

21 October 2021

EFFECTIVE FARMER COMMUNICATION: A critical component of achieving IPM

Part 3b: Pesticide Behaviour, Decision-making & Communication



Time	Agenda Item
15:00	Introduction
15:05	Lucy Carter, CSIRO Land & Water Australia Understanding agrichemical use in SE Asian agriculture: Lao PDR and Viet Nam
15:20	Q & A Session
15:30	Yingxue Ren, TianGong University, China Factors influencing Chinese farmers' proper pesticide application in agricultural products – A review
15:40	Q & A Session
15:50	Putra Indika, ASEAN FAW Action Plan Food for thought: Investigating financial factors impacting on the choice of pesticides - Indonesia
15:55	Q & A Session
16:00	Eve Bureau-Point, Centre national de la recherche scientifique Marseille (CNRS) The social construction of the pesticides' problems in Cambodia
16:10	Q & A Session
16:25	Delisa Jiang, CropLife Asia Future studies: Pesticides and Farmer Behaviour: Viet Nam
16:30	David Hughes, Swansea University United Kingdom Future Studies: Pesticides use and health impacts on farmers in Thailand, Vietnam, and Lao PDR
16:35	Errol Perera, Consultant to the ASEAN Secretariat Future studies: ASEAN agrochemical stocktaking project
16:40	Q & A Session
16:50	Thomas Jaekel, CIM/GIZ Closing Thoughts: The Big Picture
16:55	Alison Watson, ASEAN FAW Action Plan Summary
17:00	Close

A recording of the webinar will be made and be distributed 1 week after this session

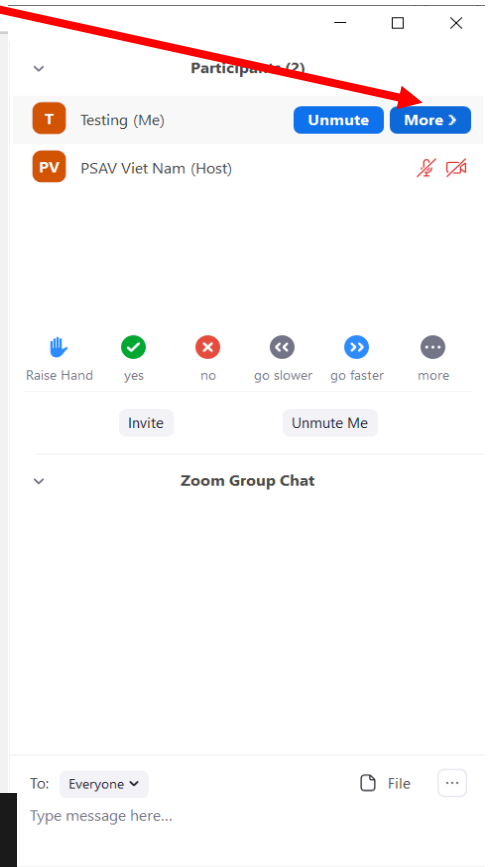
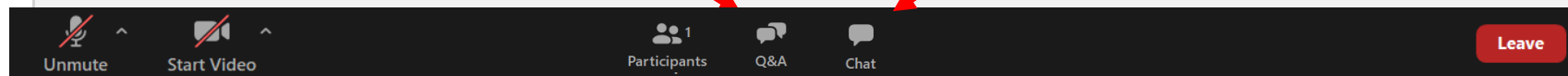
1. Technical issues:

- Try logging off and on
- Send a message to “Grow Asia” in the Chat

3. **Rename** yourself under “More” using the format “Name (Organization)”

2. Use the **Q&A box** to ask questions to the speakers

4. Use **Chat** if you want to just make a comment to everyone (e.g. thank a speaker, share a link, highlight an important point)



ASEAN Action Plan on FAW Farmer Communication Workshop Series

A four-part series to catalyse action on the development and design of more effective farmer communications on IPM and FAW control

- **Session 1:** Behaviour
- **Session 2:** Communication Channels
- **Session 3A & B:** Pesticide Use & Behaviour
- **Session 4:** Best Practice

Register at: <https://www.aseanfawaction.org/events>

Case-Studies: We want your case-studies and examples – contact us at faw@growasia.org

Interactive

Give us your feedback and questions in the farmer communication forum at:

<https://www.aseanfawaction.org/forum/farmer-communication>

(if you wish to have a certificate of participation you must subscribe to the farmer communication forum and either ask a question, share something interesting about farmer communication like an example of something you noticed that worked well, or note something you found useful in the workshop)



Community

Join our community through our blog, interactive forum, or by sharing more about your organisation and activities.

FORUM



This is your opportunity to ask questions, share ideas and experiences and talk about how to manage FAW in the region using integrated pest management approaches

Forum

Any problems email: faw@growasia.org

Once you have completed this step please email faw@growasia.org to request participation certificate and please say which sessions you need a certificate for.

3.



Farmer communication

Following

42 8

How can we best communicate with farmers to ensure access to information on how to control FAW and improve IPM?



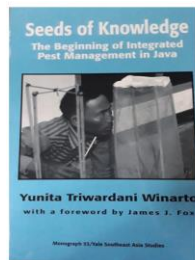
The importance of understanding farmer decision-making

Behavioural drivers of agripest control are key for sustainable agriculture

Dr Aditi Mankad

Senior Research Scientist

Team Leader, Biosecurity & Biotechnology



"We are like plants. The government sowed the seeds, but they did not watering the plants" 2004

The "Trap of Pesticide Use" & the Struggle to Get Out of the "Trap"

Yunita T. Winarto
Anthropologist - Universitas Indonesia & the Academy of Indonesian Sciences

"The Behaviour of Pesticide Purchasing and Use"
Workshop Series on ASEAN Action Plan on Fall Army Worm Control

ASEAN FAW Action Plan 7th of September 2021



Pesticide education and training programmes: Cambodia

Dr. Seng Kim Hian

Agronomy Director, iDE Cambodia

skimhian@ideglobal.org

<https://www.ideglobal.org>



Farmers' knowledge, attitudes, and practices on synthetic pesticide use in Thailand, Cambodia, Vietnam and Laos

Srinivasan Ramasamy
Flagship Program Leader - Safe & Sustainable Value Chains &
Lead Entomologist
World Vegetable Center (WorldVeg)
Shanhua, Tainan, Taiwan
srini.ramasamy@worldveg.org

Part 1: 7 September 2021

<https://www.aseanfawaction.org/farmer-communication>

PESTICIDE DEMAND AND INFORMATION: EVIDENCE FROM ZAMBIA AND MYANMAR

JOSEPH GOEB

MYANMAR AGRICULTURAL POLICY SUPPORT ACTIVITY (MAPSA)

SEPTEMBER 7, 2021

MICHIGAN STATE UNIVERSITY





Photo credit: Vietnam News Agency



Understanding agrichemical use in SE Asia: Laos PDR and Vietnam

Farmer Communication Workshop Series, ASEAN FAW Action Plan, 21 October 2021

Dr Lucy Carter, CSIRO
Australia, in collaboration
with Laos and Vietnam
project partners



Research overview

The project aims to understand how farmers access, use and dispose of agrichemicals, and why.

- Farmer beliefs and knowledge around risks and benefits of agrichemical use;
- The systems, processes and relationships that influence what the farmer does. E.g., how they access information, products or services.
- Using case study method to structure the research.



General findings from literature review

- Despite formal regulations and emphasis on agricultural extension, the **governance of agrichemical use (especially pesticides)** at the local level is relatively weak.
- A number of **social and economic transitions play into household practices** around agrichemical use (e.g., climate change, increased commercialisation, changing labour roles, etc)



Photo credit: LURAS – Laos Upland Rural Advisory Services

General findings from literature review

- **Market drivers** such as product appearance/quality, price and consumer expectations have been observed to **influence agrichemical use**.
- **Agrichemical users are often viewed as having primary responsibility** for effective, safe use and carry the burden of exposure risk.



