comparing Essential Oil Products

	Essential oils of Baan Noan Rang Burapha Learning Center	Essential oils of Chiangdao Herb
Ingredients	Contains more than 23 types of herbs: (<i>Curcuma aromatica</i> , <i>Curcuma zanthorrhiza</i> , <i>Amomum schmidtii</i> (K.Schum.) Gagnep., <i>Geodorum recurvum</i> (Roxb.) Alston, <i>Gynura pseudochina</i> var. <i>histida</i> , <i>Elettariopsis wandokthong</i> Picheaus. & Yuppatrach, <i>Eleutherine palmifolia</i> (L.) Merr., <i>Typhonium trilobatum</i> (L.) schott <i>Curcuma aeruginosa</i> , <i>Curcuma phrayawan</i> Boonma & Saensouk, <i>Curcuma sp.</i> , <i>Gynura pseudochina</i> (L.) DC. <i>Curcuma sp.</i> <i>Stahliathus campanulatus</i> Kuntze <i>Muehlenbeckia platyclada</i> (F.v.Muell.) Meissn. <i>Boesenbergia thorelii</i> (Gagnep.) Loes. <i>Salacia chinensis</i> L., <i>Proiphys amboinensis</i> , <i>Eucharis x grandiflora</i> Planch. & Linden., <i>Eucrosia bicolor</i> , <i>Alocasia cucullata</i> , <i>Kaempferia galanga</i> L. <i>Curcuma longa</i> , <i>Zingiber ottensii</i> Valetton., <i>Thunbergia impatioides</i> Suwanph. & S.Vajarodaya., <i>Zingiber cassumunar</i> Roxb., <i>Curcuma zedoaria</i>)	Basic formula consists of 9-10 types of herbs: (Special herbs, <i>Plantago major</i> , <i>Curcuma aromatica</i> , <i>Cymbopogon citratus</i> , <i>Curcuma longa</i> , <i>Curcuma zedoaria</i> , <i>Barleria lupulina</i> , <i>Curcuma aeruginosa</i> , <i>Curcuma phrayawan</i> Boonma & Saensouk)
Prices	100 baht	290 baht
Certifications/Selling Points	Natural & organic	GMP (Good Manufacturing Practice) approved and HACCP (Hazard Analysis Critical Control Point) certified.

2.2.4 Center goals

Although the center markets several products, they value knowledge preservation and self-sufficiency over monetary profit. It is clear that the Baan Noan Rang Burapha Learning Center's main goal is to preserve knowledge between generations. As part of this goal, community sustainability was consistently prioritized. The learning center often aims to overcome challenges using their current resources and knowledge. Thus, the team worked with the sponsors when developing deliverables to ensure that we consistently are honoring their founding principles and self-reliance along with the desire to pass on knowledge to future generations.

2.3 Young adults generational trends

Economic trends and promotional trends exist among young adults. The connection between these trends establishes a correlation in terms of how young adults perceive their tradition of local wisdom.

2.3.1 Economic trends

In recent years, the involvement of young adults in agricultural fields has decreased significantly. It was found that from 2003 to 2013, "the number of farm owners under the age of 45 decreased from 2.6 million in 2003 to 1.4 million in 2013". This is in large part due to the economic appeal of cities and factories overall. This shows that in contemporary society, the pursuit of financial stability often drives young individuals to seek employment opportunities in urban cities rather than their local communities. Another cause of the decline of agricultural interest in young adults is a general negative perception of farming. Younger people often consider farming to be a "lesser career" with a reduced potential income compared to other occupations (Salvago et al, 2019). As a result of both

economic appeal and negative agricultural economic perception, Thailand has been facing rapid urbanization as masses of rural people move to cities (Vasoonrara et al, 2011).

Young people in particular are especially drawn to the economic appeal of cities because Thai young adults have a culture of prioritizing salary as the primary influencing factor when pursuing a career. Additionally, young adults aged 18-25 years old have educational ambitions that often don't align with agricultural work. This migration towards cities has significant implications beyond economic factors, affecting cultural and traditional knowledge transmission as well. One such consequence is the diminishing understanding and practice of herbal wisdom among young adults. As young people prioritize monetary gains over local connections and traditional practices, there has been a noticeable decline in the passing down of ancestral knowledge related to herbs and their medicinal properties (Sukhansa et al, 2022).

Despite their lack of interest in agricultural work, many young adults are interested in agricultural products such as herbal remedies (Wresearch, n.d.).

2.3.2 Product packaging and branding in young adults

Product branding and packaging is a critical factor in leading a product to success and recognition within its market, both in the herbal market and others. In a case study conducted by the Department of Business Administration at ABES Engineering College in India, reactions to and desirability of product packaging was evaluated. This study found that investing in packaging technology increases the competitiveness of the product. Higher quality packaging materials, such as labels with informative and brief information are liked best by customers (Pandey et al., 2019).

Young adults have been noted to engage more with catchier product promotion methods and “eye candy” than older, static text promotional methods (Fletcher, 2023). Younger audiences prefer

product content that's not only catchy but includes references to topics they care about, such as, social justice, the environment, and the brands' values (Fletcher, 2023). Product packaging serves as the first point of contact between consumers and a product, often conveying essential information about its contents, usage, and value proposition. Effective packaging design not only informs information but also communicates knowledge about the product, including its features, benefits, and intended use. This is also backed by the optimal arousal theory, which states that the alertness of the brain can lead to better cognitive thinking and a sense of interest (Hreha, 2023). By designing packaging that caters to the young adults' preferences, it stimulates their brains when they look at the product, which then invokes a sense of curiosity within them.

2.3.3 Certification and branding in young adults

Other than packaging, the certifications of a brand and its products are also highly important to young adults in terms of reliability and trust (NSF, 2023). Specifically, certification helps convey company values, builds trust in between the consumers and the brand, and differentiate the product from its competitors.

2.3.4 Young adults and social media.

Since young adults often engage with brands and companies via online platforms such as social media. This tends to be an effective way for companies to advertise and engage with young adults, especially TikTok, Instagram, and YouTube (Fletcher, 2023).

TikTok specifically has been noted as a dominant social media platform for promoting to young adults in Thailand. In 2023, the majority of Thailand's TikTok user demographic was young adults; 39.19% of users were ages 19-25, which is well within our range for young adults (Statista, 2023). TikTok is engaging to young adults because the media it presents has a short time-span. Additionally,

TikTok focuses on maximizing the amount of content the users view and interact with, rather than connecting the users with people they may know. This is different from other popular social media platforms, Instagram, Snapchat, and Facebook, which focus more on digital communication between friends and acquaintances. Lastly, TikTok generates a lot of current and popular trends for young adults, making it the ideal platform to advertise and gain popularity among this group. The application takes localized content and displays it to a wide audience while catering to every user's viewing habits, proving its strength in pulling in desired audiences and keeping them entertained and engaged (Luitel, 2024).

2.3.5 Herbal interests of young adults in the area

In the local area, the interest in herbs among young adults can be attributed to a variety of factors, reflecting the diverse backgrounds and interests of the community. Since agriculture is a massive part of Thai culture, with around 30% of the Thai workforce being farmers, many young adults in our area have grown up in families with a strong connection to farming and agriculture, where planting and nurturing plants have been integral parts of their lifestyle (Udomkerdmongkol, 2020). As a result, there is a natural connection towards herbal knowledge among these individuals, who are already familiar with the process of growing and cultivating plants.

Many people are proactively incorporating herbs into their daily routines to support and improve their overall health and well-being (*ธนาคารกสิกรไทย, 2021*) Herbs are seen as valuable tools for maintaining optimal health and preventing illness which is a result of traditional healing methods passed on throughout generations.

2.3.6 Herbal interests of young adults urban area

Urban areas serve as a hub of cultural diversity and innovation. This provides young adults with exposure to a wide range of herbal traditions and practices from around the world. As a result, young adults have high levels of open mindedness when tackling the issue of modern versus traditional medicine. They mostly prioritize seeking professional medical attention and prescription medications for their health concerns, viewing modern medicine as more reliable and effective, particularly for acute or severe conditions. However, despite the favorability towards modern medicine, there remains an interest in herbal knowledge among certain groups of young adults in the capital area (*ร้อยเรื่องเมืองไทย*, 2015).

2.4 Trends of the herbal market

The herbal market has been expanding in Thailand in recent years, resulting in new standards and regulations.

2.4.1 Thai herbal market trends

The Thai herbal market and Thai herbal trends in general have been shifting over the last few years with world events and the rise of a new generation. Since the beginning of the COVID-19 pandemic, the herbal market has rapidly expanded as the Thai young adults have become increasingly interested in herbal products and natural health remedies. Thai consumers have shifted their interest toward finding natural and organic health products and away from synthetic ones (Wresearch, n.d.). Thai young adults in particular consume organic products as a conscious choice, sometimes even going out of their way to purchase said products. The main reason for this is because they deem organic

products to be “trendy” and “healthy” (Rujichaiyawat, 2016). This development indicates a return of respect for herbal medicines among young adults, as it symbolizes a reconnecting with cultural history and an understanding of the wisdom inherent from older generations.

2.4.2 Thai FDA standards for herbs

Just like other products in the market, herbal products require a certification of standardization to ensure its quality (Admin-Law, 2019). In 2019, the Thai Food Drug and Administration (Thai FDA) released the Herbal Product Act, which regulates the development and sale of herbal products to help protect the public from potential health risks (Food and Drug Administration, n.d.). This regulation declared that Thai people who want to sell herbal products must register that product and obtain a license to sell it (Herbal Product Act B.E. 2562, 2019). Obtaining approval varies in difficulty based on the potential risks of the product and the facilities they are produced and manufactured in (Food and Drug Administration, n.d.).

Specifically, this Act defines herbal products by categorizing them into 3 categories: Category A: Medicine made using traditional knowledge – Thai traditional and Chinese traditional – which must follow the recipes provided by Thai FDA, Category B: Medicine developed from herbs, and Category C: Health supplements (นนท์, 2024). Standards for these products vary based on the category for which one is applying. A is the easiest to get approved and C is the hardest. This mainly is due to the fact that Category A only requires one to follow a given recipe, while C requires the product to be tested thoroughly, as well as making sure that it fits the national standard, as it is a product with claimed benefits (as a health supplement) (นนท์, 2024).

Under the Thai FDA regulation, there is a sub-unit of requirement needed to register beforehand in order to apply for the Thai FDA. The Good Manufacturing Practice (GMP) certification is given out to products that are manufactured in a clean and safe environment. GMP guidelines are designed to ensure that products are consistently produced and controlled to meet quality standards appropriate for their intended use. One of the critical components of GMP compliance is facility design and maintenance. Manufacturing facilities must be designed to facilitate hygienic operations and minimize the risk of contamination or cross-contamination. Adequate ventilation, proper sanitation protocols, and separation of production areas are essential considerations in GMP. As long as a production building has a specific amount of rooms and room types, and it is sufficiently large and clean, then it could qualify for GMP approval.

2.5 Summary

In summary, this literature review reveals that the Baan Noan Rang Burapha Learning Center operates under the principles of the sufficiency economy, specializes in herbal agriculture, produces and sells various products, such as herbal oils and balms, and lacks engagement from young adults. It also shows that they are moving towards urban areas and away from agriculture, prefer informative packaging, prefer certified products, and are engaged through social media platforms. The learning center is concerned about the gradual disappearance of Thai herbal knowledge due to a general lack of interest from young adults, as well as the potential disappearance of the center itself due to a lack of intergenerational interest, and funding. Thus, using this knowledge, this project aims to address the Baan Noan Rang Burapha Learning Center's goal of preserving local knowledge by engaging the young adults both in and outside of the learning center.

3.0 Methodology

The goal of this project was to help the Baan Noan Rang Burapha Learning Center preserve the center's herbal wisdom and pass it on to young adults through promotional tools. .

To achieve this goal, the team:

1. Understand the Current Situation and Identify Improvements to Preserve Herbal Knowledge
2. Spread Herbal Knowledge to Young Adults through Promotional Means
3. Increase the Viability of the Center through Certifications
4. Improve the Center's Facilities by Exploring Funding Options

The team accomplished this goal by increasing young adult engagement at the center through:

- A promotional plan that includes both an updated packaging design to be more informational and the creation of social media platforms.
- A funding plan that proposes relevant grants to the center.
- A certification plan to increase center viability.

To complete the stated objectives, the team conducted a series of interviews, surveys, and online investigation. The interviews were primarily used to understand the needs of the center and the context of the project. The surveys were utilized to collect data about the interests of young adults concerning packaging. Lastly, the team utilized online investigation to understand the context of the project and gather data regarding packaging designs, social media, funding and certifications. The team obtained informed consent from each interviewee prior to each interview. For the purposes of this project, young adults will be defined as all Thai young adults between 18 and 25 years old.

The methods used to achieve the four objectives of the project are summarized in Table 2, and the final deliverable with both the promotional and certification plans can be found in Appendix E.

Table 2 *Methodology Structure*

Objective 1: Understand the Current Situation and Identify Improvements to Preserve Herbal Knowledge	
Method	Source
Interview the Baan Noan Rang Burapha Learning Center leaders	Center leaders (Mrs. Duangjun and Mr. Suwatthanachai Champamun)
Interview young adult members of the Noan Rang Burapha Learning Center	18-25 year-old members of the Baan Noan Rang Burapha Learning Center
Interview locals	People near Baan Noan Rang Burapha Learning Center
Interview the InnoHerb Sr. Researcher	Sr. Researcher of InnoHerb
Objective 2: Spread Herbal Knowledge to Young Adults through Promotional Means	
Method	Source
Interview marketing expert	Chulalongkorn university professor (Asst. Prof. Kwanrat)
Survey about packaging preferences	Chulalongkorn University students
Survey about packaging design options	Chulalongkorn University students
Survey about packaging prototype	Chulalongkorn University students and Samyan Mitrtown young adults

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

Interview of the Leader of the Baan Saeng Chan Community Learning Center	Baan Saeng Chan Community Learning Center leader (Mr. Vichit)
Document analysis on promotional methods	Online database
Objective 3: Increase the Viability of the Center through Certifications	
Method	Source
Document analysis on certification standards	Online database
Objective 4: Improve the Center's Facilities by Exploring Funding Options	
Method	Source
Digital investigation into various funding options for Thai community centers	Online database
Cost and duration analysis	Government website

3.1 Identified the current situation at the Baan Noan Rang Burapha Learning Center

The team conducted four interviews in order to identify the current situation at the learning center. The four interviews were with the community center leaders, young adult members of the center, locals in the surrounding area, the leader of Baan Saeng Chan community center, and a senior researcher at a herbal processing company.

The Baan Noan Rang Burapha community leaders, Mr. Suwatthanachai and Mrs. Duangjun, were interviewed as key representatives of the learning center. The purpose of this onsite interview was to understand the current operations, the role of the learning center in the community, and needs of the learning center. The questions are in *Appendix A: A1.0*.

A young adult member of the learning center was interviewed in order to understand his engagement with the center and his perspective on how young adult engagement could be increased and the focus points of young adults. While he was the only available interviewee, from the interview

it was briefly mentioned that young adults in the area have the similar opinions on the learning center as he does. The questions the team asked are in *Appendix A: A2.0* and *Appendix A: A3.0*.

A local in the area surrounding the learning center was interviewed in order to understand the local perspective on and involvement with the learning center. The local was representative of the surrounding community and has been involved in many activities of the learning center. Although only interviewing one person was a limitation as perspectives may vary, she provided extremely useful insights. These regard their areas of interest in the center, the engagement of locals overall, and their perspective on young adult interest and involvement with the center. Questions can be found in *Appendix A: A4.0*.

An interview with the Senior Researcher at InnoHerb was conducted to discuss the center's current certification status. Possible certification and funding avenues based on the center's facilities and technology were also discussed. Questions from this interview are in *Appendix A: A7.0*.

All interview results were compiled into a table listed in *Supplemental Materials: 8.1* The table consists of numbers indicating which interview the data is from, translated questions, and the translated answers provided/comments made after the question was asked. These results were analyzed using thematic coding, where keywords were qualitatively analyzed to understand the common themes between each interview. This coding is indicated using color coding highlights on the table.

3.2 Created a promotional plan to spread herbal knowledge

The team updated packaging for the center's herbal oil product to be more informational and created a social media platform in order to promote the center to Thai young adults and increase their interest in herbal cultivation. To update the packaging, a marketing professor was interviewed and three

surveys were conducted on and around the Chulalongkorn University campus, located in Bangkok, Thailand.

The team interviewed a Chulalongkorn University professor in the marketing department (Asst. Prof. Kwanrat) to gain insight about promotional strategies to engage young adults and understand the current herbal product market. The questions for this interview are in *Appendix A: A6.0*.

The first survey focused on young adult preferences in packaging, product promotion, and herbal products. The questions asked in this survey can be found in *Appendix A: A8.0*. The survey was given to 382 young adults at Chulalongkorn University. The team analyzed the survey using Microsoft Excel software using tools such as pie charts and bar graphs to easily view the data trends. The team utilized the analysis to generate three packaging prototypes for the center's herbal oil. One prototype had a beautiful/bold pattern style (Figure 5), one was a simple black and white style (Figure 6), and one was a cute aesthetic style (Figure 7). All three prototypes were generated with a roller-bottle style as that was the most prominently popular. The images were all put into a second survey along with the questions in *Appendix A: A9.0*.



Figure 5 Beautiful/Bold Pattern Prototype



Figure 6 Simple Black and White Prototype



Figure 7 Cute Aesthetic Prototype

This second survey was performed to gauge the popularity and preference of proposed packaging styles within young adult audiences. The data collected from the young adults in urban environments geographically far from the center because the target group of the promotional plan are young adults in areas outside the learning center. The team considers the data to be highly applicable because it is representative of a variety of Thai young adults. This survey was analyzed using statistical tools. The team generated graphics such as pie charts and bar graphs utilizing Microsoft Excel and the raw data from the surveys. Survey 2 gathered preferences regarding the three prototypes that were generated using data from survey 1. The most popular prototype, as identified by this survey, was provided to the sponsor for feedback and final updates.

In order to understand successful methods of young adult engagement at other community centers, the leader of a neighboring learning center (the Baan Saeng Chan Community Learning Center) was interviewed. This interview discussed how the younger adults in the area contribute to and engage with the learning center and the promotional methods the center uses to engage young adults. Questions can be found in *Appendix A: A5.0*.

The team conducted document analysis on promotional methods, especially those that appeal to young adults, such as social media. The team researched different social media trends, how to share knowledge using social media, and which social media platforms were the most popular with the young adults.

The team conducted another survey in order to validate the packaging prototype's appeal to young adults and predict the success of adding a QR code to make the packaging be more informative. The team distributed a questionnaire around Chulalongkorn University and Samyan Mitrtown, and Chamchuri Square. The questionnaire asked young adults if they would buy the prototype and if they

bought it would scan a QR code featured on packaging. Survey questions can be found in *Appendix A: A10.0*.

3.3 Explored certification options to increase the viability of the learning center

The team examined a multitude of certification options in order to increase young adult engagement with the center, ultimately leading to the preservation of herbal wisdom. This investigation was conducted through digital research. This research was primarily from the Thai FDA website, specifically into areas regarding the Good Manufacturing Practice (GMP) certification approval and the associated facility updates.

3.4 Explored funding options to improve the learning center's facilities

To investigate funding options for the further development of the learning center, we used both online databases and information from the center leaders.

Multiple avenues for funding were investigated through digital document analysis. The research covered topics such as requirements to apply for each funding, method, timelines for each funding application and duration for the application to be processed. These funding avenues consisted of Non-Governmental Organizations (NGOs). All of these organizations and groups have a range of guidelines set for how they delegate funds that they give out and also what they allow for their funds to be used on. This is due to their Corporate Social Responsibility (CSR), where they provide money or workforce for communities to help be a part of change toward local or global communities.

To understand what parameters the organization is searching for, document analysis was conducted. Utilizing the data from the website of the corporation that is willing to give each of the grants, the team examined the specific proposal guidelines. To ensure that the company will have a high rate of chances of accepting the proposal, history funded projects of each grants opportunity were

investigated. The history funded community by the company was compared to the learning center. This was done in terms of what type of project they established, and whether facilitates development was financed.

Cost analysis of the facility updates was conducted using online sources based on the government's standard price for herbal manufacturing facilities. By comparing the cost of a herbal product manufacturing building that the government had made in the past, to the area per square meter for the standard area required from the GMP. This guided the team to produce estimated costs for the facility updates as well as a rough time frame to complete the improvements. These costs were later included in the submission sent for funding requests.