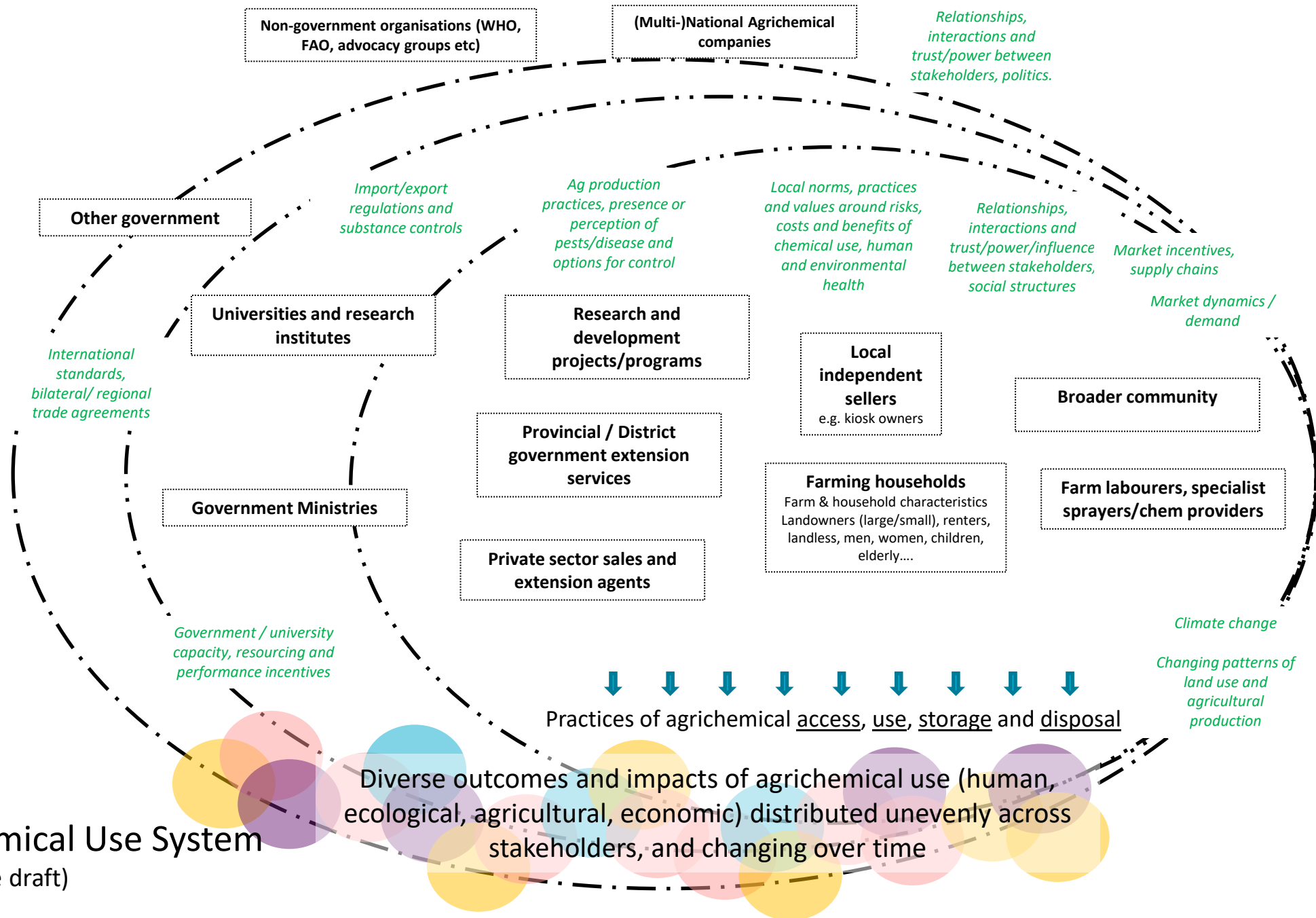
<https://nongnghiep.vn/do-thuoc-tru-co-chieu-gian-lan-nguy-hai-d239614.html>

General findings from literature review

- Personal protective equipment (PPE) is identified as important for risk reduction although **equipment can be substandard, not aligned with farmer comfort, or risk beliefs.**
- Users of agrichemicals are often aware of risks, but these risks are not evaluated in isolation. **Risks are considered against a much larger set of risks, values, and needs** that shape agrichemical use.



Photo credit: PHUNUTODAY



Agrichemical Use System
(incomplete draft)



Case study sites

**Đông Anh District,
Hanoi Province**

**Mộc Châu District,
Son La Province**

**Nonghed District,
Xiangkhouang Province**

**Hadxayfong District,
Vientiane Prefecture**



Risks and opportunities

1. **COVID-19 risks to researchers and communities**

2. **Risks of disclosing illegal or unsafe activity**

Participants (mostly farmers) – risk of being fined or punished based on information they provide;

Local officials (eg. extension)

– risk of shaming or punishment for people in their area of responsibility for not following guidelines.

- A shift to remote methods has created opportunities for research innovation
 - Using PhotoVoice methodology shifts some power from researcher to research participant, potentially reducing risk
 - Not without challenges!

Shift to remote (qualitative) data collection methods

Research component	Review of secondary data	Qualitative interview	Photo voice
How much are agrichemicals used in the study area?		✓	
What are the broad drivers of agrichemical use in the study area?	✓	✓	Users of agrichemicals (farmers, labourers)
What are people's perceptions and beliefs about agrichemicals? How does this influence how they use them?		✓	✓
How do people get information and guidance on agrichemicals? Where/how do they get/buy them?	Sellers/private sector Extension staff Local leaders Higher-level stakeholders	✓	✓



Thank you

Dr Lucy Carter (Project Leader)
Senior Research Scientist, CSIRO Land and Water
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lucy.carter@csiro.au



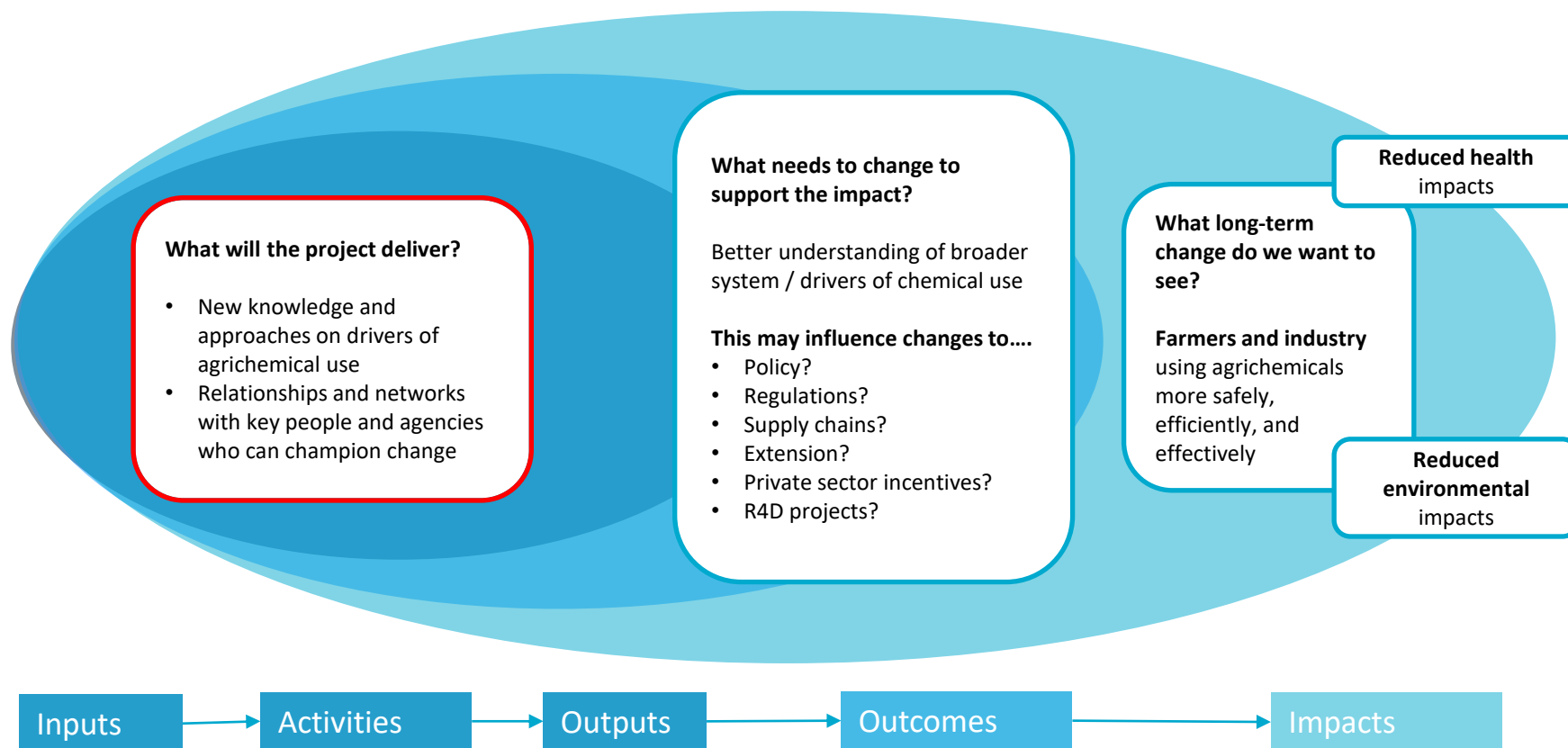
Dr Lucy Carter (CSIRO, Australia)
Dr Liana Williams (UTAS, Australia)
Dr Monica van Wensveen (CSIRO, Australia)

Dr Nguyen Van Liem (PPRI, Vietnam)
Dr Nguyen Van Tuat (PPRI, Vietnam)
Dr Phan Thuy Hien (NIMM, Vietnam)

Dr Nguyen Nga (VNUA)
Dr Duong Nam Ha (VNUA)
Dr Nguyen Anh Duc (VNUA)
Dr Pham Van Hung (VNUA)

Dr Phonevilay Sinavong (NAFRI, Laos)
Dr Phetmanyseng Xangsayasane (NAFRI, Laos)
Dr Siviengkhek Phommalath (NAFRI, Laos)
Dr Thongkhoun Sisaphaithong (NAFRI, Laos)
Oula Boupkakaly (National University of Laos)

How the project will contribute to change



Questions and Answers

Lucy Carter, CSIRO Land &
Water Australia

**Understanding agrichemical
use in SE Asian agriculture:
Lao PDR and Viet Nam**

Please use the Q & A Box to ask
questions to our speakers





Factors influencing Chinese farmers' proper pesticide application in agricultural products – A review

❖ Yingxuan Pan ^{a,1}, Yingxue Ren ^{b,1}, Pieter A. Luning ^{a,*}

❖ ^a Food Quality and Design, Department of Agrotechnology and Food Sciences, Wageningen University, P.O. Box 17, 6700 AA, Wageningen, the Netherlands

❖ ^b Management Science, School of Economics and Management, TianGong University, 300387, Tianjin, PR China

Content

- ❖ Introduction
- ❖ Theoretical background
- ❖ Analytical framework
- ❖ Results & discussion
- ❖ A step-wise intervention approach

Introduction

- ❖ Why use pesticide?
- ❖ 33% of worldwide agricultural products are saved.
- ❖ The other side of the coin: pesticide residue
- ❖ 2473 food alert notifications in fruits and vegetables concerned about pesticide residues between 2015-2020 in Europe (RASFF, 2020)

以残留农药为由 日本再次禁止进口中国冷冻菠菜

<http://www.sina.com.cn> 2003年05月21日16:12 中国新闻网

中新网5月21日电 以中国蔬菜残留农药为由，日本厚生劳动省禁止进口中国产冷冻菠菜。

据日本共同社报道，横滨、东京两地检疫所最近检查出两例中国进口菠菜中毒死蜱(Chlorpyrifos)超标。厚生劳动省20日对日本进口业者再次提出了2月解除的禁止进口的要求。

据悉，日本厚生劳动省同时要求中国方面禁止违规生产商的出口。

今年2月份，日本官方曾向进口业者发布指示，鉴于中国加强了菠菜生产的卫生安全对策，故解除实行了半年之久的进口限制，但在进口时继续实行最严格的检查。

另据报道，中国食品土畜进出口商会会长曹绪岷较早前曾指出，由于日本每年进口四到五万吨菠菜中的99%来自于中国，因此日本政府对中国的菠菜出口采取的措施带有明显的歧视色彩。日本当局通过增加抽样次数等手段使中国蔬菜的检验费从原来每批次5万日元一跃至80万日元，高额的费用以及因为放慢通关引起的蔬菜保鲜品质下降，使得日本进口商陆续取消对中国的定单，从而达到限制中国蔬菜进口的目的。

Introduction

❖ China, one of the biggest producers and users of pesticides (R. Xu, Kuang, Pay, Dou, & de Snoo, 2008).

❖ Pesticide contamination in food, one of the main causes of food incidents in China (Song, Li, & Zhang, 2014).

❖ Many cases of export rejection because of pesticide residues (Wen, Yang, Dong, Fan, & Wang, 2018).

❖ Pesticides are intrinsic toxic to human in both high and low dose (Hernández, Parrón, Requena, Alarcón, & López-Guarnido, 2013).

❖ **Pesticide residues in food, a noteworthy food safety issue in China**

Possible causes



<https://www.ishn.com/gdpr-policy?url=https%3A%2F%2Fwww.ishn.com%2Farticles%2F104649-pesticides-linked-to-respiratory-problems-in-farmers>



<https://arstechnica.com/science/2012/04/bugs-pick-up-pesticide-resistance-from-pesticide-eating-bacteria/>



Demarcation



Fruits & vegetables



Chemical pesticide

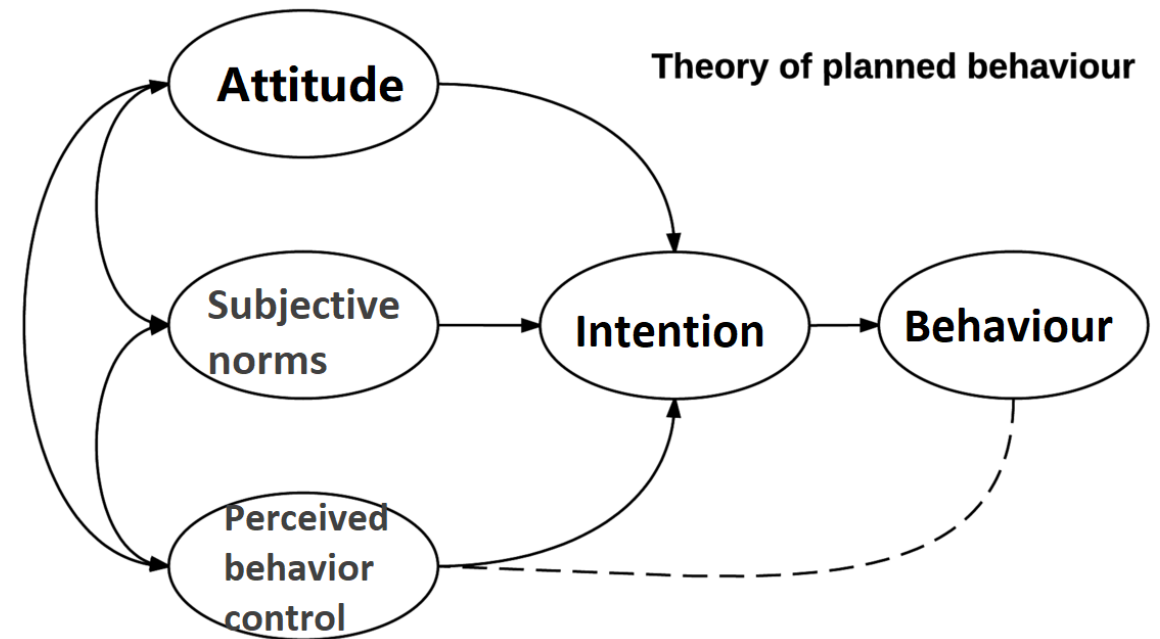
A person wearing a white full-body protective suit, hood, and respirator mask is walking through a vineyard. They are carrying a red backpack sprayer and holding a long-handled spray wand. A thick, bright yellow mist or spray is being emitted from the wand, partially obscuring the person and the background. The vineyard rows are visible on either side, with green leaves and some yellowing foliage. The scene is brightly lit, suggesting a sunny day.

Theoretical background

Theory of Planned Behavior (TPB)

❖ TPB explained that a person's **intention** to conduct a behavior is the outcome of **attitudes** toward the behavior, **subjective norms**, and **perceived behavior control**; and his/her intention combined with perception of behavioral control leads to the actual behavior (Ajzen, 1991).

❖ Studies on health-related behavior, hygienic food handling, organic farming, and farmers' pesticide use.



(Ajzen, 1991)

Techno-managerial approach

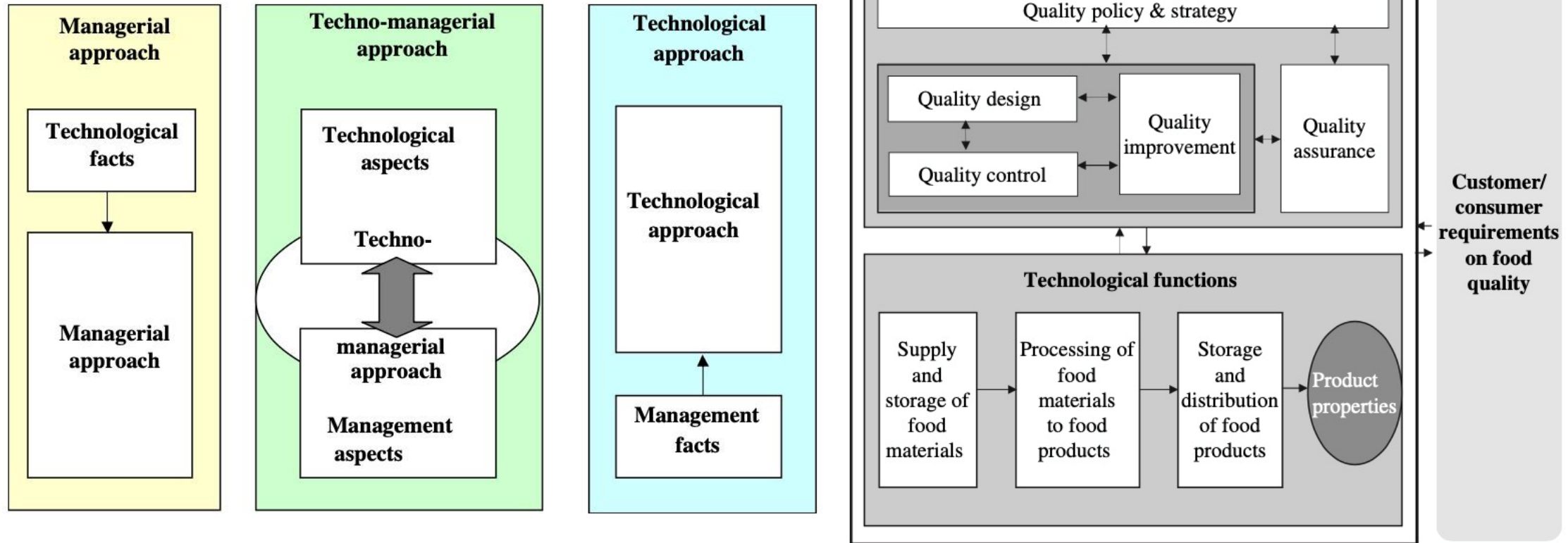
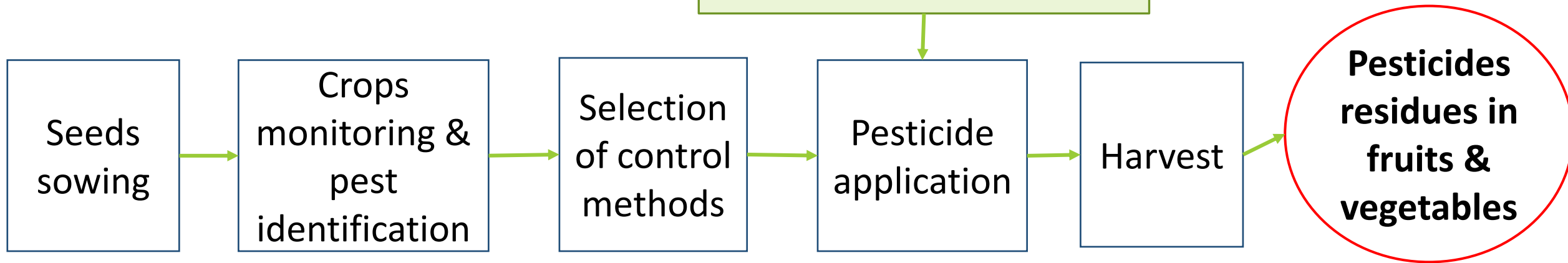