4.0 Findings and Analysis

The team analyzed the results from the enacted methodology in order to generate deliverables for the sponsor. The key themes of the findings are as listed: informative packaging increases Thai young adult willingness to buy a product, utilizing social media can increase young adult interest in herbal knowledge, certifications increase credibility which may attract young adults to the center, and updating the center's facilities can lead to Good Manufacturing Practice (GMP) certifications when the necessary funding is obtained. Based on the findings below, the team was able to make recommendations on increasing young adult interest in the center's herbal knowledge.

4.1 Understand the Current Situation and Identify Improvements to Preserve Herbal Knowledge

Interviews were conducted to understand the daily operations, purposes, and needs of the Baan Noan Rang Burapha Learning Center.

4.1.1 Key finding: The center's herbal knowledge is their most valuable product that they want to preserve it

At the time of the interview, the leader of the center, Mr. Suwatthanachai and Mrs. Duangjun, believe that they are known for their varieties of herbal plants that are hard to cultivate in other areas. They also mentioned that many people including university professors in nearby universities visited them and brought plants for them to grow in their own learning center, with the hope of preserving these species. Due to this, they have collected information on how to properly take care of exotic plants, including lesser known methods built upon their local wisdom. Combined with many years of experience, their knowledge about herbal plants is considered to be at an expert level. However, young

adults both in the area and outside the communities, do not show interest in herbal knowledge they are willing to provide. Thus, the leaders are concerned that their herbal knowledge will not be preserved and years of hard work would disappear with time. Therefore, they seek to find a way to engage young adults about herbal wisdom (S. Champamun, personal communication, January 15, 2024).

4.1.2 Key finding: The center has varieties of herbal products in the market but none are informative

After the talk with the sponsor about their herbal wisdom and current activities in the learning center. They also mentioned about their past products that were made inside the center. Some of the products include Smart Jasmine Rice, herbal oils, herbal balms, and baked bananas. However, after further interviews, they said that the herbal oil has the highest sales and it is popular among young adults. After some research, it can be seen that none of them are informative. When asked about this, their response was because they do not know how to make informative labels. Moreover, they did not consider young adults as their main target group before so the labels were not made to attract them (S. Champamun, personal communication, January 15, 2024).

4.1.3 Key finding: The center does not have an active social media presence to spread herbal knowledge

The Baan Noan Rang Burapha Learning Center does not have an active social media presence, although they do sporadically use a Facebook account (*Supplemental Materials: 8.1*). After the interview with young adults in the community, they stated that the center's lack of young adult interest can be in part attributed to the center's lack of social media presence, and that increased online presence from the center could help address this issue (*Supplemental Materials: 8.1*). After observations, the contents on their social media platforms are not about their herbal knowledge, but rather about their

visits to festivals and workshops they organize within the center. Therefore, the herbal wisdom that they have is not spread to other young adults outside the learning center.

4.1.4 Key finding: Qualifications and good infrastructure increases credibility for young adults in the area

According to the interview with young adults in the area, he mentioned multiple times about how qualifications would increase young adults' interest in the learning center and its products. This is because young adults in the area wanted a secure and stable career in the long term. Moreover, qualifications make sure that the learning center's products are reliable, and young adults outside the communities would know that it is safe for use. After gathering information from young adults in the area, the team visited a Senior Researcher at InnoHerb, and she stated that the Baan Noan Rang Burapha Learning Center's current facilities and technology are not updated enough to obtain any certifications (*Supplemental Materials: 8.1*). The interviewee stated that it is infeasible for the center to obtain Thai FDA approval or other certifications without first making updates to their facilities and manufacturing processes. The center leader further supported this finding, stating that in spite of their attempts to obtain Thai FDA approval, they had been unsuccessful as their buildings and production processes do not meet the necessary standards (S. Champamun, personal communication, January 15, 2024).

4.2 Created a promotional plan to spread herbal knowledge

Based on the current situation at the Baan Noan Rang Burapha Learning Center and a series of key findings regarding promotional methods to engage young adults, the team created a plan to help the center preserve their herbal knowledge and pass it on to young adults.

4.2.1 Key finding: Informative packaging increases the chance of spreading herbal knowledge in young adults

Asst. Prof. Kwanrat, a marketing professor at Chulalongkorn University, stated that updating the packaging on herbal products would be an effective method of connecting young adults to the herbal knowledge (*Supplemental Materials: 8.1*). This interview supported concepts that the team previously identified through background research on packaging and the promotion of herbal products. This further assisted the team in the development of a final deliverable and it established that packaging specific to the target audience and storytelling are essential methods for engaging a new demographic.

The team conducted a survey to further support the idea that informative packaging designs appeal to young adults. Through conducting survey 1, the team found that 61.7% of young adults were drawn to buy products with more attractive packaging (Figure 8). Additionally, young adults stated that if they tried an herbal product and it was very effective, 98.4% would recommend it to a friend or at least highly consider recommending it to others. Therefore, the team concluded that packaging can be considered an effective means to increase young adults' interest in herbal wisdom. Further data from survey 1 can be found in *Supplemental Materials: 8.2*.

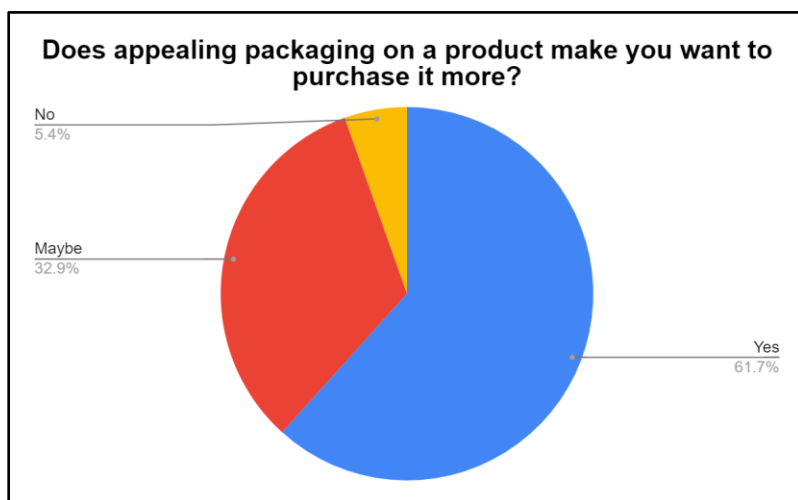


Figure 8 Chart on Appealing Packaging

4.2.2 Key finding: Young adults prefer simple designs on products, roller bottle style oil products, and value informative labels

In terms of packaging features, the team discovered that when buying an herbal product, the information on the label is crucially important to young adults. As found through survey 1, young adults have deemed that including the terms "organic" and "non-GMO" on labels as a factor of moderate to high importance when making purchasing decisions (*Supplemental Materials 8.2*). Additionally, the young adults surveyed stated that having the exact ingredients in products on the label is considered very important.

In terms of packaging design, the team found that young adults value product form, design, and product information the most, as depicted in Figure 9 below. Survey 1 additionally showed that young adults prefer roller bottles for oil-based products and are attracted to designs that feature beautiful patterns, are aesthetic and cute, and are simple and black and white.

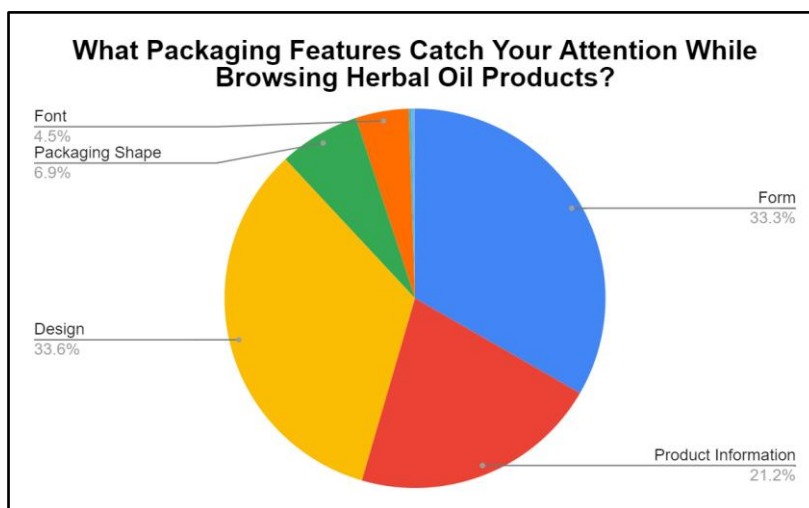


Figure 9 *Features Young Adults Pay Attention to on Herbal Oil Packaging*

The survey with packaging prototypes (Survey 2) revealed that of the proposed packaging designs for the center’s oil, young adults preferred the simple black and white prototype while the beautiful pattern prototype was the second most popular. These survey questions also revealed the herbal product purchasing habits of young adults, most notably that 94.5% of young adults use herbal products. This provides confirmation to the team that there is a market for the sale of herbal products to young adults. The team notes that a limitation of survey 2 is that it did not address the brand loyalty of young adults or their willingness to try new herbal products. All key results from survey 1 and survey 2 are graphically depicted in Supplemental Materials: 8.2 and Supplemental Materials: 8.3 respectively.

When the team proposed a simple black and white design to the sponsor, they stated that they preferred green colors to emphasize their connection to nature and herbs. Thus, the team updated the design to cater to the sponsor’s preference. The team still considers the redesign to be supported by the survey responses because young adults stated that the reason the design was the most preferable was due to the minimalistic features of the design rather than the actual black and white coloring. Since the

final design still has the same minimalist features as the design originally voted most popular as well as a green color palette, the team believes that it will cater to both the sponsor's and young adults' preferences. This new design is included in Figure 10 below.



Figure 10 Favored Prototype with Green Redesign

Following the market testing the team conducted with 100 young adults around Samyan Mitrtown and Chulalongkorn University regarding their opinions on the packaging prototype generated and proposed, the team found that over 68% of young adults would purchase the product with the redesigned package for 100 baht. This can be seen in Figure 11 below. This demonstrates that the new redesigned product has the potential to increase young adult interests and herbal knowledge. The survey was taken near Chulalongkorn University, aiming to capture the perspective from the young adults in general.

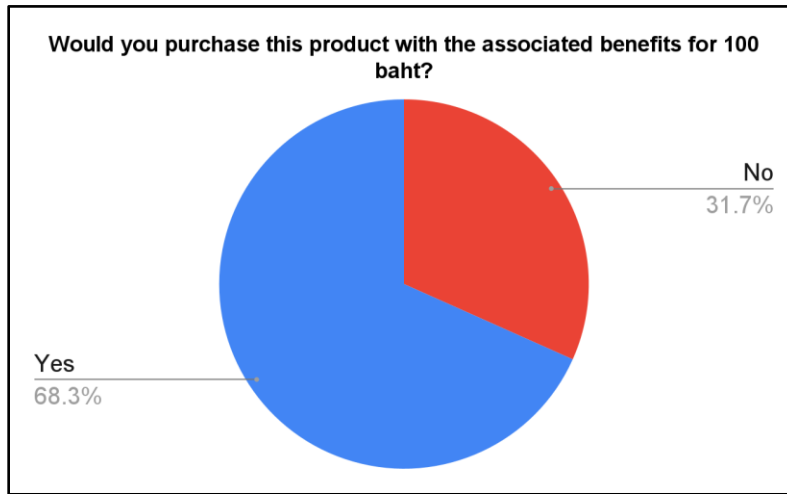


Figure 11 *Market Testing: Likelihood of Purchasing the Prototype*

4.2.3 Key finding: QR codes are an effective method of providing information to young adults

According to the interview with the Chulalongkorn University marketing professor, a QR code can be used as a storytelling method to connect the customer to additional information, however the design must draw attention to the QR code in order to get users to scan it (*Supplemental Materials: 8.1*).

4.2.4 Key finding: Increased sales increase QR code scans

The team found that young adults who purchase the product were likely to scan the QR code and thus access additional information about the center. In the market testing that the team conducted with young adults around Samyan Mitrtown and Chulalongkorn University, 85.4% of the young adults who would purchase the product stated that they would additionally scan the QR code to access the linked social media platforms in order to gain more information (Figure 12). This suggests QR codes are a viable method of engaging with young adults and have the potential to provide them with additional information.

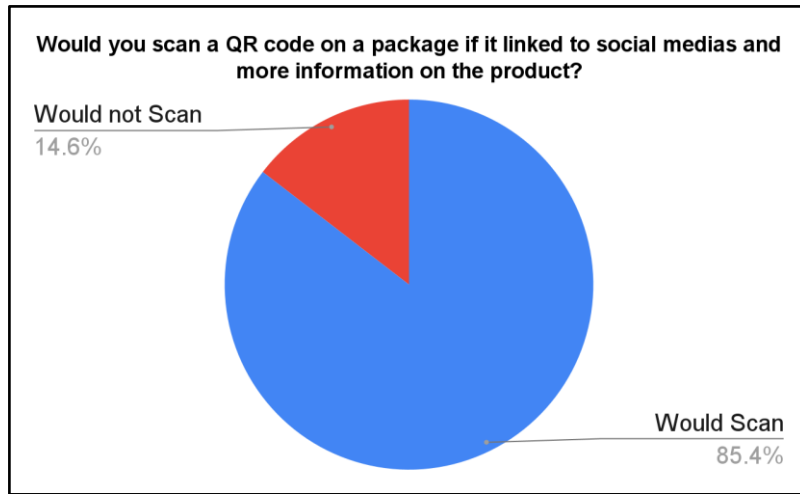


Figure 12 Market Testing: Likelihood of QR Code Scanning

4.2.5 Key finding: Social media is a valuable avenue to reach a young adult audience

Through interviewing local young adults, local community members, and a Bang Saeng Chan community center, the team discovered that improving the social media presence of the learning center would, in fact, help to increase young adult interest and spread herbal knowledge . Young adults interviewed stated that they believed social media would be an effective method of advertising the center and its products and increasing young adult interest and engagement. (*Supplemental Materials 8.1*). From the interview with the young adult found that the majority of young adults in the area are active users of social media. Therefore, social media can be used to connect with young adults.

4.2.6 Key finding: Utilizing TikTok can increase young adult interest in herbal knowledge

Through digital research, the team was able to conclude that TikTok is a popular social media application amongst the young adults that can feasibly be used to increase young adult interest in herbal knowledge. According to the 2023 TikTok Thailand data statistics in Figure 13, the most active age group of TikTok users was between the ages of 19 to 25 (Statista, 2023). The application works by utilizing AI and machine learning to customize a ‘For You’ page specifically for each individual user

based on preferences and the content they most frequently consume. This is helpful in targeting young adults who have expressed an interest in herbal wisdom. Additionally, the application displays global and localized content which can be used to connect with locals specifically. Overall, the team concludes that a TikTok is a viable method of connecting with young adults and sharing herbal wisdom, due to the popularity of the application as well as the usage of the AI algorithm as outlined above.

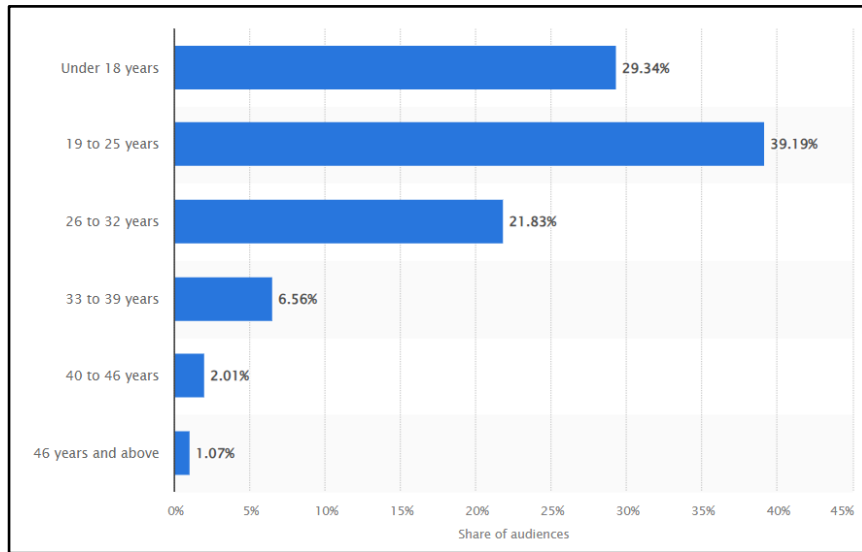


Figure 13 *TikTok Age Demographic in Thailand in 2023*

With this in mind, the team created a TikTok account for the Baan Noan Rang Burapha Learning Center. In terms of the learning center’s TikTok statistics, the account has reached over 2000 views in just a week, along with over 25 new profile visits. This can be seen in Figure 14. As the sponsor continues to post and the account becomes more established, the team anticipates that this engagement will increase.

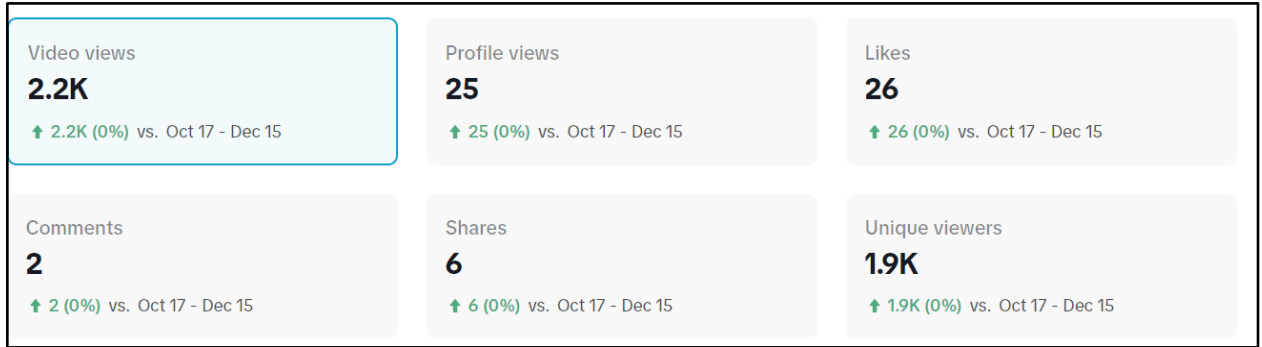


Figure 14 TikTok Profile Engagement Statistics

According to traffic sources - which show how the TikToks were discovered by the viewers - we are able to track and see when people watch one of our videos and then click through to our page to view other herbal knowledge content at the personal profile. Some of the main traffic sources on Tiktok are the For You page, the Following page, Sound pages, Profile pages, Search pages, and Direct Messages. According to the data shown below in figure 15, 43.2% of viewers visit the center’s profile after seeing one of the TikToks, which shows that this could be a topic of interest to them.

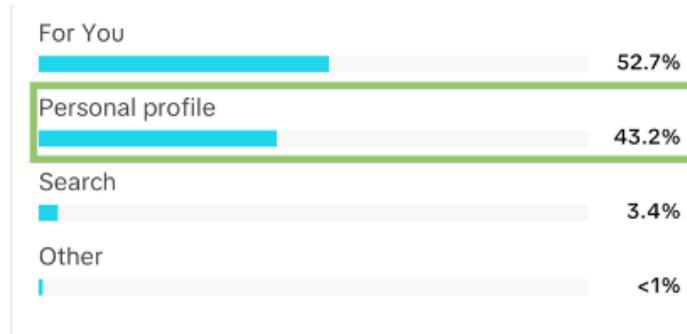


Figure 15 Tik Tok Traffic Sources

Moreover, Tiktok shows the different types of viewers that revisit and rewatch the content of the center as a percentage of total viewers. As seen in figure 16, 18% of the people that revisit the page are returning viewers, which shows that the TikTok page has the potential to retain an audience.

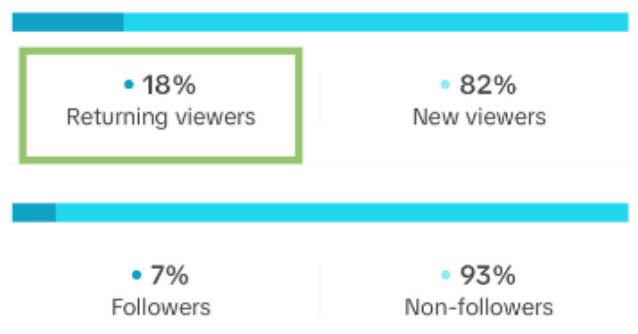


Figure 16 Tik Tok Viewer Types

4.3 Explored certification options to increase the viability of the learning center for young adults

Several key findings from interviews prompted an investigation of certifications that the Baan Noan Rang Burapha Learning Center could pursue.

4.3.1 Key finding: Certifications will attract young adults to the center

The team identified that increasing the viability of the center through gaining certifications as a key beneficial method of increasing interest among the young adults. The center leaders stated that they felt gaining certifications would help entice young adults by making the center seem more reliable. Interviews with young adults involved with the community center supported the idea that obtaining government approval at the center would help increase their interest in herbal knowledge as it would make agriculture seem like a more viable career option and would make the center's workshops seem more credible (*Supplemental Materials 8.1*). In conclusion, certifications are hugely beneficial in increasing young adults towards the center.

4.3.2 Key finding: GMP approval is the most feasible form of certification for the center

The team discussed methods of gaining certifications during the InnoHerb interview. According to the interviewee, the most feasible certification is the Good Manufacturing Practice (GMP) approval, a subsection of the Thai FDA certification. The interviewee deemed that a full Thai FDA certification is impossible due to the center lacking updated facilities, updated technology, extraneous funds, and a standardized production process, and improving these aspects requires an elaborate process over an expansive timeframe. However, the interviewee did mention that updating the facilities so that the center can apply for GMP approval is achievable. The checklist guidelines for GMP approval are in *Supplemental Materials: 8.4*.

4.3.3 Key finding: Updating the center's facilities can lead to GMP certification

The Baan Noan Rang Burapha Learning Center must update the facilities where they currently make their herbal products in order to comply with the regulations and acquire GMP approval. The requirements for the facility are shown below in Figure 17 and involve numerous facility features including but not limited to: sealed doors for the production area, designated areas for storage of clean equipment, and storage for each individual part of the product ranging from herbs to bottles and labels (กองผลิตภัณฑ์สมุนไพร, n.d.).

Lastly, the facility has to be 200 meters squared, at the bare minimum (CGMP, 2023). A proposal detailing how funds can be used to update the center's facilities has been created based on GMP guidelines and is found in *Supplemental Materials 8.3* and the registration form is located in *Supplemental Materials: 8.4*.

updating their facilities (*Supplemental Materials 8.1*). The team estimated that the center would need a total grant of 1,350,000 Baht to construct a GMP certified facility in 150 days. This is done through conducting a brief cost-analysis utilizing documents from the Thai government regarding costs for building a factory per square meter (Pharmacy PSU, 2019). As estimated from online research of company grants, the center could be provided with an estimate of 1.5-3 million Baht, if the grant was to be approved. The team considers grants to be a feasible method of gaining GMP approval for the learning center since this is much higher than the estimated costs of facility upgrades.

4.4.2 Key finding: King Power Thai Power, SCG Foundation, and ThaiBev are viable funding corporations

The team determined three organizations to be feasible through online analysis into potential grants for the learning center. These organizations are listed below. These three were determined based on considerations of timeline, budget, and the populations to whom each company gives money.

1. King Power Thai Power: They help local communities and products get into the bigger market and provide aid through grant funding. They have many CSR (corporate social responsibility) projects that help local communities with their products via different means such as promotion, modernization, and providing new ideas (*โครงการ พลังคนไทย พลังชุมชนไทย – KingPowerThaiPower, n.d.*).
2. SCG Foundation (Siam Cement Public Company Limited): They focus and support community projects and have gone to underprivileged areas to provide financial aid to children, helping them to learn and grow. They have provided funding mainly for building construction and have

donated funding and building materials to schools. They have built a total of 25 school buildings, 2 hospitals, and 2 rain tanks (*Sustainable Development*, n.d.).

3. Thai Beverage: They assist people with a wide range of CSR programs and have given out funding for schools, as well as providing teaching and sporting equipment. With the cooperation of 2 hospitals, they volunteered as a mobile medical unit, providing health and medical equipment checkups in a wide area (*ThaiBev Sustainability 2020*, n.d.).

4.5 Findings summary

Based on the teams' research, it is clear that both promotional materials targeted towards young adults and increased certification and funding for the center can increase young adult engagement in herbal wisdom to preserve the center's knowledge. Targeted promotional methods include the creation of an updated packaging design and an increased social media presence plan. The Good Manufacturing Practice certification will provide the center with a method of increasing their credibility thus engaging young adults in the center and ultimately the center's herbal wisdom. As outlined in 4.3.3, this certification can be obtained by applying for and using grants to update the center's facilities.

5.0 Recommendations & Conclusion

The Baan Noan Rang Burapha Learning Center is a community organization dedicated to upholding the principles of the sufficiency economy and spreading herbal wisdom. As the Thai agricultural industry is facing a decline in young adult engagement due to rapid urbanization and a lack of interest in the field, herbal knowledge is at risk of being lost. With this goal in mind, the team identified and addressed the following areas to improve in order to increase young adult engagement in herbal knowledge and preserve the center's wisdom: a promotional tools involving a packaging redesign and increased social media presence, funding applications to further develop the center's facilities, and a plan to help the center receive Good Manufacturing Practice certification (GMP) in the long run.

The team conducted multiple interviews and surveys with locals in the area and experts in the field. Through this research, the team found that informative packaging increases Thai young adults' willingness to buy a product, that young adults are likely to scan QR codes, and that utilizing TikTok can increase young adult interest in herbal knowledge. Additionally, the team found that obtaining funding through CSR projects of private companies is feasible to update the center's facilities, can help the center receive the GMP certification, and attract young adults to the center by increasing its credibility.

With the identified objectives and key findings in mind, the team created four deliverables that were identified to most effectively spread herbal wisdom to young adults and thus preserve the center's knowledge. These deliverables are a new herbal oil packaging, a TikTok account with a user-friendly guide for the sponsor, a plan outlining how to update the center's facilities to gain GMP approval, and a submitted grant proposal in order to gain necessary funding for these updates.

By utilizing these findings to meet the stated objectives, the Baan Noan Rang Burapha Learning Center should be able to engage a new, younger audience to preserve their knowledge by transferring it to them.

Areas for Future Research

Based on the limited timeline and scope of the project, it is recommended by the team for the following areas and limitations to be investigated to continue thorough research for the preservation of the knowledge at the Baan Noan Rang Burapha Learning Center:

- Further developed market testing comparing a variety of herbal oil products with ranged packaging and prices.
- Evaluate the linkage between TikTok actually and the engagement people have with the center. Correlation with people seeing videos and engaging with workshops, purchasing the oil, or following up on more information through Facebook or YouTube.
- Relationship between TikTok viewers that view the learning center's content for the included trends or to gain more herbal knowledge/ learn about the center.

6.0 Bibliography

Admin-Law. (2019). พระราชบัญญัติผลิตภัณฑืสมุนไพร พ.ศ.

2562. <https://law.dtam.moph.go.th/index.php/law/laws/190-2562>

อาคารแปรรูปวัตถุดิบสมุนไพร จำนวน 1 หลัง - Pharmacy PSU. (2019).

https://www.pharmacy.psu.ac.th/images/แบบก่อสร้างรวม_2.1_2562.pdf

*Andrews, T.G., & Siengthai, S. (Eds.). (2009). *The changing face of management in Thailand*. London: Routledge.*

BEDO. (2018, April 18). <https://www.bedo.or.th/>

*CGMP, C.F.D.E.A. (2023, December 29). *Current Good Manufacturing Practice (CGMP) regulations*. U.S. Food and Drug Administration. <https://www.fda.gov/drugs/pharmaceutical-quality-resources/current-good-manufacturing-practice-cgmp-regulations>*

หน้าแรก. (2024, January 23). กองผลิตภัณฑืสมุนไพร. <https://herbal.fda.moph.go.th/>

*Fletcher, C. (2023, July 21). *Using social media marketing to appeal to younger generations*. Spiralytics. <https://www.spiralytics.com/blog/using-social-media-marketing-to-appeal-to-younger-generations/>*

*Food and Drug Administration. (n.d.). *Laws and Regulations on Doing Business in Thailand for Medical Sector* [Slide show; PowerPoint].*

Herbal Product Act B.E. 2562 (2019). (2019). *The Government Gazette*, 136(Special Part 56), 121–164. [https://en.fda.moph.go.th/media.php?id=516853653160730624&name=Herbal%20Product%20Act,%20B.E.2562\(2019\).pdf](https://en.fda.moph.go.th/media.php?id=516853653160730624&name=Herbal%20Product%20Act,%20B.E.2562(2019).pdf).

Jumpanyarach, W. (2018, April 9). *The impact of social trends: Teenagers' attitudes for Organic Food Market in Thailand*. *International Journal of Social Economics*.
<https://www.emerald.com/insight/content/doi/10.1108/IJSE-01-2017-0004/full/html>

K., P. (2018, December 18). *ชุมชนบ้านโนนรัง อำเภอชุมพวง จังหวัดนครราชสีมา. มลพิษจากพัฒนา
ในพระบรมราชูปถัมภ์*. <https://www.utokapat.org>

โครงการพลังคนไทยพลังชุมชนไทย–KingPowerThaiPower. (n.d.).

<https://kingpowerthaipower.com/category/thaipower-communitypower/>

Laws and Regulations. (n.d.). *Food and Drug Administration*. <https://en.fda.moph.go.th/cat2-health-products/category/health-products-herbal-products>

Luitel, Samir. “Why Is TikTok Popular among Teens? | Is It Good or Bad For Teens?” *The Ultimate Mobile Spying App*, January 25, 2024. <https://mobilespy.io/blogs/why-is-tiktok-popular-among-teens/>.

บุคคลต้นแบบด้านส่งเสริมสุขภาพและอนามัยสิ่งแวดล้อม. กรมอนามัย|Home. (2014).

<https://anamai.moph.go.th/th>

กองผลิตภัณฑ์สมุนไพร.(n.d.).

https://herbal.fda.moph.go.th/media.php?id=486777844479959040&name=law_herbal3-18+%281%29.PDF

การทำน้ำมันเหลืองหรือน้ำมันนวดสมุนไพรสูตรพื้นฐาน.(n.d.).รับผลิตอาหารเสริมรับผลิตสมุนไพรขาย

ส่งสมุนไพรไม่แพงมีGMPเชียงดาวเฮิร์บ :InspiredbyLnwShop.com.

<http://www.chiangdaoherb.com/article/25/>

Mongsawad, P. (2010). The philosophy of the Sufficiency Economy: a contribution to the theory of development. *Asia Pacific Development Journal*, 17(1), 123.

Nsf .(2023) . Five Ways Certifications Connect With Consumers .In NSF.
<https://www.nsf.org/knowledge-library/five-ways-certifications-connect-consumers>

Pandey, R., Singh, A., Agarwal, P., & Joshi, N. (2019). Product Packaging and its Impact on Consumers Buying Behavior with Special Reference to FMGG Sector. *ResearchGate*.
https://www.researchgate.net/publication/352554827_PRODUCT_PACKAGING_AND_ITS_IMPACT_ON_CONSUMERS_BUYING_BEHAVIOR_WITH_SPECIAL_REFERENCE_TO_FMCG_SECTOR

Piboolsravut, P. (2004). Sufficiency Economy .ASEAN Economic Bulletin, 21 (1), 127–134.
<https://www.jstor.org/stable/25773806>.

ราชกิจจานุเบกษา. (2023, January 31). ประกาศกระทรวงสาธารณสุข. ราชกิจจานุเบกษา.

Law_herbal3-37.pdf

Salvago, M., Phiboon, K., Faysse, N., & Nguyen, T. P. L. (2019). Young people's willingness to farm under present and improved conditions in Thailand. *Outlook on Agriculture*, 48(4), 282-291.

Sustainable Development. (n.d.). SCG.

https://www.scg.com/th/05sustainability_development/05_social_community_05.html

Shukla, P., Singh, J., & Wang, W. (2022, April 20). *The influence of creative packaging design on customer motivation to process and purchase decisions*. *Journal of Business Research*.

Statista. (2023c, July 11). *Share of TikTok influencer audiences Thailand 2023, by age group*.

<https://www.statista.com/statistics/1399084/thailand-share-of-tiktok-influencer-audiences-by-age-group/#:~:text=As%20of%20June%202023%2C%20the,share%20of%20about%2029.3%20percent>

Sukhansa, U. D., Robkit, A., Vock-Wannewitz, B., Feldmeier, G., & Sriyanyong, P. (2022, August).

Influencing Factors for Thai Generation Z Entering Workforce. In *Proceedings of the International Conference on Education* (Vol. 8, No. 01, pp. 136-145).

TGMJAO. (2020). *คลังต้นไม้นั่งแห่งการเรียนรู้*. WisdomKing. <https://www.wisdomking.or.th>

ThaiBev Sustainability 2020. (n.d.). https://sustainability.thaibev.com/2020/th/community_social.php

RUJICHAIYAWAT, S. (2016). *CMMU Digital Archive: Home*. The Factors Affecting Young Thai Consumers' Eco-Fashion Product Purchasing Decision .
<https://archive.cm.mahidol.ac.th/bitstream/123456789/2284/1/TP MM.005 2560.pdf>

ศูนย์วิจัยกสิกรไทย(2018). ตลาดออร์แกนิกธุรกิจสร้างเงินSMEไทย.

https://www.kasikornbank.com/th/business/sme/KSMEKnowledge/article/KSMEAnalysis/Documents/Thai-SME_Organic-Product.pdf

ศูนย์อนามัยที่ 9 นครราชสีมา. (2014). บุคคลต้นแบบ ด้านการส่งเสริมสุขภาพและอนามัยสิ่งแวดล้อม กรมอนามัย กระทรวงสาธารณสุข. https://hpc9.anamai.moph.go.th/web-upload/migrated/files/hpc9/n1214_325b6b491b89785cb808271ff928e6e3_article_20170529144021.pdf

การทำน้ำมันเหลืองหรือน้ำมันนวดสมุนไพร สูตรพื้นฐาน. เชียงดาวเอิร์บ. (2019).

<http://www.chiangdaoherb.com/article/25/%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%97%E0%B8%B3%E0%B8%99%E0%B9%89%E0%B8%B3%E0%B8%A1%E0%B8%B1%E0%B8%99%E0%B9%80%E0%B8%AB%E0%B8%A5%E0%B8%B7%E0%B8%AD%E0%B8%87%E0%B8%AB%E0%B8%A3%E0%B8%B7%E0%B8%AD%E0%B8%99%E0%B>

9%89%E0%B8%B3%E0%B8%A1%E0%B8%B1%E0%B8%99%E0%B8%99%E0%B8%A7
%E0%B8%94%E0%B8%AA%E0%B8%A1%E0%B8%B8%E0%B8%99%E0%B9%84%E0
%B8%9E%E0%B8%A3-%E0%B8%AA%E0%B8%B9%E0%B8%95%E0%B8%A3%E0%B8
%9E%E0%B8%B7%E0%B9%89%E0%B8%99%E0%B8%90%E0%B8%B2%E0%B8%99

Hreha, J. (2023). *Optimal arousal theory*. The Behavioral Scientist.
<https://www.thebehavioralscientist.com/glossary/optimal-arousal-theory#:~:text=Optimal%20arousal%20theory%20is%20based,to%20a%20decline%20in%20performance.u>

Udomkerdmongkol, M. (2020). *Thai agricultural sector: From problems to solutions in Thailand*. United Nations. <https://thailand.un.org/en/103307-thai-agricultural-sector-problems-solutions#:~:text=Thai%20agriculture%20sector%20employs%20around,force%20covering%206.4%20million%20households>.

เสริมสร้างภูมิคุ้มกันให้ร่างกาย ด้วย 4 อาหารเสริมและตัวช่วยที่คุณควรรู้จัก. (2021).
https://www.kasikornbank.com/th/personal/the-wisdom/articles/pages/life-and-wealth_onward56_2021.aspx

ร้อยเรื่องเมืองไทย. National Assembly Library of Thailand. (2015, May).

<https://library.parliament.go.th/sites/default/files/assets/files/works/academic%20office/radio%20scripts/pdf/2558-06/NALT-radioscript-rr2558-280658.pdf>

7.0 Appendix

Appendix A

A1.0 Questions for Leaders of Baan Noan Rang Burapha Learning Center

A1.1 Understand the Purpose of the Learning Center (Financial Profit, Knowledge Transfer, etc.).

1. What is the history of the learning center?
2. When was the center founded?
3. What types of work/activities does the learning center generally perform?
4. In addition to Father Chan, are there other people who provide knowledge to the learning center?
5. Are there any government agencies from whom you get support? - What is taught in the learning center?
6. Does the learning center have any products for sale?
7. What do you think are the factors that make your learning center unique?

A1.2 Young Adult Participation

1. What is the average age of the young adults that participate in the center?
2. Are there any workshops/programs that are geared towards young adults?
3. What are the programs that are the most popular among young adults?

A1.3 Young Adult Product Promotion

1. What current methods of promoting do you use to attract young adults?
2. Do you have flyers, a newsletter, social media, etc.?
3. Do you host any promotional events to attract young adults?
4. What product is the most popular among young adults?
5. What was the packaging on the products like?
6. Who made the packaging for these products?

A1.4 Knowledge Transfer

1. How has knowledge been transferred in the past between past leaders of the center?
2. Is any knowledge written down or recorded?
3. What does a successor of the community center need to know (what types of topics)?

A2.0 Questions for 18-25 Year Olds That Are Related to a Founder of the Baan Noan Rang Burapha Learning Center

1. How do you feel about being part of a family that has contributed to establishing the learning center?
2. As a member of the founding family, what ideas do you have for making the learning center more appealing and engaging for other kids your age?
3. How has your parent's work in the learning center affected your life or perspectives on herbal products?

A3.0 Questions for 18-25 Year Olds That Are Involved With the Baan Noan Rang Burapha Learning Center(Pok)

A3.1 Their Views on the Learning Center

1. Do you want to work for/in the learning center?
2. Are you interested in inheriting the “local wisdom” of the older generation?
3. What parts of the learning center interests you?

A3.2 Opinion on the Learning Center

1. In your opinion, how could we make the learning center more interesting for people your age?
2. Why did you think that social media will be an effective way of spreading the center’s wisdom?

A3.3 Experiences With the Learning Center

1. Do you use products from the learning center?
2. How often do you come to the learning center or participate in the workshops?

A4.0 Interview Questions for the Locals in the Area

1. What is your opinion on the learning center?
2. How often does the learning center engage with the community?
3. How often do you participate in the learning center’s activities?
4. How did you find out about the learning center?
5. Why do you come to the learning center and how does it affect your life?
6. What benefit do you find from participating in the learning center?

A5.0 Questions for the Leader of Baan Saeng Chan Community Learning Center

A5.1 Understand What the Learning Center is for: Money or Knowledge Transfer

1. Please explain the history of the learning center.
2. How long has it been operating for?
3. How is the overall work of the learning center? What does it do?
4. What is the overall goal of the learning center?
5. Are there any government agencies that come to support the center?
6. What is taught in the learning center?
7. How prominent is the learning center within the community?
8. Does the learning center sell any products?

A5.2 Young Adult Participation/Promotion

1. How many young adults are involved with the center?
2. How often do they participate?
3. What is the average age of the young adults that participate in the center?
4. How involved is the average young person?
5. Are there any workshops/programs that are geared towards young adults?
6. What are the programs that are the most popular among young adults?
7. What current methods of product promotion do you use to attract young adults?
8. Do you have flyers, a newsletter, social media, etc.?

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

9. Do you host any promotional events to attract young adults?

A5.3 Knowledge Transfer

1. How has knowledge been transferred in the past between past leaders of the center?
2. Is any knowledge written down or recorded?
3. What could a successor of the community center need to know (what types of topics)?
4. How is a successor chosen?

A6.0 Questions for Marketing Professor at Chulalongkorn University

1. What marketing strategies would you recommend to appeal to young adults in today's society?
2. How can we account for changes that occur over time with style and packaging trends?
3. How can we appeal to a new audience while also maintaining old customers at the same time?
4. If a product is not unique among its competitors, how can it be made to seem appealing without changing its formula?
5. Do you think a QR code on a product bottle advertising the community center would gain people's attention?
6. Do you have any recommendations as to how to upgrade packaging for a product to modernize it?
7. Do you have any knowledge to share about today's herbal product market?

A7.0 Questions for the Senior Researcher at InnoHerb

1. What is InnoHerb's role as a company?
2. How do you begin Thai FDA approval for an herbal product?
3. What laws and regulations are in place regarding herbal products?
4. What roadblocks will one reach when registering a product with the Thai FDA?
5. What is the permission process for herbal product approval?
6. How could someone gain monetary grants for an herbal product approval plan?
7. Is Thai FDA approval feasible for our project at this time?
8. What other certifications should we look into if Thai FDA is not feasible?

A8.0 Survey About Packaging Appeal for young adults

A8.1 Practicality

Hello, this is a Chulalongkorn University survey regarding herbal product promotion to young adults for a community learning center. When answering the 18 multiple-choice questions below, please know that all answers are anonymous and this survey is fully voluntary and you may opt out at any time. We appreciate your feedback and thank you for your time!