Fig. 1. Food quality management functions model (modified from Luning *et al.*, 2002).

Primary production & pest control activities

Primary Production



(1) Literature study



❖ Search & selection strategy:

- published articles about pesticide application in China.
- **Scopus database**, studies published within **10** years, from 2009 until now
- Keyword: ["pesticide use" AND "China"] or ["pesticide application" AND "China"]

❖ First round yielded 267 outcomes

❖ 2nd round excluded

- design, optimization of equipment parameters,
- ecology and environment related issues,
- clinical, medical, risk exposure and health related issues,
- pesticide dosage corresponding to pest sensitivity and crop yield related issues,
- genetic modification and related technical modified seeds and plants,
- pest and disease of crops and planting improvement issues,
- methods/technologies of analysis and detection,
- fertilizers and herbicide use
- planting model or system like rotation, rick-dusk system.



(1) Literature study

❖ 3rd round – full text

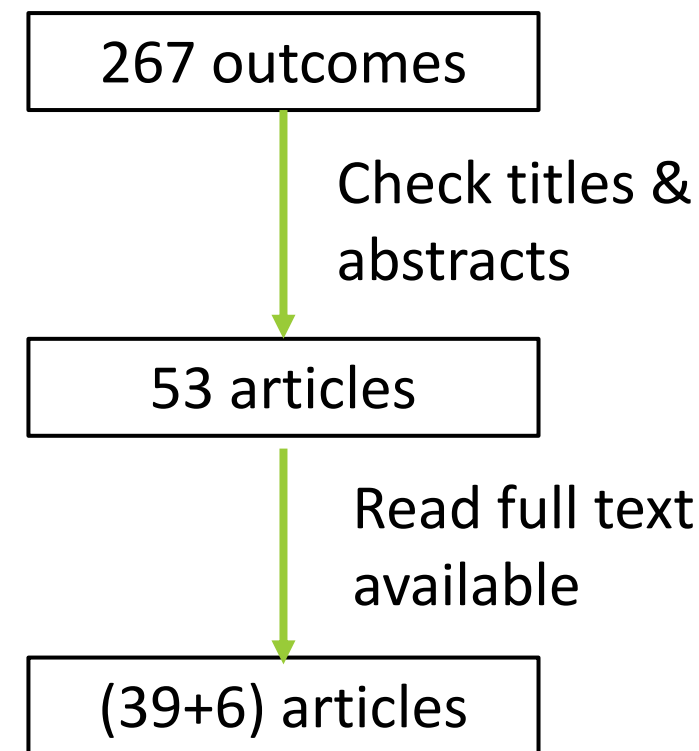
- Re-check based on the 2nd round criteria
- Excluded unavailable articles

❖ Critical appraisal – extract information

- Read full texts of articles thoroughly;
- Extract information about factors influencing farmers' pesticide application and the reasonings based on the developed framework.
- Summarize in a table (overall results)

❖ Major revision round – full text

- 6 recent published articles added



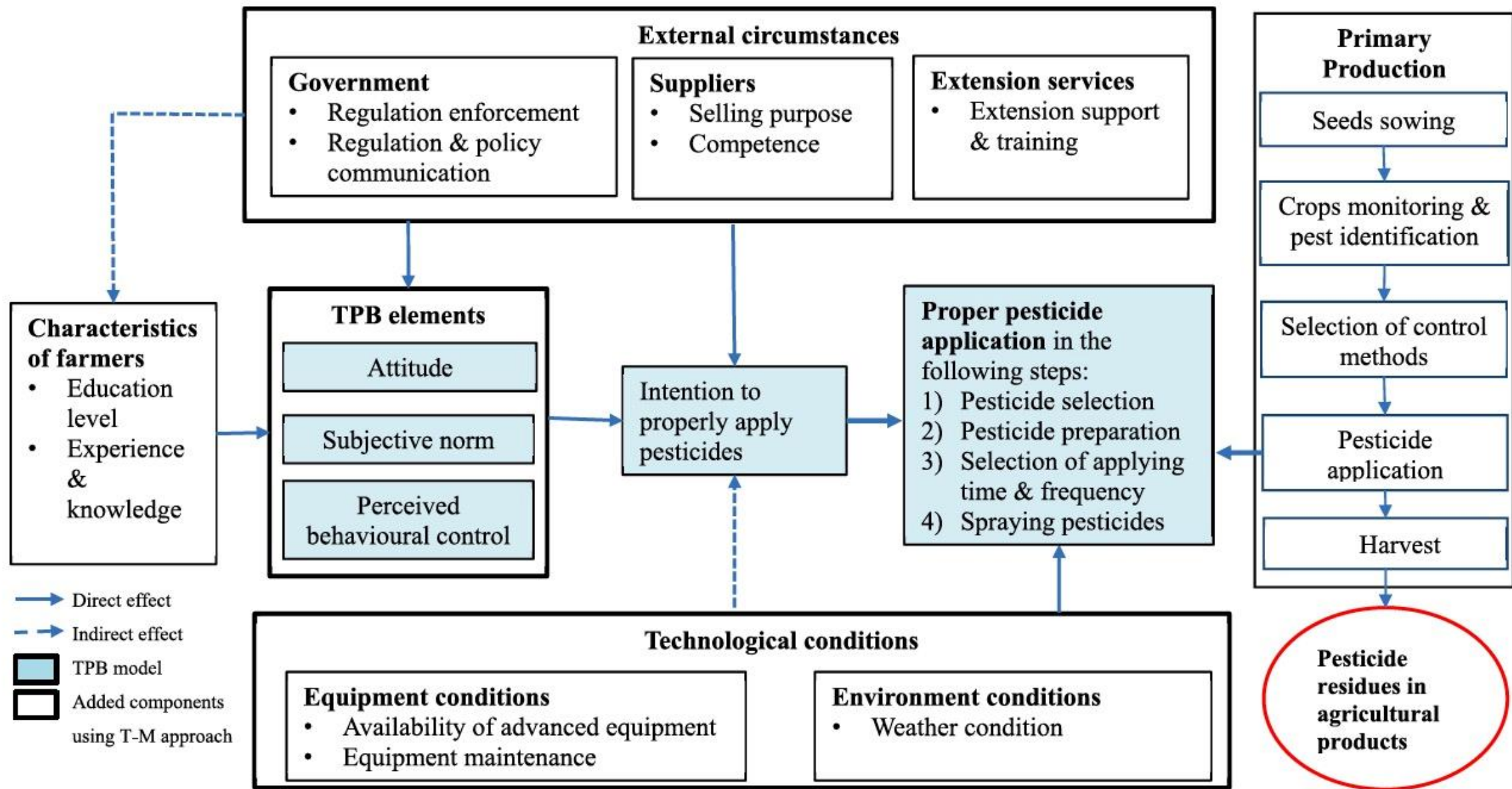


Fig. 1. The analytical framework of factors influencing farmers' pesticide application.

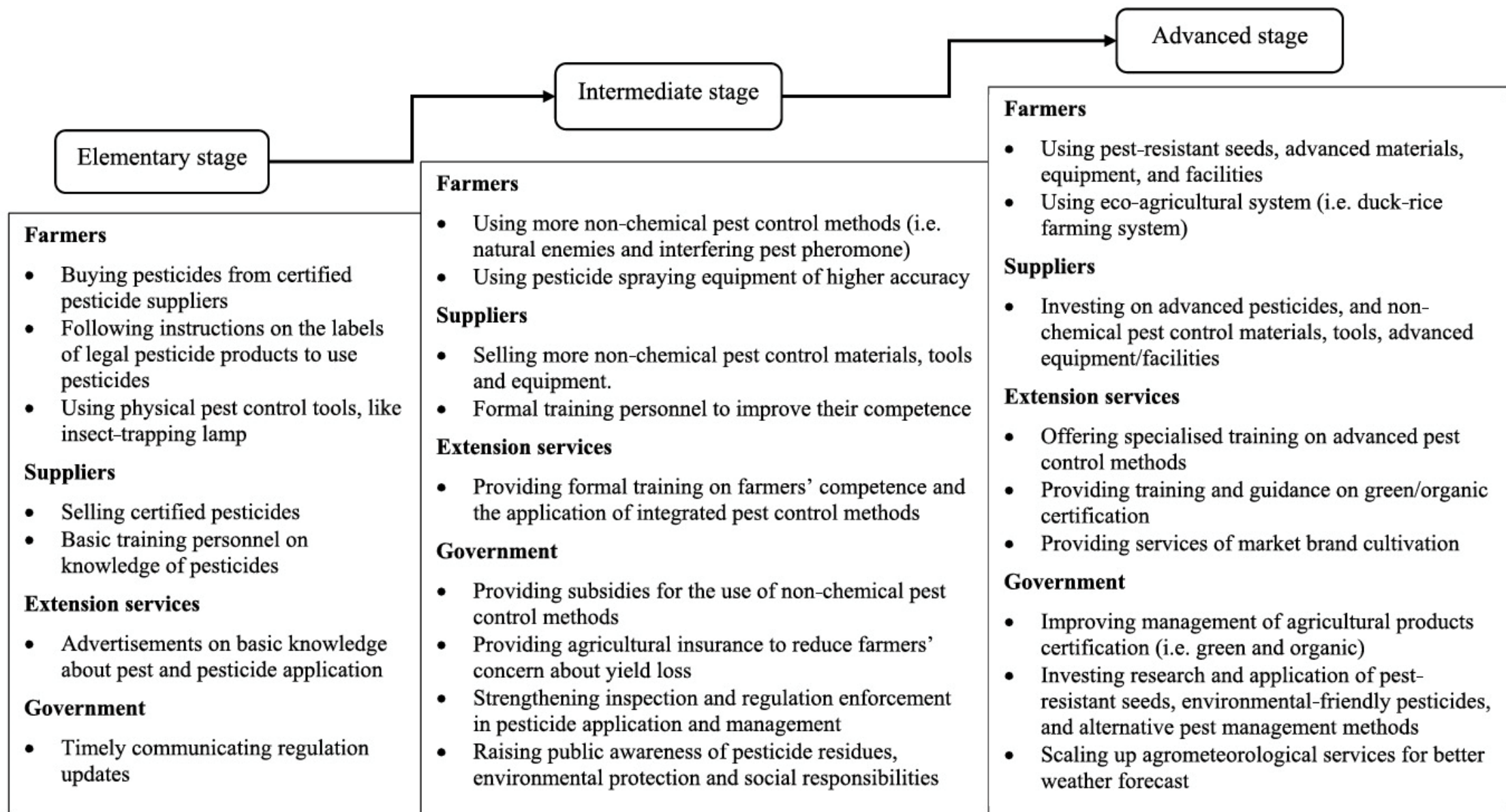


Fig. 2. Stepwise interventions at different development stages in mitigating pesticide residues.

Questions & suggestions



Questions and Answers

**Yingxue Ren,
TianGong University,
China**

**Factors influencing
Chinese farmers' proper
pesticide application in
agricultural products – A
review**

Please use the Q & A Box to ask
questions to our speakers





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serviens in lumine veritatis



Investigating financial factors impacting on the choice of pesticides - Indonesia

Ignatius Putra Andika

Department of Biology, Faculty of Biotechnology

University of Atma Jaya Yogyakarta

Indonesia



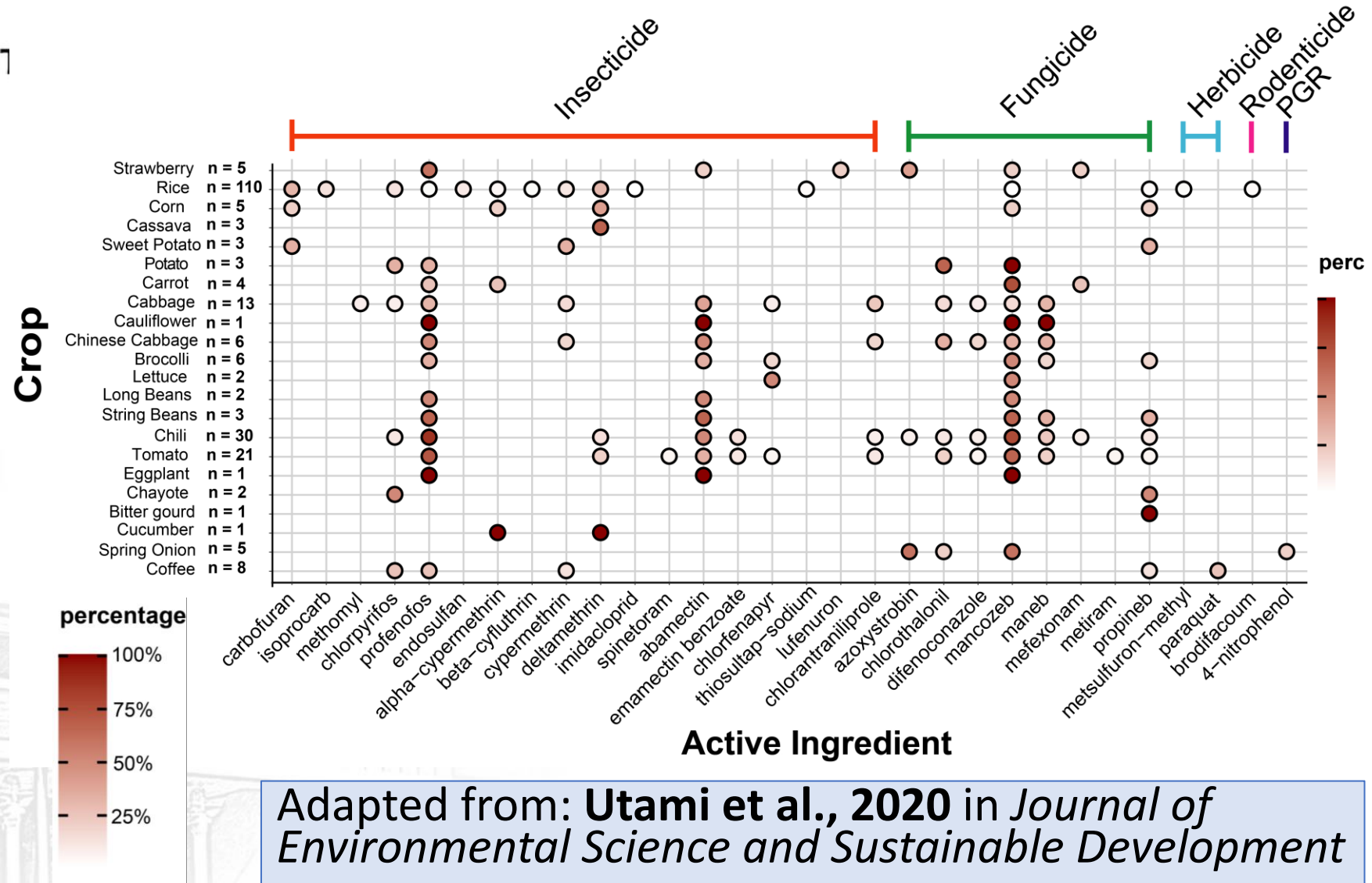


How farmers select pesticides

- Pesticide Salesperson
 - Events, giveaways
 - Bias towards certain brands
- Agriculture Stores
- Peer Influence
 - “Their neighbor’s field looks great; I want to use what they use”
 - “What do you use?”
- Information from Extension Officers
 - Extension Officer from a certain region reported that they were not allowed to state specific brands. Unfortunately, do not know if this is a regulations
- **Availability vs Market Demand – what does it look like?**

Citarum River farmers

- Different crops have different trends
- Most focus on **organophosphates** and **pyrethroid**