1. **Are you age 18 or above?**
 - a. Yes

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

- b. No
- 2. **How often do you use herbal products?**
 - a. As needed
 - b. Never
- 3. **When choosing herbal products to buy, how much do you focus on the convenience/functionality of the product?**
 - a. Often
 - b. Sometimes
 - c. Not often
 - d. Never
- 4. **How frequently does the inclusion of a certification like ‘organic’ or ‘non-GMO’ on herbal product packaging influence your decision to purchase?**
 - a. Often
 - b. Sometimes
 - c. Not often
 - d. Never
- 5. **How much does the overall design of herbal product packaging impact your perception of product effectiveness?**
 - a. Often
 - b. Sometimes
 - c. Not often
 - d. Never
- 6. **Does the inclusion of herbal product recipes influence your decision to buy?**
 - a. Often
 - b. Sometimes
 - c. Not often
 - d. Never
- 7. **How often do you read the product labels on herbal products?**
 - a. Often
 - b. Sometimes
 - c. Not often
 - d. Never
- 8. **If a herbal product you recently bought goes above your expectations, how willing are you to recommend it to your friends/family?**
 - a. Very willing
 - b. Sometimes
 - c. Rarely willing
 - d. Never
- 9. **How willing are you to keep buying a new herbal product that you liked using?**
 - a. Very willing
 - b. Sometimes
 - c. Rarely willing
 - d. Never

- 10. What would increase your willingness to try herbal products from a brand that you have not heard of before?**
 - a. Good reviews
 - b. Certifications
 - c. Professional packaging
 - d. Product Samples
 - e. Other
- 11. How likely are you to do research on the manufacturer of a herbal product you enjoy?**
 - a. Likely
 - b. Possibly
 - c. Unlikely
 - d. Never

Appendix B: Interview Participation Consent Form Consent Script for Interview

Hello,

We are a group of students from Chulalongkorn University and Worcester Polytechnic Institute completing our Interactive Qualifying Project (IQP). Our team consists of 3rd year undergraduate students: Atirun Burana, Kanyarut Despongpoichit, Chloe Foucault, Paige Grissom, Julia Horrocks, Lydia Ponomorenko, Naraphan Prothongnak, and Phanita Tangsiriwattanakul. Our research project aims to assist the Baan Noan Rang Burapha Learning Center pass down and preserve the local wisdom of the older generation onto the young adults.

We invite you to participate in a fully voluntary interview regarding our research project as a means to gather vital information related to the learning center and the community's perspective on it. We seek to collect information regarding your relationship with the learning center, as well as their products. We would also like to ask you about parts of the learning center that interest you, as well as ways to improve the learning center. This interview should take around 1 hour of your time. The information that you disclose during this interview will be used to direct further research and otherwise advance our project.

The interview will be recorded digitally upon your consent. Please remember that this interview process is entirely voluntary and you may choose to not participate. Should we ask a question you do not want to answer, you may skip it. You are invited to ask any questions about the interview before it begins, as well as reviewing anything that we quote from your interview before publication. If you have any questions or concerns following the interview, please feel free to contact us at the email listed below.

Best,

IQP Team 1:

Atirun Burana

Kanyarut Despongpoichit

Chloe Foucault

Paige Grissom

Julia Horrocks

Lydia Ponomorenko

Naraphan Prothongnak

Phanita Tangsiriwattanakul

Email: thaiherbalpowders@gmail.com

By stating your full name and your consent verbally to us, we will begin the interview.

Burana, Despongpoichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

Appendix C: Introduction to The Baan Saeng Chan Community Learning Center

While the Baan Noan Rang Burapha Learning Center is one of the most successful learning centers in the area, the business strategies of nearby similar learning centers may prove valuable in sustaining the herbal wisdom of the center and passing it to young adults. To do this, the Baan Saeng Chan Community Learning Center will be investigated. This center is located 88.3 kilometers away from Noan Rang Burapha Learning Center in Buriram province. This center focuses on natural agriculture, combined agriculture, organic farming, mixed forest farming, earthworm farming, red ant farming, and adjusting the concept for self-reliance in the community. Their works and focuses are similar to that of the Noan Rang Burapha Learning Center, and the heart of both centers' activities is adapted from His Majesty the King's new theory of sufficiency economy and farming. They both use their learning centers in a way that can provide continuous knowledge to farmers. Since both centers operate in similar ways with support from outside sponsors, it is beneficial to understand how this center preserves their knowledge and engages younger members of the community. This will be helpful when determining how the Baan Noan Rang Burapha Learning Center can preserve their knowledge by engaging the young adults.

Appendix D: Important Herbal Content in the Center's Current Oil

(TGMJAO. (2020). คลังต้นไม้มุ่งการเรียนรู้)

Thai Name	Scientific Name	Properties
ว่านพญาว่าน	Curcuma phrayawan Boonma & Saensouk	<ul style="list-style-type: none"> - สามารถใช้ป้องกันและควบคุมอิทธิฤทธิ์ของว่านชนิดอื่นเพื่อไม่ให้สรรพคุณนั้นเสื่อมลง - ใช้แก้พิษเบื่อเมาหรือถูกพิษจากต้นไม้ที่มีพิษ การแก้พิษทำโดยนำหัวว่านมาฝนกับน้ำซาวข้าวแล้วทาหรือนำหัวว่านมาโขลกให้ละเอียดแล้วคั้นเอาแต่น้ำนำว่านมาผสมกับสุราดื่มกินแก้พิษ - นอกจากนี้ยังใช้พญาว่านเป็นยาครอบจักรวาล ใช้รักษาโรคตา คอ จมูก โรคทางเดินอาหารและโรคผิวหนัง ผดผื่นคัน - ใช้เป็นยาบำรุงหัวใจโดยนำหัวว่านมาฝานบางๆใช้ต้มดื่มสำหรับดื่มกิน
ว่านมหาปราบ	Kaempferia angustifolia Roscoe.	เชื่อกันว่ากลิ่นหอมของเหง้าจะช่วยให้นิมนต์กลิ่นหอมด้วย
ว่านขอทองแก	Curcuma sp.	ส่วนสรรพคุณทางยาใช้ถอนพิษจากแมลงสัตว์กัดต่อย บำรุงร่างกาย แก้ปวดเมื่อย ช่วยล้างสารตกค้างในอาหาร แก้พิษเบื่อเมา และแก้อาการท้องเสีย
ว่านห้าร้อยนาง	Curcuma sp.	เป็นว่านทางคงกระพันชาตรี ใช้เป็นยาแก้พิษยาเบื่อ ยาสัง และอาหารที่มีพิษ โดยนำหัวมาฝนกับน้ำซาวข้าวกิน จะทำให้อาเจียน
ว่านดักแด	Stahliathus campanulatus Kuntze	แก้พิษสัตว์กัดต่อย ทำให้หนังชา แก้ไขพิษ ไข้กาฬ
ว่านตะขาบปิน	Muehlenbeckia platyclada	ใช้ภายนอกกระจับปวด แก้โรคผิวหนังเจ็บ ผื่นคัน น้ำเหลืองเสีย งูสวัด ผีตะมอย

	(F.v.Muell.) Meissn.	
ว่านเพชรกลับ	<i>Boesenbergia thorelii</i> (Gagnep.) Loes.	เหง้าตำพอกสมานแผลสด ใช้ดองกับเหล้าขาวดื่มเป็นยาอายุวัฒนะ
ว่านกำแพงเจ็ดชั้น	<i>Salacia chinensis</i>	พอกทาแผลที่ถูกงูกัด รากใช้รักษาโกโนเรีย โรคข้อรูมาติก และโรคผิวหนัง
ว่านนางคัม	<i>roiphys amboinensis</i>	เหมาะปลูกเป็นไม้กระถางประดับหน้าบ้าน เชื่อว่าสามารถป้องกันอัคคีภัย หากพกหัวติดตัวพร้อมเสกคาถา จะทำให้คงกระพัน
ว่านมหาโชค	<i>Eucharis grandiflora</i> Planch. & Linden	เป็นว่านเมตตามหานิยม หากมีไว้จะทำให้ทำมาค้าขึ้น
ว่านมหาภาพ	<i>Eucrosia bicolor</i>	ช่วยถอนพิษแมลงสัตว์กัดต่อย รักษาแผล ฝีหนอง
ว่านคูลัม	<i>Proiphys amboinensis</i>	เชื่อว่าว่านนางคัมเป็นว่านที่มีความมงคลทางด้านคุ้มครองป้องกัน อันตรายต่าง ๆ ถ้าปลูกไว้ในบ้านจะมีคุณทางป้องกันไฟไหม้ได้
ว่านเปราะหอม	<i>Kaempferia galanga</i> L.	แก้หวัดคัดจมูก รับประทานขับลมในลำไส้ แก้เสมหะ เจริญไฟธาตุ แก้ลมท้อง แก้โลหิตซึ่งเจือด้วยลมพิษ บรรเทาอาการไข้ ร้อนในกระหายน้ำ แก้พิษหัด พิษอีสุกอีใส
ว่านมหาเมฆ	<i>Curcuma aeruginosa</i>	เป็นยาร้อนเล็กน้อย ออกฤทธิ์ต่อตับและม้าม ใช้เป็นยากระจายเลือดลม บำรุงร่างกาย
ว่านคางคก	<i>Typhonium trilobatum</i>	กัดผ้าและกัดหนองติ (สำหรับผู้ป่วยโรคเบาหวาน ผู้ป่วยระหว่างพักฟื้น เป็นอาหารดูดสารพิษ ขจัดไขมันในเลือด และปรุงอาหารรักษาสุขภาพ) นำหัวมาต้มกับน้ำ แก้โรคตับ โรคท้องมาน ยากัดเสมหะ แก้ไอ
ว่านหอมแดง	<i>Eleutherine palmifolia</i> (L.) Merr.	มีสรรพคุณขับลมในกระเพาะอาหารและลำไส้ หรือตำผสมกับเหง้าเปราะหอมสูมห่วงเด็ก แก้หวัดคัดจมูกในเด็ก เป็นยาขับปัสสาวะ ยาระบาย ทำให้อาเจียน แก้บิด

		และอาการอักเสบของริดสีดวงทวาร น้ำยาที่ได้จากหัวใต้ดินใช้ทาบาดแผล แผลงัดต่อย บดเป็นผงทาแก้ปวดท้อง
ว่านมหาเสน่ห์	Curcuma spp.	มีสรรพคุณเด่นทางความเชื่อ เสน่ห์มหานิยมแก่ผู้ปลูก
ว่านมหากาฬ	Gynura pseudochina (L.) DC. var. hispida Thwaites	โขลกผสมกับสุราพอกดับพิษฝี หรือพอกหัวล้านะลอก ทำให้ถอนพิษแก้ปวดแสบปวดร้อน หัวใต้ดิน รสเย็น รับประทานดับพิษกาฬ พิษร้อน แก้ไข้พิษ เชื้องซึม ระส่ำระสาย แก้พิษอักเสบ
ว่านแมงมุม	Geodorum recurvum (Roxb.) Alston.	ช่วยบรรเทาอาการปวดหลัง ปวดเอว ปวดตามข้อ ปวดหัวเข่า ปวดเมื่อยตามร่างกาย แก้พิษแมลงสัตว์กัดต่อย แก้เหน็บชา
ว่านสาวหลง	Amomum schmidtii (K.Schum.) Gagnep.	ช่วยแก้อาการผื่นคัน รักษาโรคผิวหนัง หรือนำดอก มาต้มดื่ม แก้อาการท้องเสีย แก้ไอ ขับเสมหะ บรรเทาอาการไข้หวัด
ว่านชักมดลูก	Curcuma zanthorrhiza	รักษามดลูกอักเสบ ช่วยมดลูกเข้าอู่หลังคลอด รักษาอาการประจำเดือนมาไม่ปกติ ปวดท้องระหว่างมีประจำเดือน ขับน้ำคาวปลา แก้ธาตุพิการอาหารไม่ย่อย แก่ริดสีดวงทวาร ราก แก้ท้องอืดท้องเฟ้อ
ว่านนางคำ	Curcuma aromatica	ช่วยลดกรดในกระเพาะ ช่วยควบคุมธาตุในร่างกาย ใช้เป็นยาขับลมในลำไส้ช่วยรักษาโรคหนองใน แก้อาการฟกช้ำ ช่วยขับลม เป็นยาสมานแผล แก้อาการปวด
ขมิ้นอ้อย	Curcuma zedoaria	ใช้เป็นยาสุขุม บำรุงตับและม้าม ช่วยกระจายโลหิต แก้เลือดไหลเวียนไม่สะดวก เส้นเลือดอุดตันใช้เป็นยาฟอกเลือด ช่วยแก้โลหิตเป็นพิษใช้เป็นยาแก้โรคความดันโลหิตสูงเป็นยา บำรุงกำลังใช้เป็นยาแก้ไข้ รักษาอาการหวัด ครั้นเนื้อครั้นตัวแก้อาเจียน ขับเสมหะ

ขมิ้นชัน	Curcuma longa	เป็นสารต้านอนุมูลอิสระที่มีประสิทธิภาพ มีคุณสมบัติต้านการอักเสบ ต้านเชื้อโรค และยังมีส่วนในการต้านมะเร็ง
ไพลดำ	Zingiber ottensii Valeton	เป็นยาอายุวัฒนะบำรุงร่างกาย รักษาอาการเคล็ดขัดยอก ฟกช้ำ แก้เหน็บชา แก้อาการช้ำใน ช่วยสมานแผล สลายลิ่มเลือดที่แข็งตัว ขับประจำเดือน
ไพลชมพู	Thunbergia impatienoides Suwanph.	เป็นยาขับลม บำรุงธาตุช่วยย่อยอาหาร ลดอาการอักเสบ สลายลิ่มเลือด รักษาอาการปวดหน่วงท้องน้อย ช่วยรักษาอาการเคล็ดขัดยอกฟกช้ำ ปวดเมื่อยตามร่างกาย ข้อ และหลัง
ไพลเหลือง	Zingiber cassumunar Roxb.	มีฤทธิ์ในการช่วยต้านเชื้อรา เชื้อจุลินทรีย์ และเชื้อแบคทีเรีย ไพลมีฤทธิ์ช่วยต้านฮีสตามีนในผู้ป่วยเด็กที่เป็นโรคหอบหืด

Appendix E: Final Generated Deliverables

Plan for the Baan Noan Rang Burapha Learning Center to Engage Young Adults for Long-Term Knowledge Preservation

This plan provides ideas for generating long-term engagement with a younger adult audience to help preserve the Baan Noan Rang Burapha Learning Center's knowledge. Each section below outlines methods that are rooted in research conducted throughout this project.

E1: Order New Packaging

The Baan Noan Rang Burapha Learning Center is currently looking to update their packaging to appeal to a younger audience. The new packaging will consist of roller-style bottles with a green, minimalistic label that features a QR code to link customers to promotional social media platforms.

The Baan Noan Rang Burapha Learning Center already orders roller bottles in bulk, so there is no additional cost associated with using this type of bottle. The center also has a custom label manufacturer, so there would not be any additional cost associated with the change in label design. Due to the fixed manufacturing costs associated with the redesign, the team deems the packaging rebrand to be feasible.

The product label is included in Appendix E1 of this document.

E2: Implement Promotional Methods/Social Media Using Linktree

TikTok

TikTok is strongly recommended to increase younger adults' interest and knowledge about herbs. A TikTok account has been created under the username 'baannoanrangburaphalc' and password 'IloveThailand22!', as well as the email account 'noanrangburaphalc@gmail.com' with password 'IloveThailand22'.

This account can be utilized to share information and media with young adults directly. Instructions for running a TikTok account including post ideas, a posting schedule, and app navigation can be found in Appendix E2.

Facebook

The learning center currently runs and operates a Facebook page. This is valuable because it attracts attention to the center and can inform the local community about the workshops the center is running and the knowledge the center has to share about agricultural practices. Since the sponsors have experience using Facebook, the team recommends they increase their social media presence on this platform.

Suggested posts for these social media accounts are those with information on events occurring at the learning center as well as festivals/events the center is attending. Any updates or

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

images shared on this platform are helpful to users and maintaining a strong presence on social media is very effective in keeping young adults engaged.

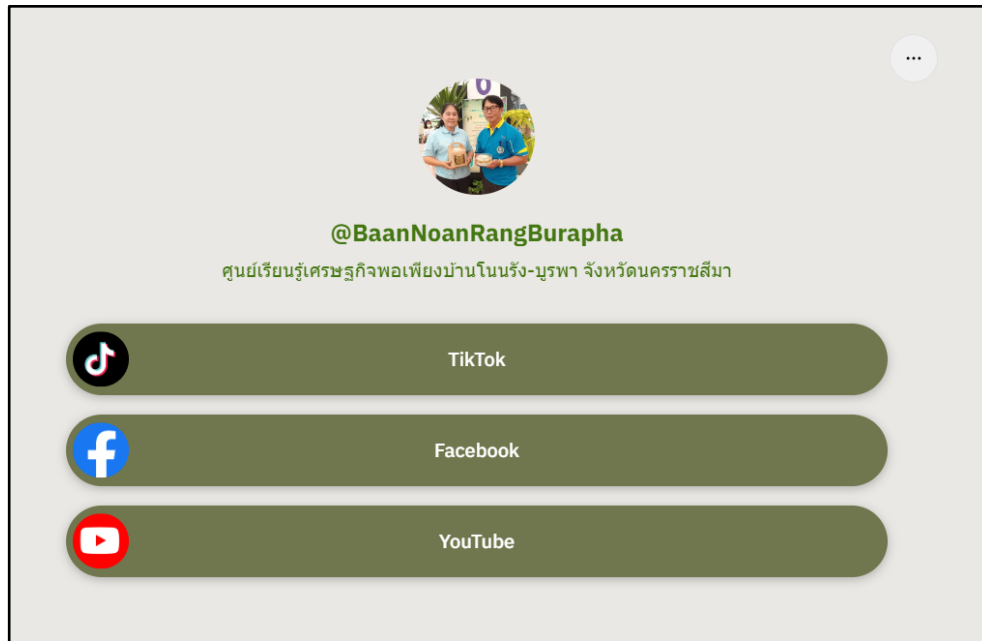
QR Code and Linktree

To consolidate the center’s social media platforms and make them more easily accessible to customers, a QR code has been generated and attached to the new packaging prototype. This QR code links to a platform called Linktree where the TikTok and Facebook pages can be viewed by customers as well as a YouTube interview conducted by the sponsor to provide additional content on the center and its herbal knowledge.

The QR code can be found here:



The image below represents what the Linktree looks like to users:



E3: Funding Generation & Grant Application

To generate funds for further updates to the learning center, the following grants should be applied for: King Powder (COMMUNITY POWER), SCG Foundation, and Thai Beverage.

A drafted proposal for the grant is outlined in Appendix E3. This draft was reviewed and submitted on February 16, 2024. Detailed instructions for how to apply for these grants for each private company are different, these are based on organizational structures of each company. For the King Power Thai Power program, the email with the final funding proposal was sent to contact@kingpower.com, and the paper will be processed in two weeks. So, the sponsor should receive the response around March 1, 2024. For Thai Beverage, the submitting system is similar, the final proposal was sent to info@thaibev.com. However, the proposal could take more than one month to be processed, so the sponsor should receive the response after March 15, 2024. Lastly, a funding proposal submitted to SCG Foundation was submitted via SCG Foundation website (<https://www.scgfoundation.org/contact/>) directly, and the paper will be processed in three weeks after submitted.

E4: Update Facilities to Meet GMP Guidelines

Facility Updates

The Baan Noan Rang Burapha Learning Center can expand their audience to young adults by updating their facilities. They will be more compelled to not only visit the center, but engage with the center and its practices as well because it will seem more viable and interesting with updated technology. Additionally, these facility updates will lead to easier approval for Good Manufacturing Practice (GMP) certification, if done correctly. The floor plan for the necessary layout is outlined below in section E3 Deliverable. This will be a total of 200 square meters. The timeline for this project is dependent on the approval of grant applications.