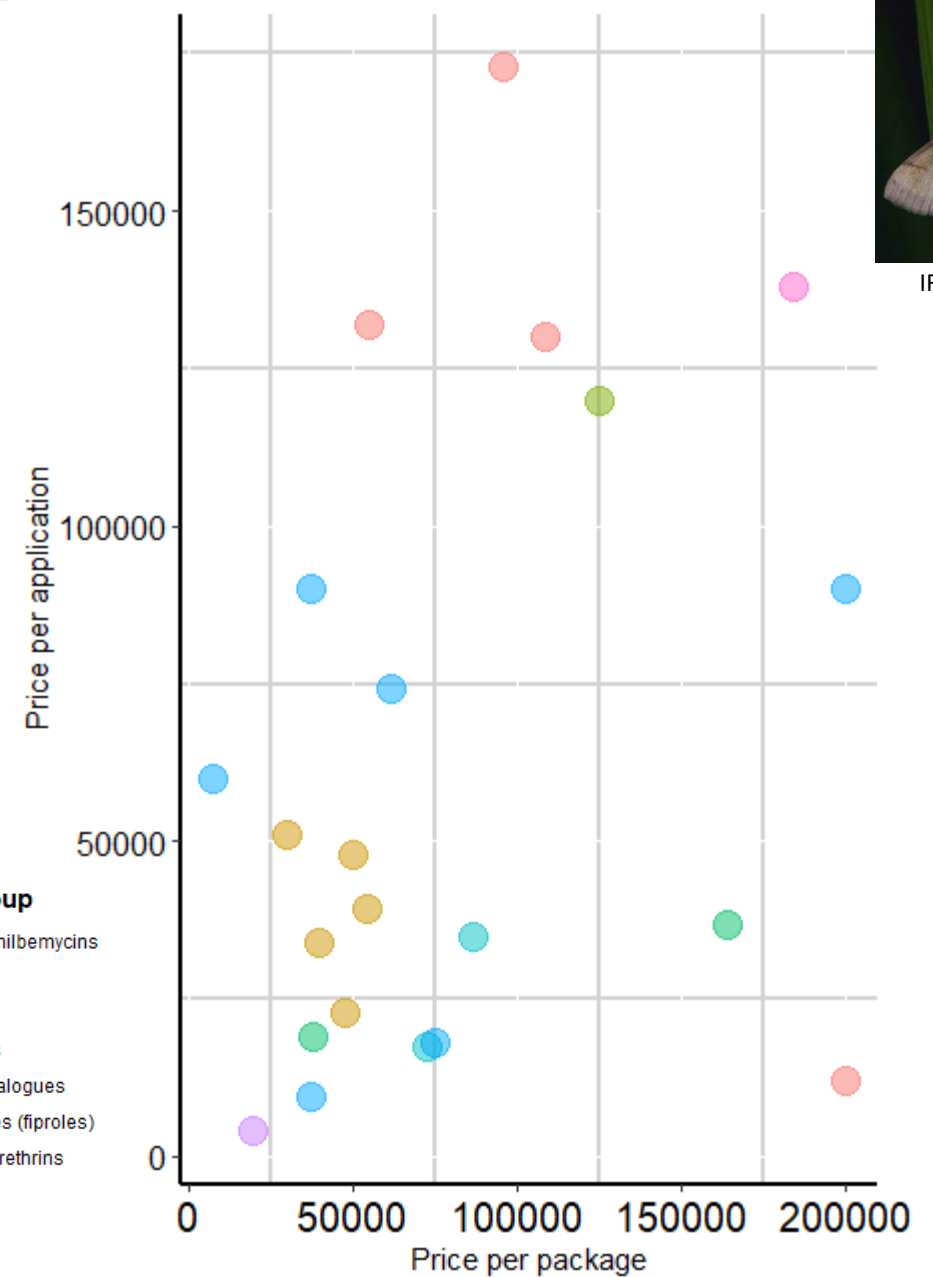
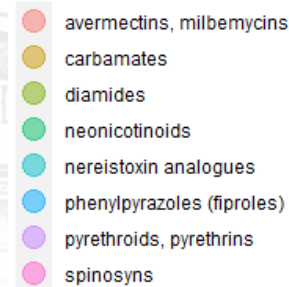


IRRI – Rice Doctor

Price per application – *Cnaphalocrosis medinalis* in Rice

- Carbamate and pyrethroid were cheaper/application
- Per application of these newer insecticide groups are more expensive
- + wide target range
- How about other pest/crops?

Insecticide group





Food for thought

- More available insecticide groups = easier to access
- **Cheaper price per application + wide range = maybe more attractive?**
- If price does not matter, who is asking?
- Other factors to consider
- Reducing pesticide use overall important – only when absolutely needed

Terima kasih
Thank you



uajy



Universitas Atma Jaya Yogyakarta



www.uajy.ac.id

Poll (anonymous)

1. Would a pesticide tax be a useful component of an optimal pesticide policy?
2. Should taxation be related to pesticide toxicity?
3. Would subsidies/incentive for pesticide alternative actions and technologies help farmers to reduce pesticide use?



Your thoughts?

Share them in the chat and get the
discussion going...

The social construction of the pesticides' problems in Cambodia

Eve Bureau-Point

CNRS, Centre Norbert Elias, France

GrowAsia, Workshop 3B: Pesticide Behaviour, Decision-making & Communication, 21 October 2021

Introduction

- awareness of the exponential use of chemical in agriculture is profoundly changing the human being

Introduction

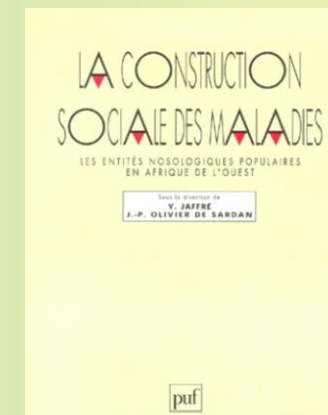
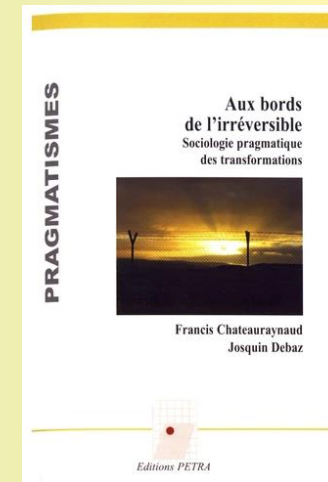
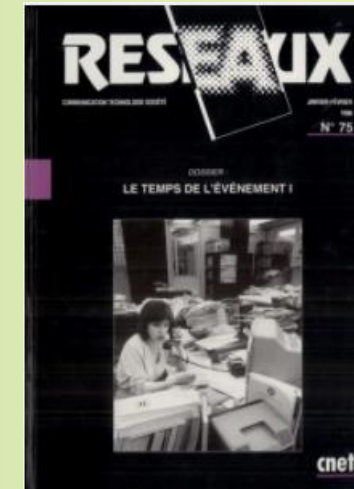
- awareness of the exponential use of chemical in agriculture in Cambodia is profoundly changing the human being
- pesticides became a key issue to understand social changes in Cambodian society

Introduction

- awareness of the exponential use of chemical in agriculture in Cambodia is profoundly changing the human being
- pesticides became a key issue to understand social changes in Cambodian society
- My research is focused on social dynamics, more especially on the social construction of health problems related to pesticides in the context of Cambodia

Theoretical framework

- Cefaï, D., 1996, La construction des problèmes publics. Définitions de situations dans des arènes publiques, *Réseaux* 14 (75), pp. 43–66.
- Chateauraynaud, F., J. Debaz, 2017, *Aux bords de l'irréversible : Sociologie pragmatique des transformations*. Editions Pétra, 646 p.
- Jaffré, Y. ; Olivier de Sardan, J. P. (1999). *La construction sociale des maladies. Les entités nosologiques en Afrique de l'Ouest*, Paris : Presses Universitaires de France.



Methods

	Phnom Penh	Battambang	Kandal	Svay Rieng
Rice farmers		12		2
Mango farmers			6	
Vegetables farmers		3	8	5
Residents		1	1	
Input sellers	5	5	3	1
Rice and fresh vegetables retailers	13	3	2	4
Health professional	2	2	4	2
State officers	10	2	1	
IO/NGO representants	9	3	1	2
Urban citizen	8	3		
Total (113)	47	34	26	16

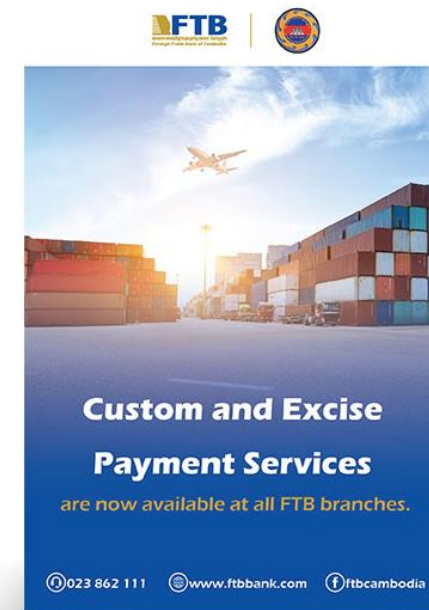
Key messages



Business June 7, 2019

Hun Sen urges rice farmers to quit chemicals

Chea Vannak / Khmer Times /





Key messages

What should be taken into account?



Key messages

What should be taken into account?

- the global history of chemical industry

Key messages

What should be taken into account?

- the global history of chemical industry
- the temporality of the global market versus the temporality of Cambodian authorities to produce laws, rules and codes of conducts



Vegetable producer, Kandal

Wearing the raincoat make us sweat, hot, and it doesn't make us feel well, it can also make us unconscious. It makes us not breathing well. Like sometimes, our breathe is faster than normal, and because of that (raincoat) it will make us absorb more tnam pol (poison). But if we don't wear, we can pause our breathing, and we can avoid.

Vegetable producer, Kandal

Wearing the raincoat make us sweat, hot, and it doesn't make us feel well, it can also make us unconscious. It makes us not breathing well. Like sometimes, our breathe is faster than normal, and because of that (raincoat) it will make us absorb more tnam pol (poison). But if we don't wear, we can pause our breathing, and we can avoid.

Pesticides seller, Kandal

Some companies, they're just playing around – putting this or that in – and we don't know what kind of tnam (chemical) they are selling. All this for profit! And they can sell at a cheaper price compare to other companies.

Key messages

What should be taken into account?

- the global history of chemical industry
- the temporality of the global market versus the temporality of Cambodian authorities to produce laws, rules and codes of conducts
- the persistent imperceptibility of the real damage of pesticides

Conclusion



**Merci
de votre
attention**

eve.bureau-point@univ-amu.fr

Questions and Answers

Dr Eve Bureau-Point, Centre national
de la recherche scientifique Marseille
(CNRS)

**The social construction of the
pesticides' problems in Cambodia**

Please use the Q & A Box to ask
questions to our speakers





Future studies

Delisa Jiang, CropLife Asia

**Future studies: Pesticides and Farmer Behaviour:
Viet Nam**

**David Hughes, Swansea University, United
Kingdom**

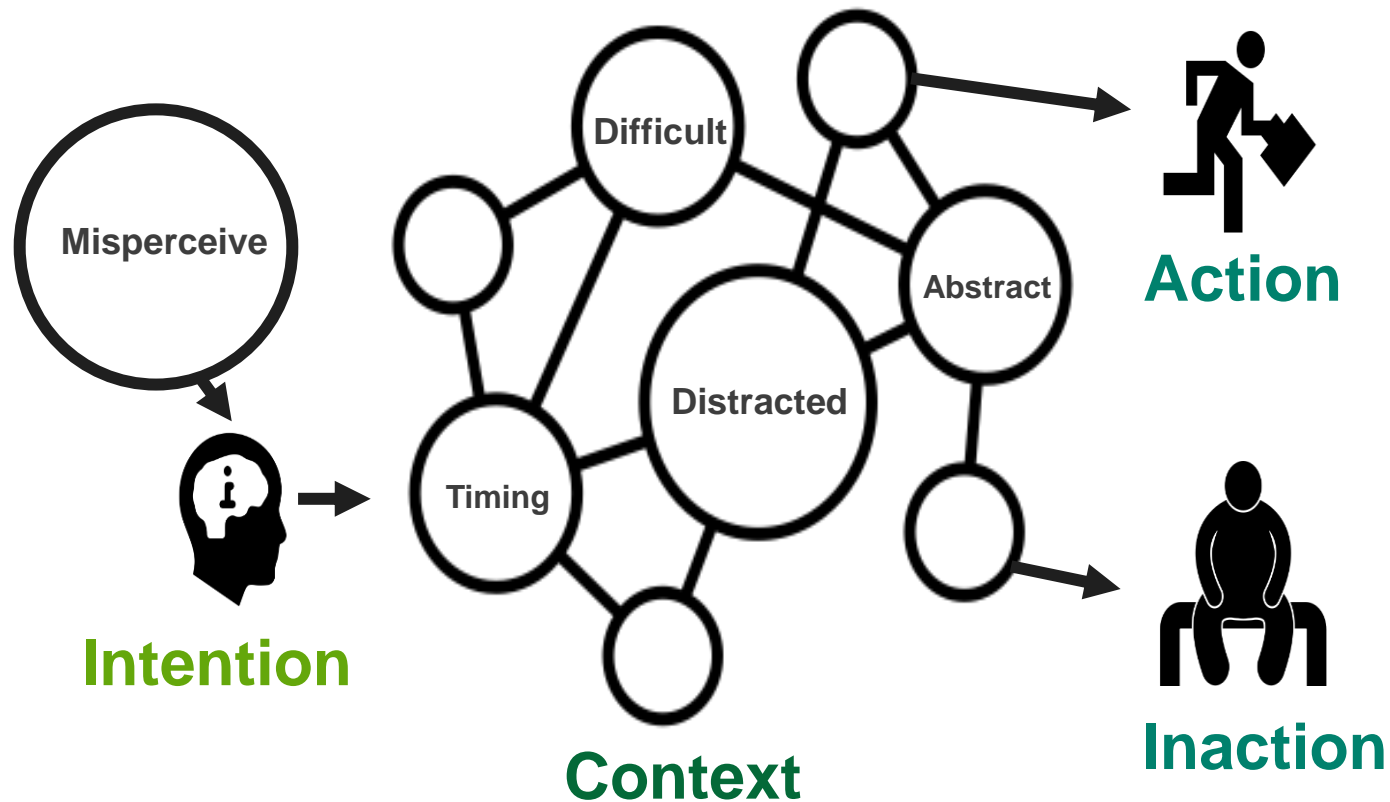
**Future Studies: Pesticides use and health impacts
on farmers in Thailand, Vietnam, and Lao PDR**

Errol Perera, Consultant to the ASEAN Secretariat

**Future studies: ASEAN agrochemical stocktaking
project**

What is behavioral science?

Behaviour model of decisions and actions

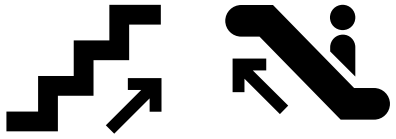


We are using behaviour science to:

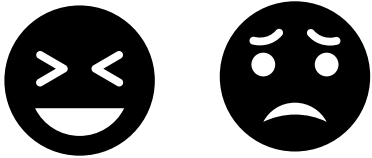
- 1) Use a scientific, evidence-based and measurable method to identify the correct factors that drive action or inaction
- 2) Based on these factors, design more accurate and effective training to change farmer behaviours

External context

Physical Environment



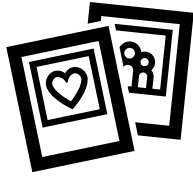
Mood/Affect



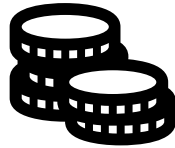
Time



Social context



Chronic Scarcity



Choice Set



Psychological factors



Social Norms

Our perception of others' behavior impacts our own



Hassle Factors

Inconveniences and/or obstacles that impede the desired behavior.



Present bias

The tendency to favor immediate rewards at the expense of our long-term goals



Limited Attention

We selectively concentrate on certain aspects of our environment, ignoring others