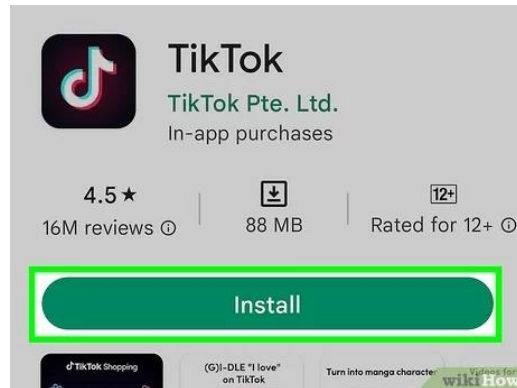
E1 Deliverable: Prototype of Label and Label Printout

(20 cc dimensions)

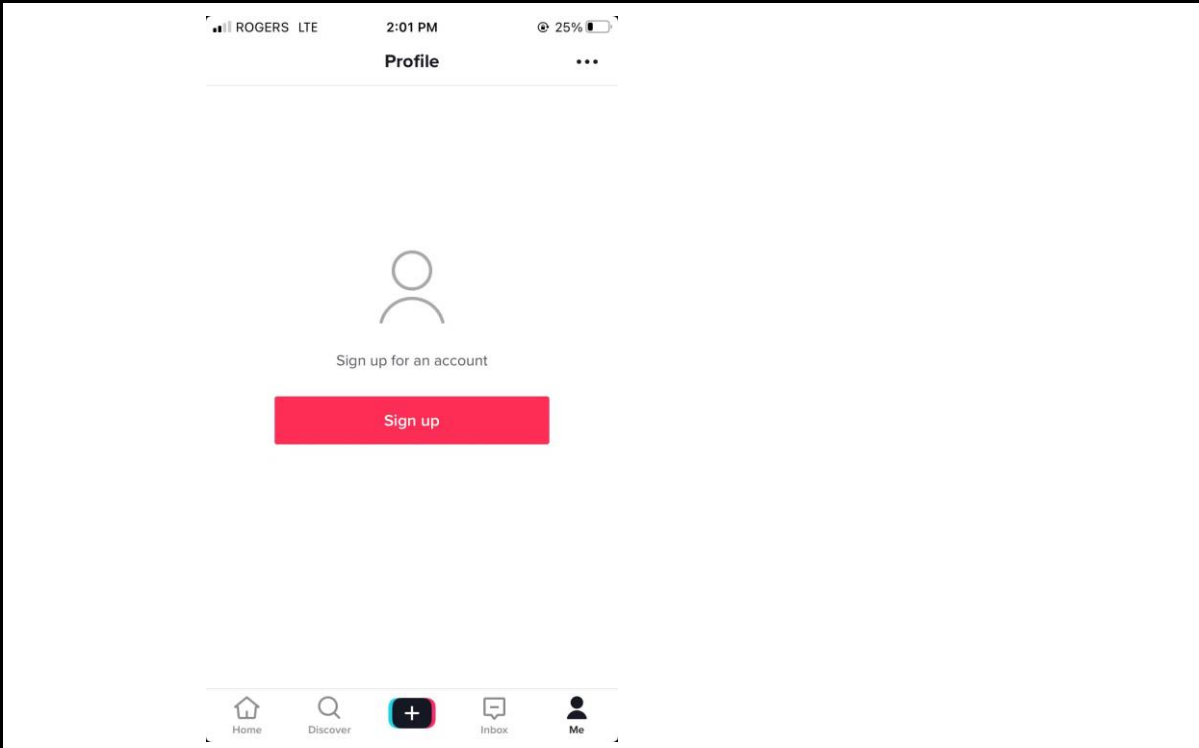


E2 Deliverable: TikTok Instructions

- Download the app and sign up. (ดาวน์โหลดแอปและลงทะเบียน)
 - เข้าแอปพลิเคชันplaystore หรือ appstore จากนั้นค้นหาแอปพลิเคชันชื่อ TikTok
 - สำหรับการติดตั้งให้คลิกติดตั้ง(ปุ่มสีเขียว)



- Set up profile. (สร้างโปรไฟล์)
 - Sign up or Sign In. (ลงชื่อเข้าใช้)
 - กดปุ่มสีแดง
 - Accessing Your Account:**
Email: noanrangburaphalc@gmail.com
Username: baannoanrangburaphalc
Password: IloveThailand22!



ROGERS LTE 2:01 PM 25%

Profile ...

Sign up for an account

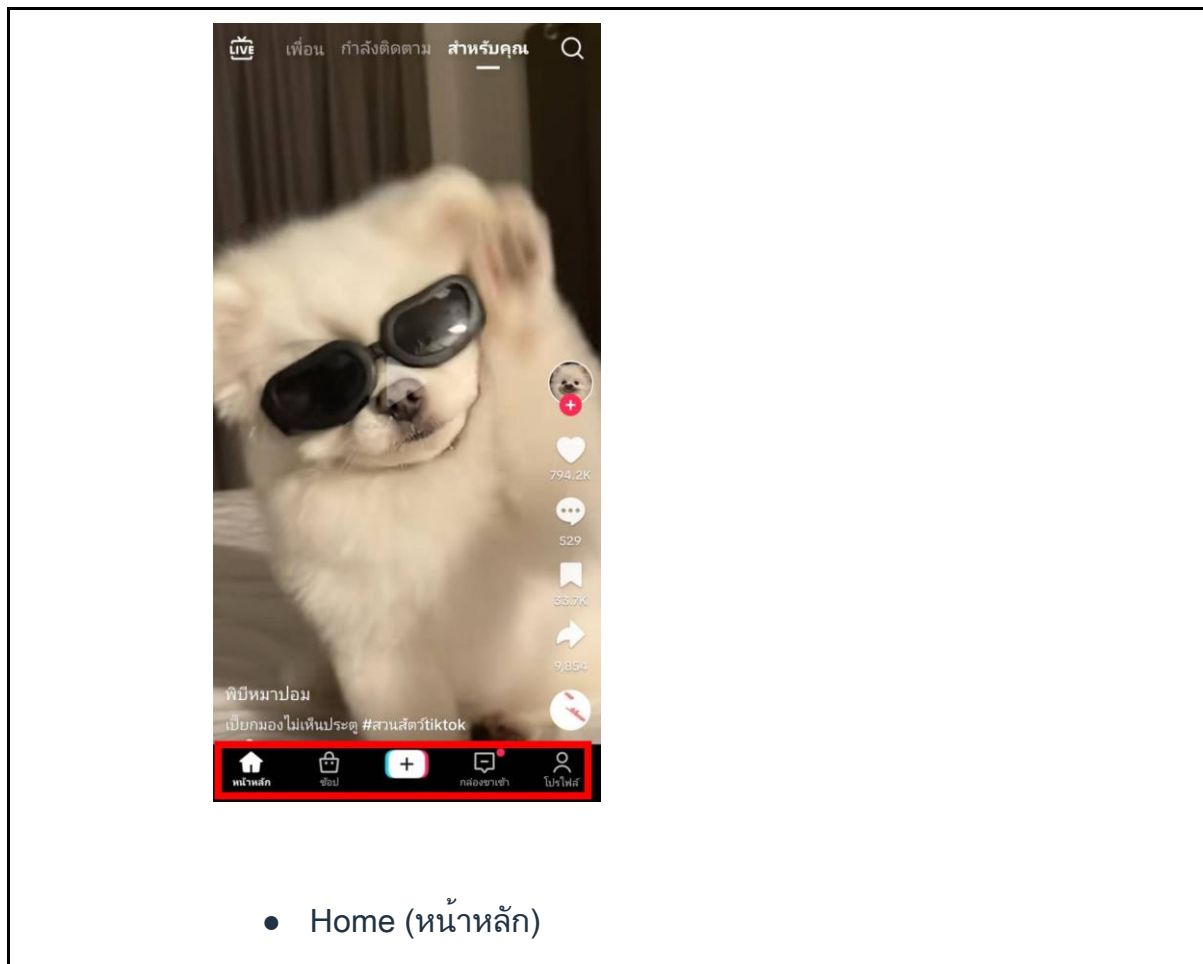
Sign up

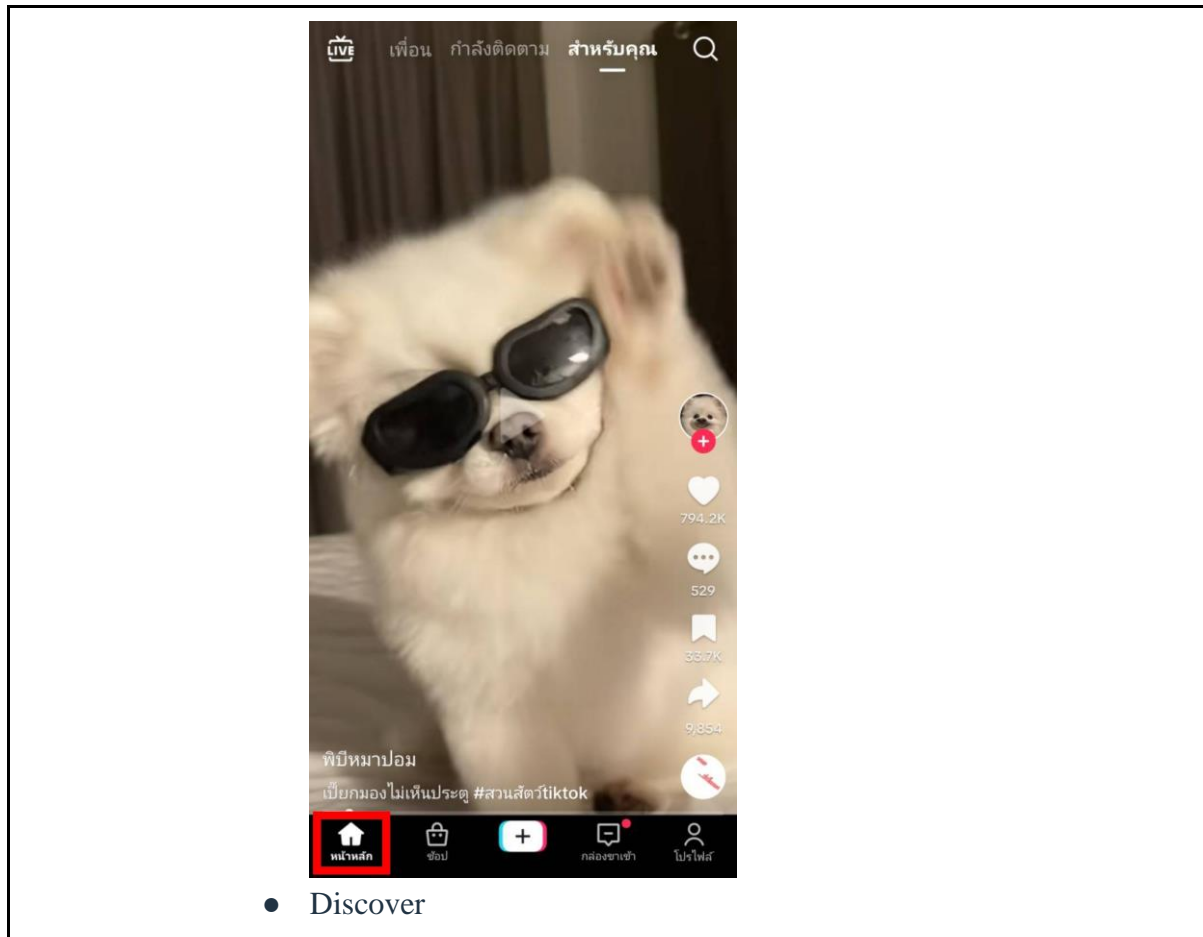
Home Discover + Inbox Me

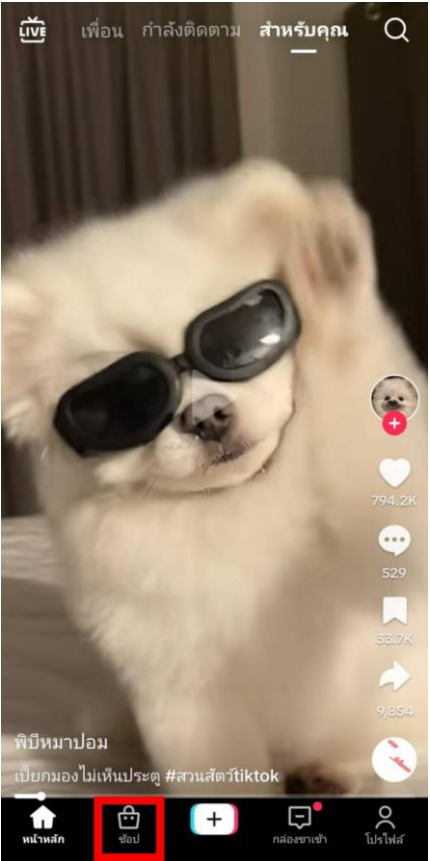
- Choose a method to sign up. (เลือกวิธีการเข้า)
-เลือกใช้โทรศัพท์และอีเมล

เข้าสู่ระบบ' (Already have an account? [Log in](#))." data-bbox="110 122 848 562"/>

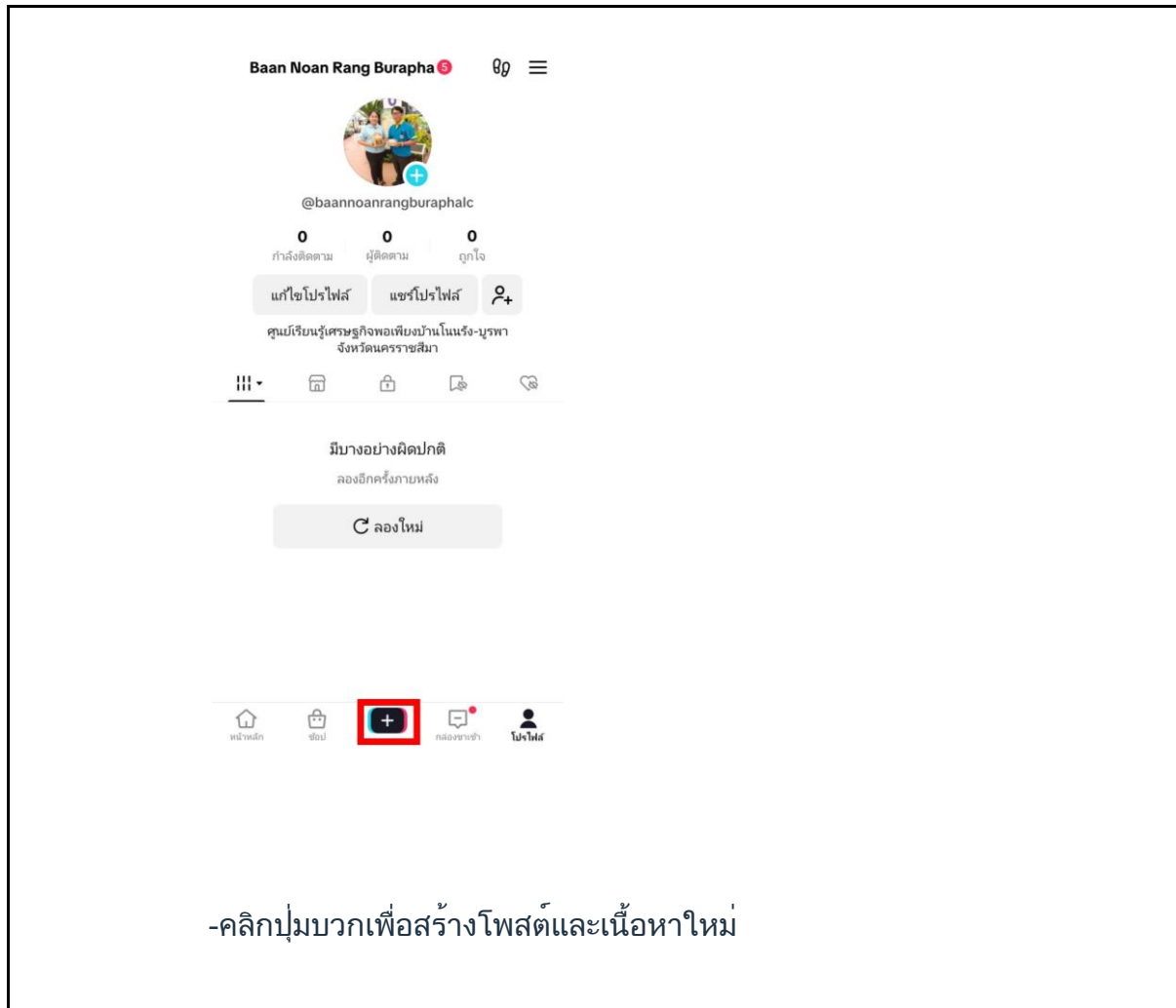
- Click to check and view the video (คลิกเพื่อตรวจสอบและชมวิดีโอ)
-คลิกเพื่อตรวจสอบและชมวิดีโอด้านล่าง

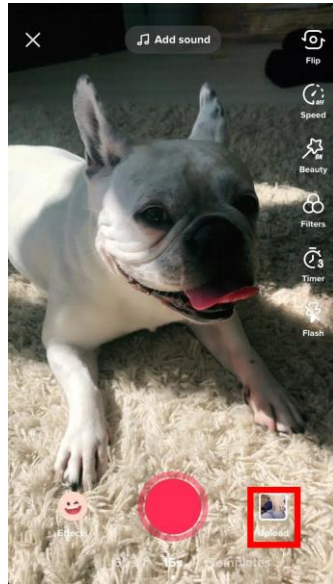




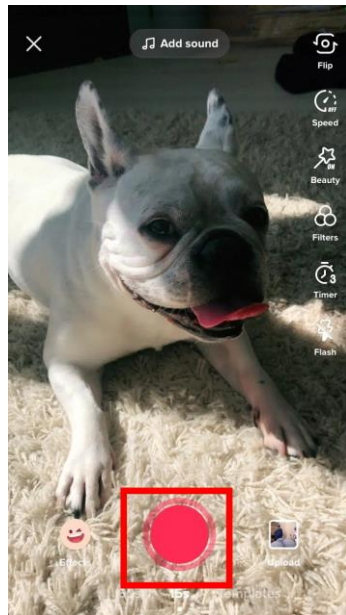


• Create (the plus button) (สร้าง (ปุ่มบวก))

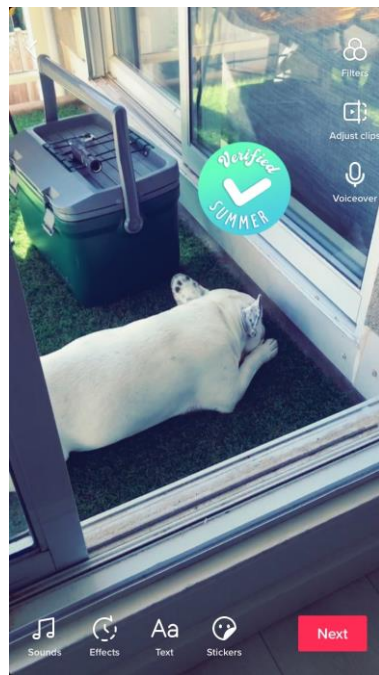




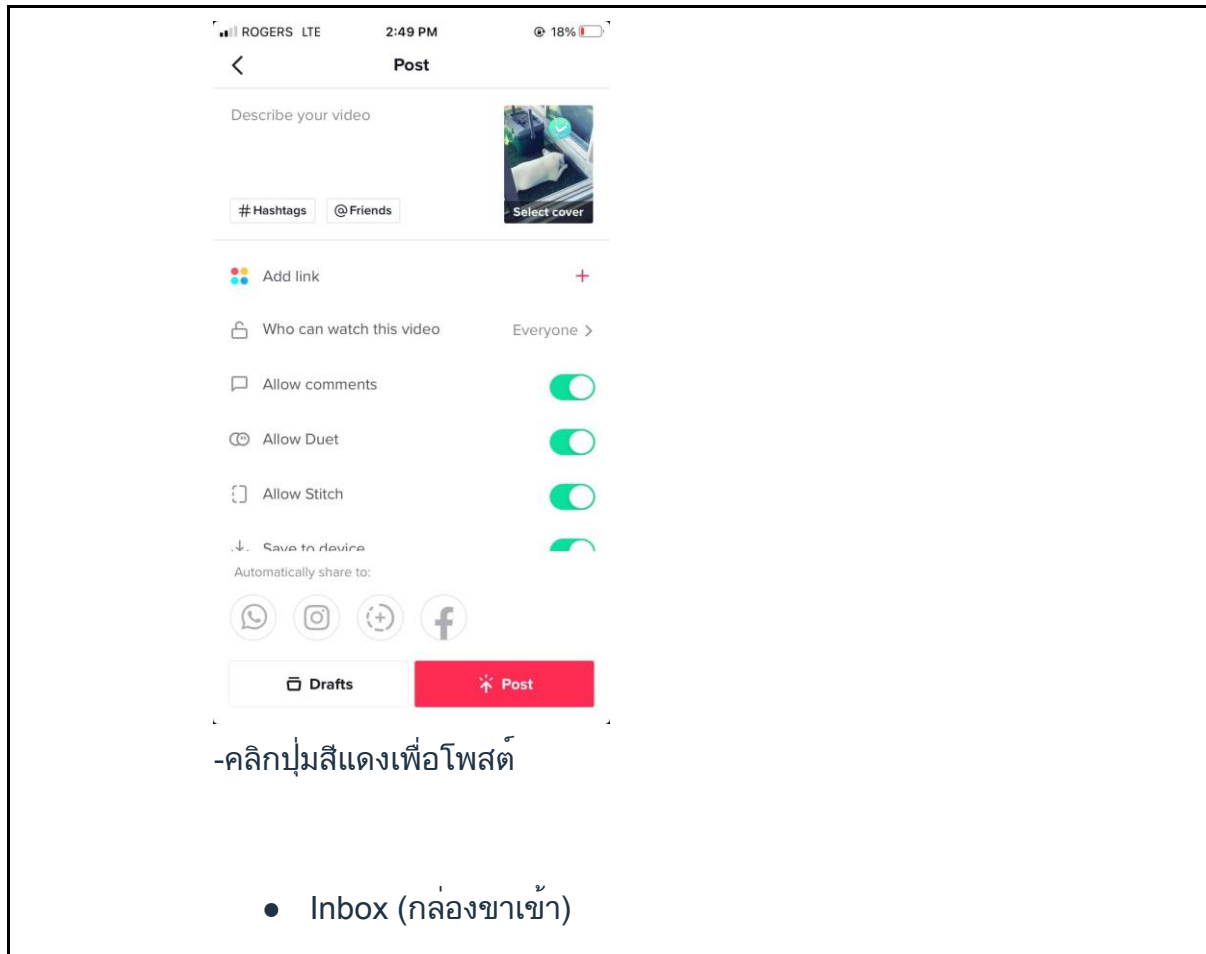
-คลิกทางด้านขวาของหน้าจอเพื่อเลือกรูปภาพหรือวิดีโอที่จะโพสต์



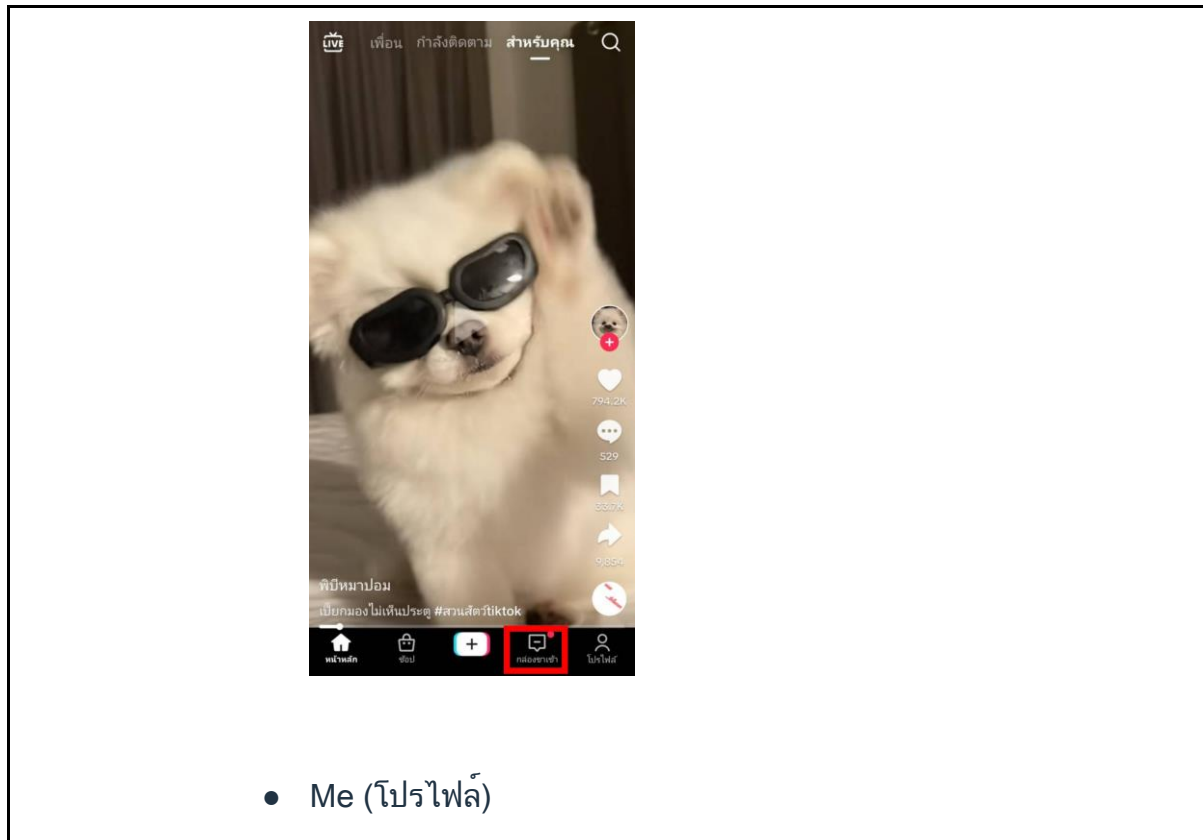
-กดปุ่มสีแดงเพื่อเริ่มอัดคลิป



-กดปุ่มสีแดงที่เขียนว่า “ถัดไป”



The screenshot shows a mobile application interface for posting a video. At the top, the status bar shows 'ROGERS LTE', '2:49 PM', and '18%' battery. The app header includes a back arrow, the word 'Post', and a battery icon. Below the header, there is a 'Describe your video' field, a video thumbnail with a 'Select cover' button, and buttons for '# Hashtags' and '@ Friends'. A list of settings follows: 'Add link' with a plus sign, 'Who can watch this video' set to 'Everyone', 'Allow comments', 'Allow Duet', 'Allow Stitch', and 'Save to device'. Below these are social sharing icons for WhatsApp, Instagram, Messenger, and Facebook. At the bottom, there are 'Drafts' and 'Post' buttons. Below the screenshot, the Thai text '-คลิกปุ่มสีแดงเพื่อโพสต์' (Click the red button to post) is displayed. Below that, a bullet point indicates '● Inbox (กล่องขาเข้า)' (Inbox (Inbox)).





Baan Noan Rang Burapha 5 ๙๑ ☰



@baannoanrangburaphalc


0 กำลังติดตาม 0 ผู้ติดตาม 0 ถูกใจ

แก้ไขโปรไฟล์ แชร์โปรไฟล์ 

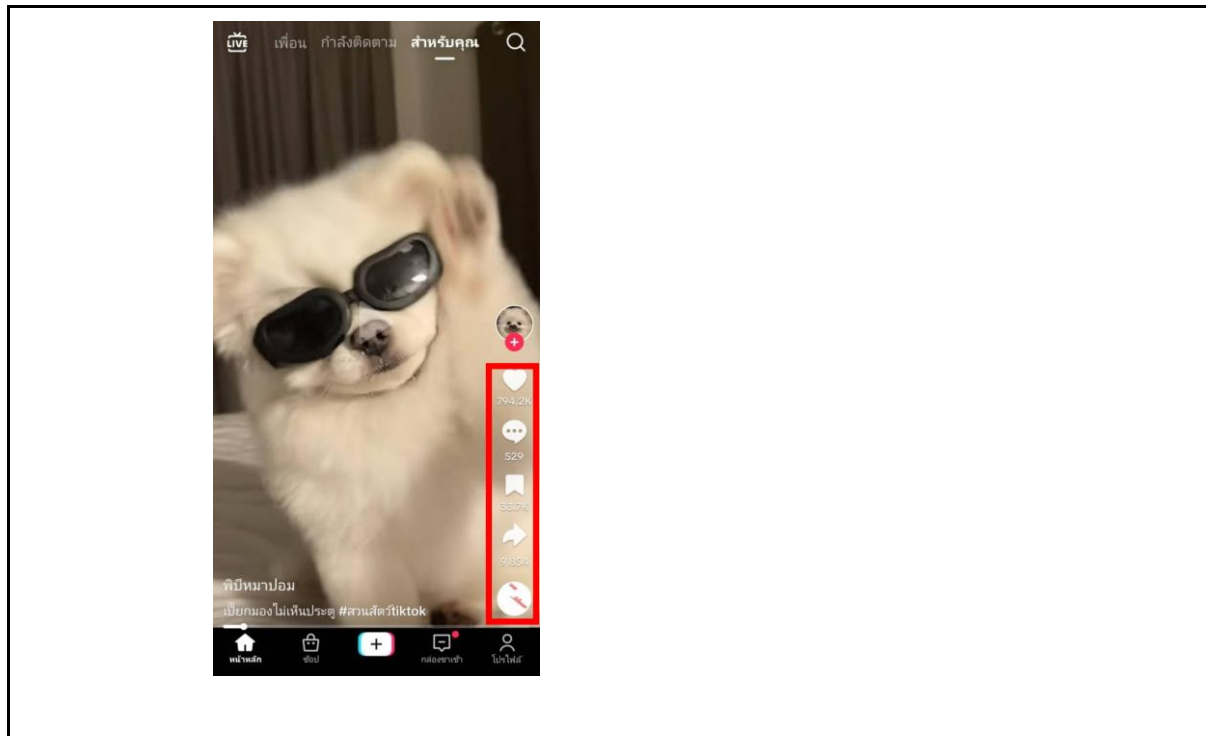
ศูนย์เรียนรู้เศรษฐกิจพอเพียงบ้านโนนแจ้ง-บุรพา
จังหวัดนครราชสีมา

มีบางอย่างผิดปกติ
ลองอีกครั้งภายหลัง

ลองใหม่

หน้าหลัก ช้อป   

- Like, comment, share videos you enjoy.
(กดไลค์ แสดงความคิดเห็น แชร์วิดีโอที่คุณชอบ)



Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

Chulalongkorn University & Worcester Polytechnic Institute

February						
SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
				One day in BaanNoanRang	knowledge 1	Do you know what are these herbs (BSAC)
11	12	13	14	15	16	17
knowledge 2	whats in my bag	knowledge 3	when i study VS when I study with herbal oil	knowledge 4	me without my inhaler VS Me with my inhaler	knowledge 5
18	19	20	21	22	23	24
How to make your soil better?	knowledge 6	Cooking with US	knowledge 7	pictures from festival	knowledge 8	Guess what herbs are in this product EP2
25	26	27	28	29		
knowledge 10	knowledge 11					

VDO	วิดีโอ	EXAMPLE	REMARKS
knowledge 1	herbs and plants in the area	https://vm.tiktok.com/ZT83VfGj9/	Old videos
knowledge 2	how to make Dragon's blood tea	https://vm.tiktok.com/ZT8vVv8s7/	from the sponsor
knowledge 3	useful herbs (slideshow)	https://www.tiktok.com/@worldhappy.official?_t=8jfrtq8lqWl&r=1	Old videos
knowledge 4	underrated herbs that are super useful	https://vm.tiktok.com/ZT83VuAnj/	Old videos
knowledge 5	useful herbs (video)	https://www.tiktok.com/@varee_22?t=8jfs1RTmc1a&r=1	from the sponsor
knowledge 6	planting techniques	https://www.tiktok.com/@giarpowers2023?t=8jftvaXjyx8&r=1	from the sponsor
knowledge 7	herbs in herbal oil	https://vm.tiktok.com/ZT8vqjT/	we film it for them
knowledge 8	how to make mulberry tea	https://vm.tiktok.com/ZT83VteRh/	from the sponsor
knowledge 10	herbs and plants in the area	https://vm.tiktok.com/ZT83Vr/	Old videos
knowledge 11	herbs and plants in the area	https://vm.tiktok.com/ZT83VnKkb/	Old videos

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

E3 Deliverable: Proposal to be Sent to Organizations for Funding

แบบเสนอโครงการ

ชนิดโครงการ : การอาสาช่วยเหลือชุมชน (**Community Volunteering**)

ศูนย์การเรียนรู้เศรษฐกิจพอเพียงบ้าน โนนรัง-บุรพา

ผู้รับผิดชอบโครงการ

ศูนย์ฝึกอบรมเกษตรผสมผสานบ้าน โนนรัง-บุรพา

- ผู้ประสานงาน: นายสุวัฒน์ชัย จำปานมูล
- โทร: 098-584-6008

หลักการและเหตุผล

ศูนย์การเรียนรู้เศรษฐกิจพอเพียงบ้าน โนนรัง - บุรพา เป็นศูนย์การเรียนรู้ จังหวัดนครราชสีมา ได้เปิดอบรมทักษะ ให้กับเกษตรกร หน่วยงานภาครัฐ และเอกชนมาตั้งแต่ปี 2546 โดยมีพ่อจันทร์ที่ ประทุมภา ปรารักษ์ชาวบ้าน ที่เคยได้รับรางวัลปราชญ์เกษตรกรของแผ่นดิน สาขาปราชญ์เกษตรเศรษฐกิจพอเพียง ประจำปี 2554 เป็นผู้นำในการดำเนินงาน นอกจากนี้ ตลอดหลายปีที่ศูนย์ฝึกอบรมเกษตรผสมผสานบ้าน โนนรัง - บุรพา ได้ดำเนินงานมา กลุ่มวัยแรงงานจำนวนมาก ในพื้นที่ของชุมชน เป็นกลุ่มคนด้อยโอกาส อย่างเช่น คนขาดแคลนทุนทรัพย์ คนพิการ คนสูงอายุ คนว่างงาน ซึ่งคนเหล่านี้ แท้จริงแล้วเต็มไปด้วยศักยภาพมากมาย ที่จะสามารถนำมาใช้เพื่อก่อให้เกิดประโยชน์กับตัวเอง และชุมชนรอบข้างได้โครงการเสริมสร้างทักษะต่าง ๆ ของศูนย์ฝึกบ้าน โนนรัง - บุรพาเป็นเหมือนมือที่ยื่นให้กับคนในชุมชน และช่วยสิ่งศักยภาพของพวกเขาออกมาอย่างเต็มที่ เพราะท้ายที่สุดแล้วศักยภาพเหล่านั้นคือต้นทุนที่แท้จริง ที่จะช่วยสร้างรายได้และสร้างอาชีพให้กับพวกเขา อย่างยั่งยืน

ด้วยเหตุนี้ เพื่อสนับสนุนอาชีพของคนภายในชุมชน ศูนย์การเรียนรู้เศรษฐกิจพอเพียงบ้าน โนนรัง - บุรพา จึงมีความประสงค์จะสร้างสิ่งปลูกสร้างสำหรับเพิ่มพลังการผลิตสินค้าและปลูกพันธุ์พืชสำหรับกระบวนการผลิต ซึ่งจะสามารถเพิ่มอัตราการจ้างงานของคนในชุมชนและเพิ่มทุนทักษะการแปรรูปสินค้าของชาวบ้าน เพื่อเป็นแนวทางให้ชาวบ้าน นำความรู้ที่ไปประกอบอาชีพที่ยั่งยืนต่อไป

วัตถุประสงค์

- จัดตั้งโรงผลิตสินค้าชุมชน ตามมาตรฐานกรมอนามัย
- กระจายรายได้ให้คนในชุมชนและเพิ่มทักษะสำหรับนำไปต่อยอดอาชีพที่ยั่งยืน
- เผยแพร่ภูมิปัญญาสมุนไพรท้องถิ่นให้ชาวบ้านในพื้นที่

เป้าหมายในการพัฒนา

กระจายรายได้ให้ชุมชนบ้านโนนรัง อ.ชุมพวง จังหวัด นครราชสีมา โดยมีวิธีดังต่อไปนี้

1. สร้างงาน เพิ่มรายได้ และแก้ไขปัญหาความจน
 - a. การสร้างโรงผลิตสินค้าชุมชน จะสร้างโอกาสในการทำงานและเพิ่มรายได้ให้กับชุมชน โดยเฉพาะผู้กลุ่มผู้มีรายได้น้อย ซึ่งเป็นชาวบ้านที่ทำการเกษตรภายในพื้นที่ นอกจากนี้ ยังช่วยเพิ่มฐานะทางเศรษฐกิจของชุมชนอีกด้วย
2. ลดการย้ายถิ่นทำธุรกิจ
 - a. โรงงานเป็นแหล่งประกอบอาชีพใหม่ สร้างความเข้มแข็งให้กับชุมชน และลดการย้ายถิ่นฐานของชาวบ้านในพื้นที่เพื่อหางาน
3. เผยแพร่ภูมิปัญญาท้องถิ่น
 - a. การรวมตัวของชาวบ้านเพื่อผลิตสินค้า มีการให้ความรู้เรื่องการประยุกต์ใช้สมุนไพรท้องถิ่น ในชีวิตประจำวัน ซึ่งชาวบ้านสามารถนำภูมิปัญญาท้องถิ่นนั้นไปเผยแพร่ต่อไปในอนาคต

การวัดและประเมินผล

- คนในพื้นที่ มีส่วนร่วมกับศูนย์การเรียนรู้เศรษฐกิจพอเพียงบ้านโนนรัง-บุรพา เพิ่มมากขึ้น
- จัดตั้งโรงผลิตสินค้าชุมชนที่ได้รับมาตรฐานจากกรมอนามัย

สถานที่และระยะเวลาการจัดโครงการ

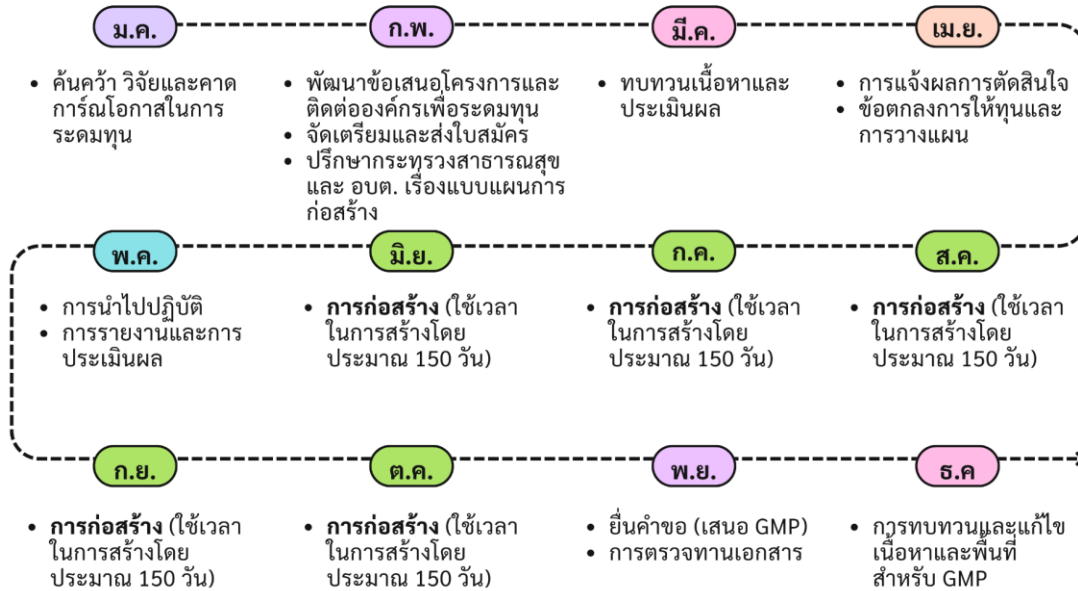
การดำเนินการทั้งหมดจะเกิดขึ้นที่ 138 หมู่ 6, ตลาดไทร, อำเภอชุมพวง, นครราชสีมา 30270

โดยใช้ระยะเวลาในการดำเนินการทั้งสิ้น 150 วัน

แผนการดำเนินงาน

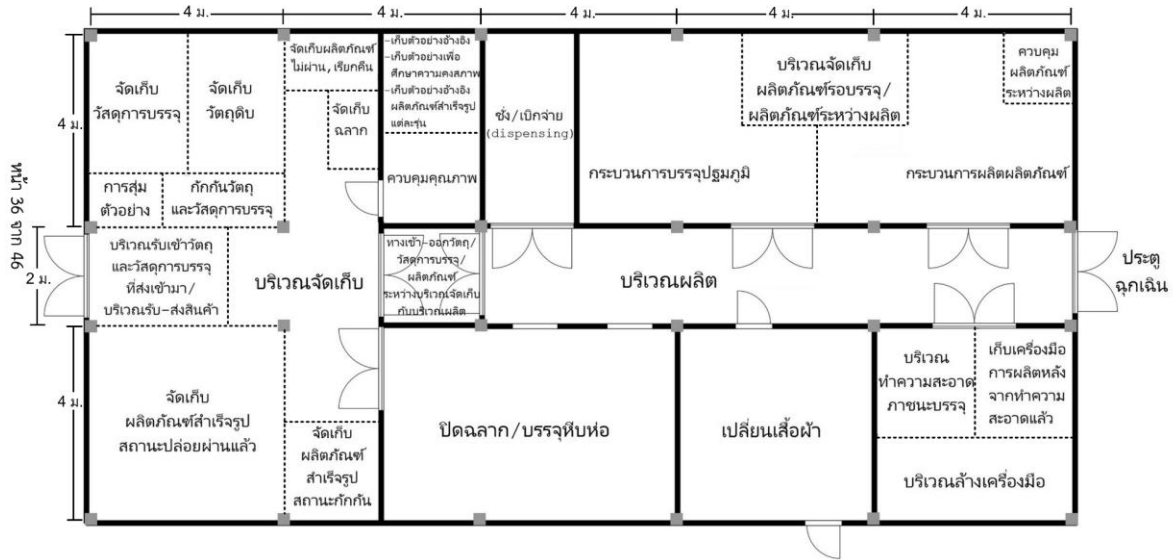
แผนการดำเนินงาน

โครงการ : การอาสาช่วยเหลือชุมชน (Community Volunteering)
ศูนย์การเรียนรู้เศรษฐกิจพอเพียงบ้านโนนรัง-บุรพา



รูปแบบสิ่งก่อสร้าง

ตัวอย่างแบบแปลนแผนผังการจัดสถานที่ผลิตผลิตภัณฑ์สมุนไพรเบื้องต้น แบบที่ 1 (I Shape)



รายละเอียดงบประมาณ

ค่าใช้จ่ายสำหรับจัดตั้งโรงผลิตสินค้าชุมชน ตามมาตรฐานกรมอนามัย จำนวนเงินทั้งหมด **1,350,000** บาท โดยเป็นค่าเฉลี่ยจาก

1. งานโครงสร้างทั้งหมด
2. งานก่ออิฐ-ฉาบปูน ภายนอก-ใน
3. งานติดตั้งวัสดุผิวพื้น
4. งานติดตั้งฝ้าเพดาน
5. งานติดตั้งประตู-หน้าต่างพร้อมอุปกรณ์
6. งานระบบสุขาภิบาล แล้วเสร็จ
7. งานระบบไฟฟ้าและติดตั้งอุปกรณ์ใน-นอกอาคาร
8. งานติดตั้งพัดลมดูดอากาศ เครื่องปรับอากาศ งานขนย้ายเครื่องจักรและติดตั้งใหม่
10. งานทดสอบระบบต่างๆ ใช้งานได้สมบูรณ์

E4 Deliverable: GMP Approval Document

แบบ สมพ. ๑

คำขอรับใบอนุญาต
ผลิต นำเข้า หรือขายผลิตภัณฑ์สมุนไพร

เลขรับที่.....
วันที่.....
(สำหรับเจ้าหน้าที่เป็นผู้กรอก)

- คำขออนุญาต ผลิตผลิตภัณฑ์สมุนไพร
 นำเข้าผลิตภัณฑ์สมุนไพร
 ขายผลิตภัณฑ์สมุนไพร

เขียนที่.....

วันที่.....เดือน.....พ.ศ.

๑. ข้อมูลผู้ขออนุญาต

ข้าพเจ้า (ชื่อบุคคล/นิติบุคคล)

อายุ.....ปี สัญชาติ.....

เลขประจำตัวประชาชน

หรือเลขทะเบียนนิติบุคคล.....

ที่อยู่เลขที่.....หมู่บ้าน/อาคาร.....

หมู่ที่.....ตรอก/ซอย.....ถนน.....

ตำบล/แขวง.....อำเภอ/เขต.....

จังหวัด.....รหัสไปรษณีย์.....โทรสาร.....

โทรศัพท์.....E-mail.....

กรณีผู้ขออนุญาตเป็นบุคคลต่างด้าว ระบุ

บุคคลธรรมดา

หนังสือเดินทางเลขที่.....วันหมดอายุ.....

ใบสำคัญถิ่นที่อยู่เลขที่.....ออกให้ ณ วันที่.....

ใบอนุญาตทำงานเลขที่.....วันหมดอายุ.....

หรือใบอนุญาตประกอบธุรกิจตามบัญชีสาม (๑๔) หรือ (๑๕) ตามกฎหมายว่าด้วยการประกอบธุรกิจของคนต่างด้าว

เลขที่.....ออกให้ ณ วันที่.....

หรือหนังสือรับรองตามกฎหมายว่าด้วยการประกอบธุรกิจของคนต่างด้าวเลขที่.....

ออกให้ ณ วันที่.....

นิติบุคคลต่างด้าว

ใบอนุญาตประกอบธุรกิจตามบัญชีสาม (๑๔) หรือ (๑๕) ตามกฎหมายว่าด้วยการประกอบธุรกิจของคนต่างด้าว

เลขที่.....ออกให้ ณ วันที่.....

หรือหนังสือรับรองตามกฎหมายว่าด้วยการประกอบธุรกิจของคนต่างด้าวเลขที่.....

ออกให้ ณ วันที่.....

๒. ข้อมูลผู้ได้รับมอบหมายหรือแต่งตั้งให้ดำเนินการหรือดำเนินกิจการเกี่ยวกับใบอนุญาต

ชื่อผู้ดำเนินการ.....

อายุ.....ปี สัญชาติ.....เลขประจำตัวประชาชน.....

-๒-

ที่อยู่ตามทะเบียนบ้าน อยู่เลขที่.....หมู่บ้าน/อาคาร.....
หมู่ที่.....ตรอก/ซอย.....ถนน.....
ตำบล/แขวง.....อำเภอ/เขต.....
จังหวัด.....รหัสไปรษณีย์.....โทรสาร.....
โทรศัพท์.....E-mail.....

ที่อยู่ที่สามารถติดต่อได้ (ใช้ที่อยู่เดียวกันกับที่อยู่ตามทะเบียนบ้าน)

(เฉพาะกรณีที่อยู่ไม่ใช่ที่อยู่เดียวกันกับทะเบียนบ้าน)

อยู่เลขที่.....หมู่บ้าน/อาคาร.....
หมู่ที่.....ตรอก/ซอย.....ถนน.....
ตำบล/แขวง.....อำเภอ/เขต.....
จังหวัด.....รหัสไปรษณีย์.....โทรสาร.....
โทรศัพท์.....E-mail.....

กรณีผู้ได้รับมอบหมายหรือแต่งตั้งให้ดำเนินการหรือดำเนินกิจการเป็นบุคคลต่างตัว ระบุ

หนังสือเดินทางเลขที่.....วันหมดอายุ.....

ใบอนุญาตทำงานเลขที่.....วันหมดอายุ.....

๓. ข้อมูลสถานที่ผลิต นำเข้า หรือขายผลิตภัณฑ์สมุนไพร

สถานที่ประกอบธุรกิจชื่อ.....

เลขรหัสประจำบ้าน.....อยู่เลขที่.....หมู่บ้าน/อาคาร.....

หมู่ที่.....ตรอก/ซอย.....ถนน.....

ตำบล/แขวง.....อำเภอ/เขต.....

จังหวัด.....รหัสไปรษณีย์.....โทรสาร.....

โทรศัพท์.....E-mail.....

เวลาทำการ.....

สถานที่เก็บรักษาผลิตภัณฑ์สมุนไพร (ถ้ามี) ชื่อ.....

เลขรหัสประจำบ้าน.....อยู่เลขที่.....หมู่บ้าน/อาคาร.....

หมู่ที่.....ตรอก/ซอย.....ถนน.....

ตำบล/แขวง.....อำเภอ/เขต.....

จังหวัด.....รหัสไปรษณีย์.....โทรสาร.....

โทรศัพท์.....E-mail.....

(ถ้ามีมากกว่าหนึ่งแห่งให้แจ้งเพิ่มเติมไว้ท้ายคำขออนุญาต)

๔. ข้อมูลผู้มีหน้าที่ปฏิบัติการในสถานที่ผลิต นำเข้า หรือขายผลิตภัณฑ์สมุนไพร

๔.๑ กรณีผู้ประกอบการวิชาชีพ/ผู้ประกอบการโรคศิลปะ ชื่อ.....

ใบอนุญาตประกอบวิชาชีพ/โรคศิลปะเลขที่..... หรือ

กรณีที่ไม่ใช่ผู้ประกอบการวิชาชีพหรือผู้ประกอบการโรคศิลปะ ให้ระบุคุณวุฒิ.....

สาขา.....

๔.๒ ผ่านการอบรมหลักสูตรจากสำนักงานคณะกรรมการอาหารและยา โปรดระบุชื่อหลักสูตร

.....วันที่อบรม

-๓-

(ถ้ามีมากกว่าหนึ่งคนให้แจ้งเพิ่มเติมไว้ท้ายคำขออนุญาต)

เป็นผู้มีหน้าที่ปฏิบัติตาม มาตรา ๓๑ มาตรา ๓๒ มาตรา ๓๓ แห่ง พ.ร.บ.ผลิตภัณฑ์สมุนไพร พ.ศ. ๒๕๖๒

ข้าพเจ้าขอรับรองว่า ข้าพเจ้า มีคุณสมบัติและไม่มีลักษณะต้องห้ามตามมาตรา ๑๙ แห่ง พ.ร.บ. ผลิตภัณฑ์สมุนไพร พ.ศ. ๒๕๖๒ และได้แนบหลักฐาน ดังต่อไปนี้

(๑) เอกสารแสดงคุณสมบัติของผู้ขออนุญาตตามมาตรา ๑๙ และผู้มีหน้าที่ปฏิบัติตามที่ รัฐมนตรีโดยคำแนะนำของคณะกรรมการประกาศกำหนดตามมาตรา ๖ (๑๓)

(๑.๑) สำเนาใบสำคัญถิ่นที่อยู่ (กรณีบุคคลต่างด้าวเป็นผู้ขออนุญาต)

(๑.๒) เอกสารแสดงการเป็นเจ้าของกิจการ

(๑.๓) ใบรับรองของผู้ประกอบวิชาชีพเวชกรรม ซึ่งรับรองว่าผู้ขออนุญาตไม่เป็นโรคตาม มาตรา ๑๙ (๘) แห่งพระราชบัญญัติผลิตภัณฑ์สมุนไพร พ.ศ. ๒๕๖๒

(๑.๔) สัญญาระหว่างผู้ขออนุญาตและผู้ประกอบวิชาชีพ ผู้ประกอบโรคศิลปะ หรือ ผู้ประกอบอาชีพ ซึ่งรับเป็นผู้มีหน้าที่ปฏิบัติตามของผู้ขออนุญาต

(๑.๕) สำเนาใบประกอบวิชาชีพ ใบประกอบโรคศิลปะ หรือปริญญาบัตรของผู้ประกอบ วิชาชีพ ผู้ประกอบโรคศิลปะ หรือผู้ประกอบอาชีพทุกคน ซึ่งรับเป็นผู้มีหน้าที่ปฏิบัติตามของผู้ขออนุญาต หรือ สำเนาการผ่านอบรมหลักสูตรจากสำนักงานคณะกรรมการอาหารและยา

(๑.๖) คำรับรองของผู้มีหน้าที่ปฏิบัติตามแบบ สมพ. ๔

(๒) หนังสือแสดงว่าผู้ขออนุญาตเป็นผู้แทนนิติบุคคลหรือเป็นผู้มีอำนาจทำการแทนนิติบุคคล ในกรณีที่นิติบุคคลเป็นผู้ขอรับอนุญาต

(๓) แผนที่ที่ตั้งและพิกัดของสถานที่ผลิต นำเข้า หรือขาย และสถานที่เก็บรักษาผลิตภัณฑ์ สมุนไพรที่มีลักษณะตามที่รัฐมนตรีโดยคำแนะนำของคณะกรรมการประกาศกำหนดตามมาตรา ๖ (๑๐) และ สิ่งปลูกสร้างที่อยู่ในบริเวณใกล้เคียงโดยรอบของสถานที่นั้น

(๔) แบบแปลนแผนผังสิ่งปลูกสร้างภายในบริเวณสถานที่ผลิต นำเข้า หรือขาย และสถานที่เก็บ รักษาผลิตภัณฑ์สมุนไพร

(๕) เอกสารแสดงกรรมสิทธิ์หรือสิทธิครอบครองของผู้ขออนุญาตในสถานที่ผลิต นำเข้า หรือ ขายผลิตภัณฑ์สมุนไพร ในกรณีที่ผู้ขออนุญาตมิได้เป็นเจ้าของสถานที่ดังกล่าว ให้แนบหนังสือแสดงความ ยินยอมของเจ้าของสถานที่นั้นด้วย

(๖) รายการเกี่ยวกับระบบการกำจัดน้ำเสีย การกำจัดสิ่งปฏิกูลและมูลฝอย ระบบควบคุมอากาศ ระบบน้ำที่ใช้ในการผลิตเฉพาะกรณีขออนุญาตประกอบกิจการผลิตผลิตภัณฑ์สมุนไพร

(๗) หนังสือให้ความยินยอมตามที่สำนักงานคณะกรรมการอาหารและยากำหนด

(๘) เอกสารหลักฐานอื่น ๆ ที่เกี่ยวข้อง (ถ้ามี)

ลายมือชื่อ..... ผู้ขอรับใบอนุญาต

(.....) ตัวบรรจง

-๔-

หมายเหตุ: ใส่เครื่องหมาย ในช่อง หน้าข้อความที่ต้องการ

รายการผลิตภัณฑ์สมุนไพรที่ขออนุญาต ผลิต นำเข้า หรือขาย

คำขออนุญาต ประเภท ผลิต นำเข้า ขาย

รายการของผลิตภัณฑ์สมุนไพรที่ขออนุญาต

	รายการ	ผลิต	นำเข้า	ขาย
๑.	ยาแผนไทย / ยาทามองค์ความรู้การแพทย์ทางเลือก			
	๑.๑ รูปแบบของเหลวสำหรับใช้ภายนอก			
	๑.๒ รูปแบบของเหลวสำหรับใช้ภายใน			
	๑.๓ รูปแบบกึ่งแข็ง (ครีม/ขี้ผึ้ง/.....)			
	๑.๔ รูปแบบผง			
	๑.๕ รูปแบบถุงชง ซองชง			
	๑.๖ รูปแบบเม็ด			
	๑.๗ รูปแบบแคปซูลแข็ง			
	๑.๘ รูปแบบแคปซูลอ่อน			
	๑.๙ รูปแบบลูกกลอน			
	๑.๑๐ รูปแบบอื่นๆ (โปรดระบุลักษณะ.....)			
	๑.๑๑ เพื่อการแบ่งบรรจุผลิตภัณฑ์เท่านั้น (ระบุรายการยาที่แบ่งบรรจุ.....)			
๒.	ยาพัฒนาจากสมุนไพร			
	๒.๑ รูปแบบของเหลวสำหรับใช้ภายนอก			
	๒.๒ รูปแบบของเหลวสำหรับใช้ภายใน			
	๒.๓ รูปแบบกึ่งแข็ง (ครีม/ขี้ผึ้ง/.....)			
	๒.๔ รูปแบบผง			
	๒.๕ รูปแบบถุงชง ซองชง			
	๒.๖ รูปแบบเม็ด			
	๒.๗ รูปแบบแคปซูลแข็ง			
	๒.๘ รูปแบบแคปซูลอ่อน			
	๒.๙ รูปแบบลูกกลอน			

-๕-

	รายการ	ผลิต	นำเข้า	ขาย
	๒.๑๐ รูปแบบอื่นๆ (โปรดระบุลักษณะ.....)			
	๒.๑๑ เพื่อการแบ่งบรรจุผลิตภัณฑ์เท่านั้น (ระบุรายการยาที่แบ่งบรรจุ.....)			
	๒.๑๒ ระบุรายการ			
๓.	ผลิตภัณฑ์สมุนไพรเพื่อสุขภาพ (ระบุรายการ)			
๔.	วัตถุดิบมุ่งหมายสำหรับใช้เป็นส่วนผสมในการ ผลิตผลิตภัณฑ์สมุนไพร (ระบุรายการ)			
	๔.๑ สารสกัดสมุนไพร ๔.๑.๑ สารสกัดที่เป็นน้ำหรือแอลกอฮอล์ (ระบุรายการ)..... ๔.๑.๒ สารสกัดที่ซึ่งไม่ใช่ น้ำหรือแอลกอฮอล์ (ระบุรายการ).....			
	๔.๒ วัตถุที่ใช้กรรมวิธีแบบสเปรย์ทราย (Spray Dry) หรือ ฟรียซ์ทราย (Freeze Dry)			
	๔.๓ อื่นๆ (ระบุรายการ).....			

8.0 Supplemental Materials

8.1 Interview Questions and Answers with Thematic Coding

- 1. Interview: Leader of the Baan Noan Rang Burapha Learning Center*
- 2. Interview: Young Adult Related to the Founders of the Baan Noan Rang Burapha Learning Center*
- 3. Interview: Young Adult Involved with the Baan Noan Rang Burapha Learning Center*
- 4. Interview: Local near the Baan Noan Rang Burapha Learning Center*
- 5. Interview: Leader of the Baan Saeng Chan Community Learning Center*
- 6. Interview: Marketing Professor at Chulalongkorn University*
- 7. Interview: Senior Researcher at InnoHerb*

Thematic Coding of Interviews

Young Adult

Fund

Social Media

Regulation, approval, Thai FDA

Customer

Product labeling

Thematic Coding Analysis Findings:

- Thematic coding revealed the following: learning centers with younger audiences have more funding and larger social media presences, social media and alternative advertising methods are sought after by younger audiences, funds for the center would be best used towards product packaging upgrades, upgrades to the center to attract younger adults (specifically housing for internships for young adults), Thai FDA approval and government regulatory approval is not feasible at this time for the center based on its current status, structure, and funds.

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

Chulalongkorn University & Worcester Polytechnic Institute

Interview	Question	Answer/Notes Taken During Interview
1	What is the history of the learning center?	They originally stayed in the neighborhood, but when they started growing more plants, they moved into the learning center. After some research and excursions, he started adopting the philosophy of the new agricultural theory. He was invited to the Soil Preservation Summit at Khon Kaen as a representative of the center.
1	When was the center founded?	1990s
1	What types of work/activities does the learning center generally perform?	Teach the farmer and newcomers knowledge about self-sufficiency farming system adopt by King Rama 9
1	How often does the learning center engage with the community?	The center engages with the community often, both through the workshops and the advice they give out.
1	In addition to Father Chan Are there other people who provide knowledge to the learning center?	Mr. Sai and also other teachers in the local community.
1	Are there any government agencies from whom you get support? - What is taught in the learning center?	They used to get support from the Thai government but after Covid outbreak, the giver cut the support.
1	What do you think are the factors that make your learning center unique?	We have many varieties of plants and people usually come here because we have knowledge about many types of plants. Sometimes people from universities come to us to grow exotic plants.
1	What is the average age of the young adults that participate in the center?	The average age of the young adults at the center is 18 and above.
1	Does the center have any products they sell?	The center has several products for sale.
1	What are the labeling like on these products?	It is a simple label, not very informative. It just says what the product is and how it is used.
1	Are there any workshops/programs that are geared towards young adults?	Yes, they have workshops for school students and they have other learning programs in school in that area.
1	What are the programs that are the most popular among young adults?	The workshop provides basic knowledge about farming and herbs are mostly popular among young adults
1	What current methods of advertisement do you use to attract young adults?	People mainly know about them through Facebook and some events that they joined.
1	Do you have flyers, a newsletter, social media, etc.?	Facebook
1	How often does the center use their FaceBook account?	Not very often, they post about once every several months, mainly during festivals and outings.
1	Do you host any promotional events to attract young adults?	They host several workshops for young adults.

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

Chulalongkorn University & Worcester Polytechnic Institute

1	What product is the most popular among young adults?	We have many products that we sell like balm and rice, but the most popular one among young adults is herbal oil.
1	Who made the packaging for these products	We made it ourselves. Just simple one because we are not good at designing
1	How has knowledge been transferred in the past between past leaders of the center?	The farming and herbal knowledge has been transferred through workshops and practices in the family and people in the community.
1	Is any knowledge written down or recorded?	They have a book written down explaining about herbs and their farming techniques.
1	What does a successor of the community center need to know (what types of topics)?	Herbal knowledge
2	How do you feel about being part of a family that has contributed to establishing the learning center?	He is a younger member of the local community (18), who is very passionate about agriculture. His primary and middle school had classes dedicated to agriculture, but his high school did not. His dream is to become a P.E. teacher, and he is currently trying to get into a sports science program in a university, however he still wishes to do agriculture
2	As a member of the founding family, what ideas do you have for making the learning center more appealing and engaging for other kids your age?	He says that agriculture is an 8/10 for him (in terms of how much he likes it). His friends are not that interested in agriculture, in fact, he is the only one in his class that showed any interest in it. All his friends want to work in more typical professions, such as becoming doctors or teachers. Some of them are interested in politics. He thinks that social media will help advertise the learning center and bring in more people.
2	How has your parent's work in the learning center affected your life or perspectives on herbal products?	He also thinks that the best product the learning center has is their vegetable cookies. In his opinion, a good age to start farming is 14-15. He thinks he has inherited about 20-30% of the agricultural knowledge from his father, just by helping him out on the farm. He also thinks that getting Thai FDA approval will help engage the young adults as it would make it seem like agriculture is something worth doing.
3	Do you want to work for/in the learning center?	Pok is an 18 year old student in Korat. His love of agriculture comes from both his parents being farmers. He started farming when he was 10. He would love to help.
3	Are you interested in inheriting the "local wisdom" of the older generation?	There is an agricultural learning center in his school which matches his interest. Most of his friends are interested in politics, only one of them is actually interested in farming.
3	What parts of the learning center interests you?	He once went to a summit at Nakhon Ratchasima as a province representative. He wants to continue studying about herbs, mainly about herbal oils.
3	In your opinion, how could we make the learning center more interesting for people your age?	He wants to be a traditional medicine practitioner in the future to spread his knowledge on herbs. He hopes that this will make the young adults more interested in herbs and agriculture. He wants social media to play a role in spreading herbal knowledge.

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

Chulalongkorn University & Worcester Polytechnic Institute

3	How would social media help in spreading herbal knowledge?	He said that since most of the young adults uses social media, it would be a great platform to post about herbal knowledge.
3	Do you use products from the learning center?	He said that the young adults are only interested in the products, not the agricultural process and methods.
3	How often do you come to the learning center or participate in the workshops?	He visits the learning center on occasion.
4	What is your opinion on the learning center?	She is one of the members of the local community that had undergone training programs in other learning centers, but thinks that the Nong Rang Burapha center has the best training program as it successfully gives job opportunities and knowledge to the local community
4	How often do you participate in the learning center's activities?	About once a month.
4	How did you find out about the learning center?	Most people in the community know about the community since the owner in the village is also well known in the village as most of the people there grew up together. They see each other as a family even though they are not blood related.
4	Why do you come to the learning center and how does it affect your life?	To learn about farming and raising cattle in a sufficient and sustainable manner.
4	How often does the learning center engage with the community?	Fairly regularly. They have their workshops that anyone can join, and we can also just ask them questions related to herbs whenever we want.
4	What benefit do you find from participating in the learning center?	Knowledge about planting and growing crops. It helps her with understanding ways of self sufficiency which help her to apply this knowledge to her farm.
4	What can the center do to increase young adult involvement?	Increase the amount of technology at the center.
5	Please explain the history of the learning center.	Received a budget from the Japanese government in 2006 to improve the accommodation buildings after a representative from the learning center contacted them. They are not a community enterprise, so they can afford to hire third-party workers to help maintain the farm; there are only about 5-6 full time members of the learning center. Mr. Pairat, the community representative, learned about herbs and farming methods from his teacher and other communities. This learning center is also in contact with our sponsor, and has worked together on multiple occasions, e.g. the summit at Chum Puang
5	How long has it been operating for?	Since 2006
5	How is the overall work of the learning center? What does it do?	He learnt about the fermentation of organic fertilizer using leaves (prior to this, the leaves were being burnt as a way of disposing of them). Through this program, he also learnt the ways of self-sufficiency as well as the principles of sufficiency economy.
5	Are there any government agencies that come to support the center?	The funding from Japan came from Mr Pairat's efforts of visiting and learning about agricultural techniques from all over the country. In 2006, a fund of 1,700,000 Baht was given specifically for the improvement of the buildings of

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

Chulalongkorn University & Worcester Polytechnic Institute

		the learning center. This funding was given for free with the aim to educate and progress the 34 rai learning center.
5	What is taught in the learning center?	There was also a student from Ratchapat University who came to take the learning program and learn how to raise cattle. One of the calves was sold at around 200,000 Baht. These cows are primarily raised for their dung, which can be used as fertilizer or as earthworm feed.
5	How prominent is the learning center within the community?	The reason they think the center attracts more young adults than other places is because they promote the activities of the learning center frequently. They also have connections to a “middle-man” organization that allows their products to be sold in more areas. Some people who come to the center for the program also ask to buy their products after seeing them.
5	Does the learning center sell any products?	The learning center also has about 4-5 experts that teach the programs. Most of the people that want to work here say that it is because of the good quality of resources and databases the learning center has access to, and it is also near the city. These people were previously teachers, so they wished to continue teaching others. When asked about why they did not consider expanding into the herbal market, they said that they do not have enough time, and there are already other places in the area that sell to the larger market.
5	How many young adults are involved with the center?	There was a traditional Thai medicine student that came to the learning center for the learning program.
5	How often do they participate?	The young adults visit at least once to twice a month.
5	What is the average age of the young adults that participate in the center?	Most are university students so most of them are above 18.
5	How involved is the average young person?	More than 10,000 young people are involved and engaged with this learning center.
5	Are there any workshops/programs that are geared towards young adults?	Yes, the learning program which helps them in gaining working experience, and the other workshops that give basic knowledge about agriculture to the young adults.
5	What are the programs that are most popular among young adults?	The hands-on learning program where the attendees stay at the center for 5 days and 4 nights.
5	What current methods of advertisement do you use to attract young adults?	They have a thriving social media presence, as well as frequent booth outings.
5	Do you have flyers, a newsletter, social media, etc.?	Baan Saeng Chan Learning Center has a Facebook account
5	Do you host any promotional events to attract young adults?	They host many events such as workshops, and learning program chances for university students. This makes university students and young adults attracted to this learning center. Many คนจ้่มstudents got a chance to learn and experience farming at Baan Saeng Chan Learning Center. There was also a student from Ratchapat University who came to take the learning program and learn how to raise cattle. There are more than 10,000

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

Chulalongkorn University & Worcester Polytechnic Institute

		students and young adults who work and are involved in this learning center's activities.
5	How has knowledge been transferred in the past between past leaders of the center?	The ministry of agriculture has given the learning center funding to improve the learning program in the past. The learning center also has boars and chickens, which are raised as food/sold off. Their dung can also be used as fertilizer. They are not a community enterprise and so they view profit as one of their goals.
5	Is any knowledge written down or recorded?	Yes it is, he has a section on a local magazine called "Hug Buriram".
5	What could a successor of the community center need to know (what types of topics)?	The daughter of the owner went to work elsewhere. She might come back when she retires. But the owner doesn't have solid plans on this decision. He is also not too worried about her not inheriting the learning center.
6	What marketing strategies would you recommend to appeal to young adults in today's society?	Target the new customer → know the product → target the existing customer. Try to find what the current young adults that uses the product likes about the product. Ask existing customers → marketing concept, existing data from existing customers, let potential new customers try the product and see the response, explain what might be special about the product to these new customers.
6	How can we account for changes that occur over time with style and packaging trends?	Think about modern packaging and competing products that are in the market. Ask customers which design they prefer and why.
6	How can we appeal to a new audience while also maintaining old customers at the same time?	<ul style="list-style-type: none"> Ask existing customers if they will use the product/if they will still like it with the new packaging Look at existing products that target both younger and young adults for ideas
6	If a product is not unique among its competitors, how can it be made to seem appealing without changing its formula?	Use promotional materials, phrases like "locally grown", information about where the herbs are grown, etc.. <ul style="list-style-type: none"> Specify where the product is local to Which herbs are the most effective Add something to make it more effective/unique Terms such as "organic", "non-GMO", "natural"
6	Do you think a QR code on a product bottle advertising the community center would gain people's attention?	<ul style="list-style-type: none"> Depends on customer habits Maybe use key terms to attract customers/convince them to scan the QR code
6	How effective is packaging in attracting young adults and new customers in general?	<ul style="list-style-type: none"> Depends; has worked in other cases, but isn't the only option In this case, changing packaging is a good idea Use packaging to tell a story Won't see overnight success with new packaging; other factors must be there too Add specificity/cater to audience Compare product to market competitors
6	How can the packaging help sustain young adult engagement in the center long-term?	<ul style="list-style-type: none"> Packaging can help grow the local community that is using income for the product. Sustaining young adult engagement will require storytelling

Burana, Despongichit, Foucault, Grissom, Horrocks, Ponomarenko, Prothongnak, Tangsiriwattanakul

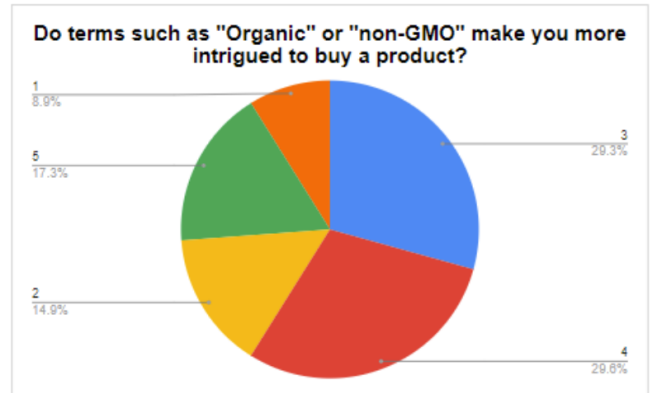
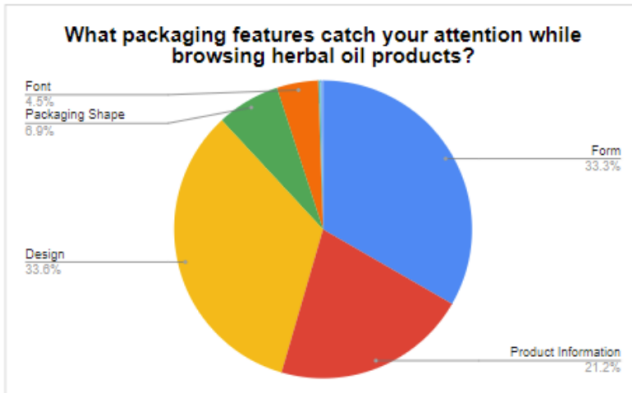
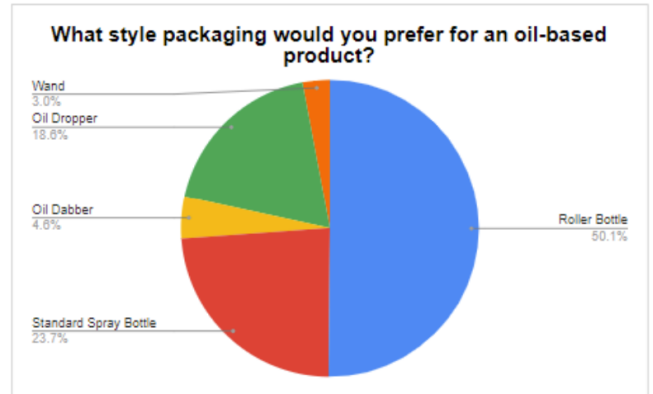
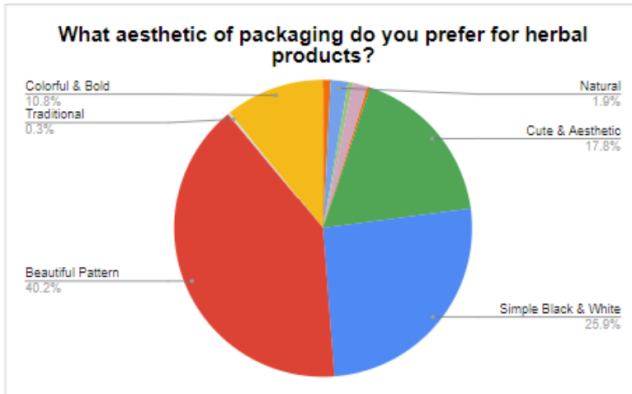
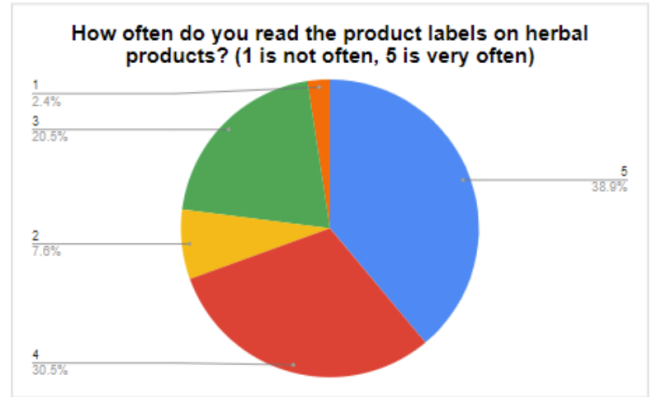
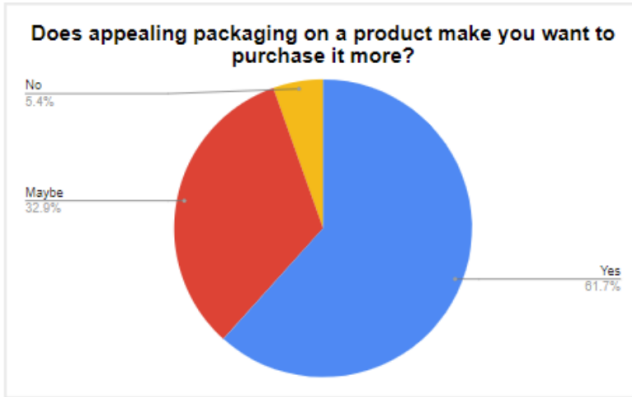
		<ul style="list-style-type: none"> • Unlikely that packaging alone will sustain young adult engagement; can help gradually increase engagement over time with other marketing methods • Transfer marketing knowledge to the sponsor so they can sustain progress
6	How can the price of the packaging balance the risks vs. rewards of increased price?	<ul style="list-style-type: none"> • Estimate the cost for one batch of product and then add 10% for labor costs • Go back and forth between prices before settling to see what maximizes profit
7	What is InnoHerb's role as a company?	<ul style="list-style-type: none"> • RD convey technology • Receive questions from the private sector, consult with a consultant about herbal products. • Analyze and test, such as finding active marker
7	How do you benign Thai FDA approval for an herbal product?	<p>Herbs Product is divided into:</p> <ol style="list-style-type: none"> 1. Food supplements 2. Herbal tea 3. Beverages which is in the food law category 4. Cosmetics use the notification form of the NCPO Act 1992/2015. 5. Hazardous substances ex herbicide 6. Narcotic substance ex cannabis 7. Medical equipment 8. Herbal medicine does not need to be registered if it has not been processed. 9. Medicine according to traditional knowledge (Thai traditional medicine) 10. Medicine developed from herbs, changed form 11. Health products, cosmeceuticals: cosmeceutical Structural skin verification is required.
7	What laws and regulations are in place regarding herbal products?	<p>Act 2019</p> <p>Category A: Medicine according to previous knowledge Divided into Thai traditional and Chinese traditional, must follow the recipes</p> <p>Category B: Medicine developed from herbs</p> <p>Category C: Health supplements</p>
7	What roadblocks will one reach when registering a product with the Thai FDA?	<p>Registration differs in the documents that must be submitted.</p> <p>Some research cannot be registered because it has not passed the Thai FDA.</p> <p>Ex research provides greater Pharma</p>
7	What is the permission process for herbal product approval?	<p>Permission process:</p> <ol style="list-style-type: none"> 1. Notify the Thai FDA Properties must be stated. There is a positive list of chemicals and ingredients that automatically pass this step. Look at the products notified in 2021. 2. Product details Formulas and portions must be stated. If there are any deviations from the original formula, it must be stated. 3. Register Submit relevant documents to check quality, safety, efficiency

Preserving the Herbal Wisdom of the Baan Noan Rang Burapha Community Center

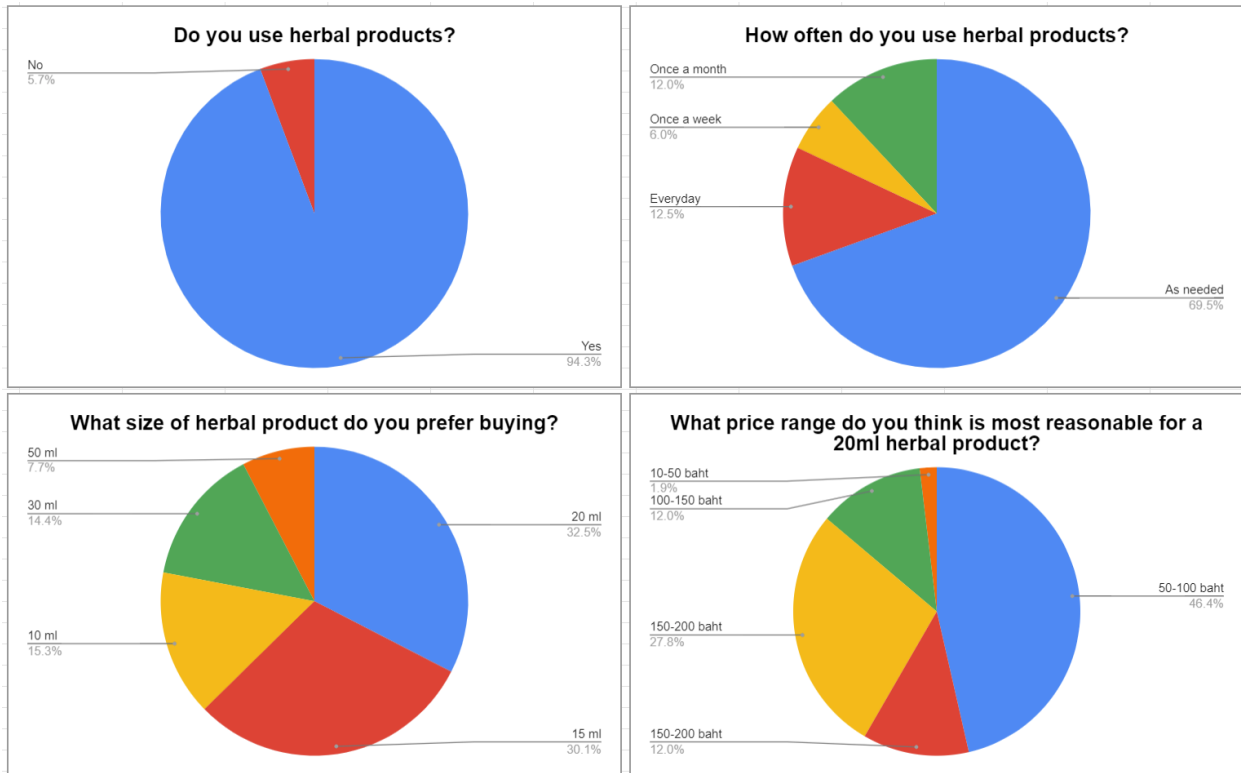
Chulalongkorn University & Worcester Polytechnic Institute

7	How could someone gain funding for an herbal product approval plan?	<p><u>Funding sources:</u></p> <ul style="list-style-type: none">• BAAC : Agricultural Bank• EGAT : Electricity Generating Authority of Thailand• BPT• NIA
7	Is Thai FDA approval feasible for our project at this time?	Realistically it is not feasible for us within the timeframe and budget constraints we have. The interviewee mentioned that we would need a company to come and assess the learning center prior to anything so it may be difficult to even begin the process...

8.2 Survey 1 Charts



8.3 Survey 2 Charts



8.4 GMP Checklist: Approval Documents

	List of documents to submit a registration request Medicine from herbs (Thai traditional medicine and medicine developed from herbs)	Items to be submitted	
		Thai traditional herbal products	Medicine developed from herbs
	Section 1. General documentation and product information		
1.	Notification form for the production or importing of herbal products (refer to ตย.1)		
2.	Photographs of herbal products (color photos)		
3.	Product labels and documentation		
4.	Approval Certificate		
4.1	Certification letter for the recipient certificate of registration for monitoring the safety of herbal products		
4.2	Certification of quality control of herbal products, requesting registration of the licensee's herbal products.		
4.3	Letter giving consent to collect and disclose personal information for the process of submitting a request for permission according to the Herbal Products Act 2019.		
5.	Copy of license to produce herbal products that have items allowed in the category of traditional Thai medicine or medicine developed from herbs and medicine forms that are according to the category and form of medicine submitted for application (for example, request for production of traditional Thai medicine category, hard capsule form; therefore in the production license must specify the category of traditional Thai medicine, hard capsule format too)		

	<p>Section 2: Documents showing standard quality information of the finished product.Part 2:</p> <p>Documents showing standard quality information of the finished product.</p> <p>Testing topics (Testing parameters) according to product types</p>		
6.	<p>Certificate of Analysis of the product issued by the laboratory that defines (original) at least 1 production version with the test subject according to the product format. There must be at least the following items:</p> <ol style="list-style-type: none">1. Name and form of herbal product2. Production date and production time of the herbal product3. Test date4. Date of test results report5. Test topics6. Test method7. Benchmark8. Test results9. Name and signature of the person certifying the test results.10. Name and location of the testing laboratory.		