Case study in Vietnam

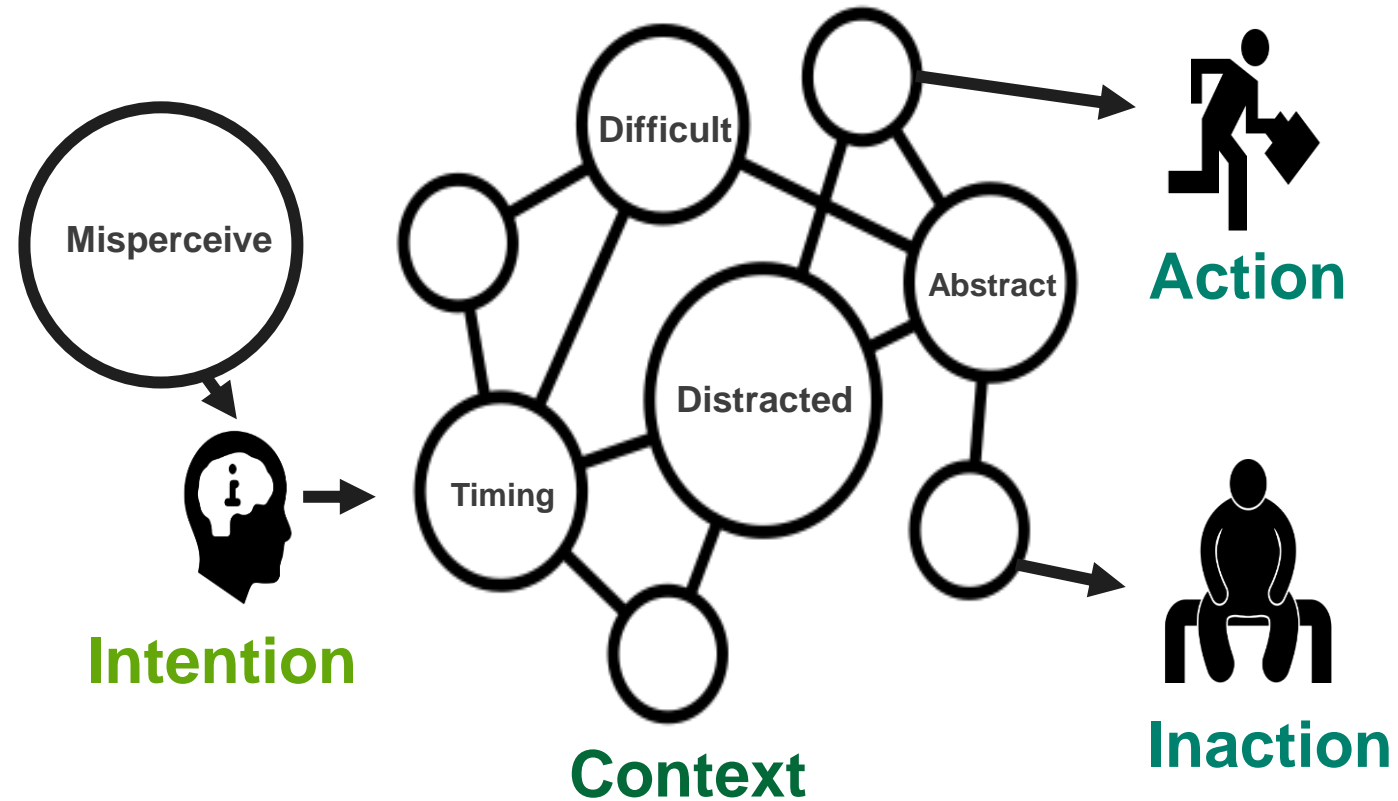


Problem identification

Vietnamese farmers are incorrectly applying pesticides

e.g. too frequent application, too much application, application too close to harvest, and application of inappropriate chemicals

This causes rejection of crop exports, affecting both farmer livelihoods and Vietnam's economy as an agriculture state.



Diagnosing behaviours

Behavioural mapping was conducted among a comprehensive group of farmers and the ecosystem they interact with:

20 interviews with several value chain stakeholders in Vietnam (like purchasers, pesticide manufacturers, government, retailers, extension agents, and members from academia) are being conducted.

Crop	Planned interviews	Number of interviews conducted	Provinces covered
Tea	30	15	Thai Nguyen (North Vietnam)
Orange	15	15	Hanoi, Hung Yen (North Vietnam)
Mango	15	8	Dong Thap, Tien Giang (Central and Southern Vietnam)
Rice	30	8	Dong Thap, An Giang (Central and Southern Vietnam)
Total	90	46	

Diagnosing behaviours

Key areas of farmer thinking to understand

Purchase of pesticides

- Retailer relationships
- Factors that influence purchase (brand name/ word of mouth etc, chemical components)

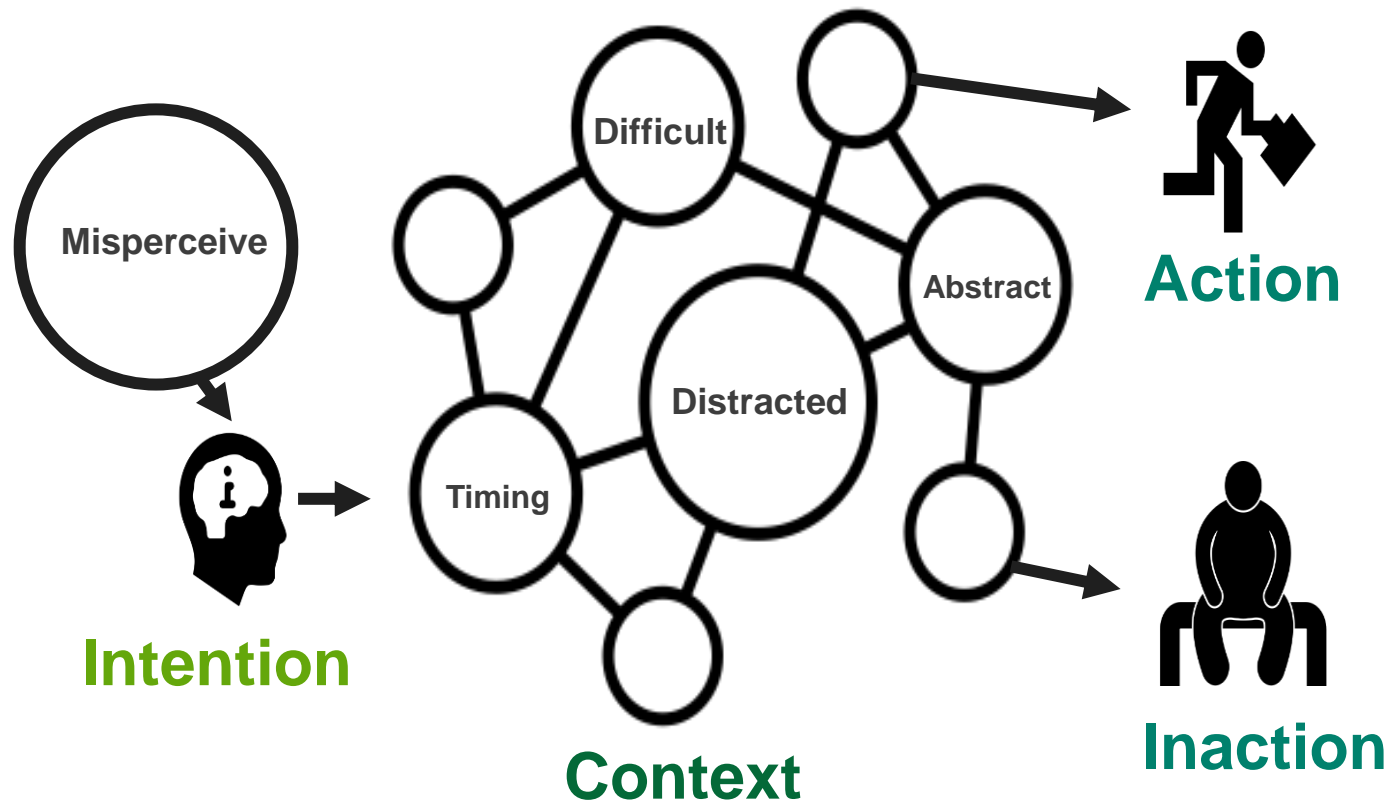
Awareness of guidelines for pesticide usage

- Compliance with labels
- Interpretation of guidelines
- Other sources of advice farmers take

Pesticide usage practices

- How experiences have shaped their thinking around farmer practices and if they are accurate
- Willingness to change/ switch brands etc

Behaviour model of decisions and actions



We are using behaviour science to:

- 1) Use a scientific, evidence-based and measurable method to identify the correct factors that drive action or inaction
- 2) Based on these factors, design more accurate and effective training to change farmer behaviours

A collage of circular images arranged in a semi-circle, depicting various aspects of agriculture and food production. The images include: a person in a hat working in a field; a close-up of a person's face; three men crouching outdoors; a person carrying a basket on their head; a woman in a yellow patterned headscarf; hands preparing food; a man in a plaid shirt working in a field; a man in a green and blue striped shirt standing outdoors; a man in a brown jacket working in a field; a man in a light-colored shirt standing outdoors; a person holding a large root vegetable; a person in a hat working in a field; a person in a blue shirt working in a field; and a close-up of a person's face. The overall theme is food systems and sustainable agriculture.

a 20 Malacca Street #06-00 Malacca Center Singapore 048979

Health impacts of pesticides on farmers

David Hughes & Sue Jordan, Swansea University UK, plus teams in
Mahasarakham, Hue, Vientiane and Taunggyi

d.hughes@swansea.ac.uk

Genesis of the study

- Idea of building a public and environmental health research network of mainly provincial universities that generally have limited research capacity and access to funding
- Partners chosen on basis of existing contacts within Greater Mekong Subregion Academic Public Health Network
- Impact of pesticides on health was chosen as first project by partners with seedcorn funding from Mahasarakham University, Thailand
- However, COVID-19 pandemic halted progress and in the event only MSU completed pilot research
- Hughes had been involved in initial discussions with partners about setting up a research network and (with Jordan) secured Global Challenges Research Fund award to revive project

Study protocol published in PLOS One
September 2021 (Hughes et al 16(9))

- Mahasarakham University, Thailand
- University of Health Sciences, Vientiane, Lao PDR
- University of Medicine & Pharmacy, Hue, Vietnam
- University of Medicine, Taunggyi, Myanmar

<https://www.researchgate.net/project/Health-impacts-of-pesticides-use>



Other characteristics

- Each country case based on case studies of three farming areas within a single province.
- Focus on vegetable farmers
 - Only one adult subject per farmer household permitted to participate
- Blood tests to detect exposure to organophosphates and carbamates
- Structured interviews to explore farming practices, knowledge of risks, self protective behaviour, and perceived impacts in health
- Target 120 respondents per area; 360 per country.

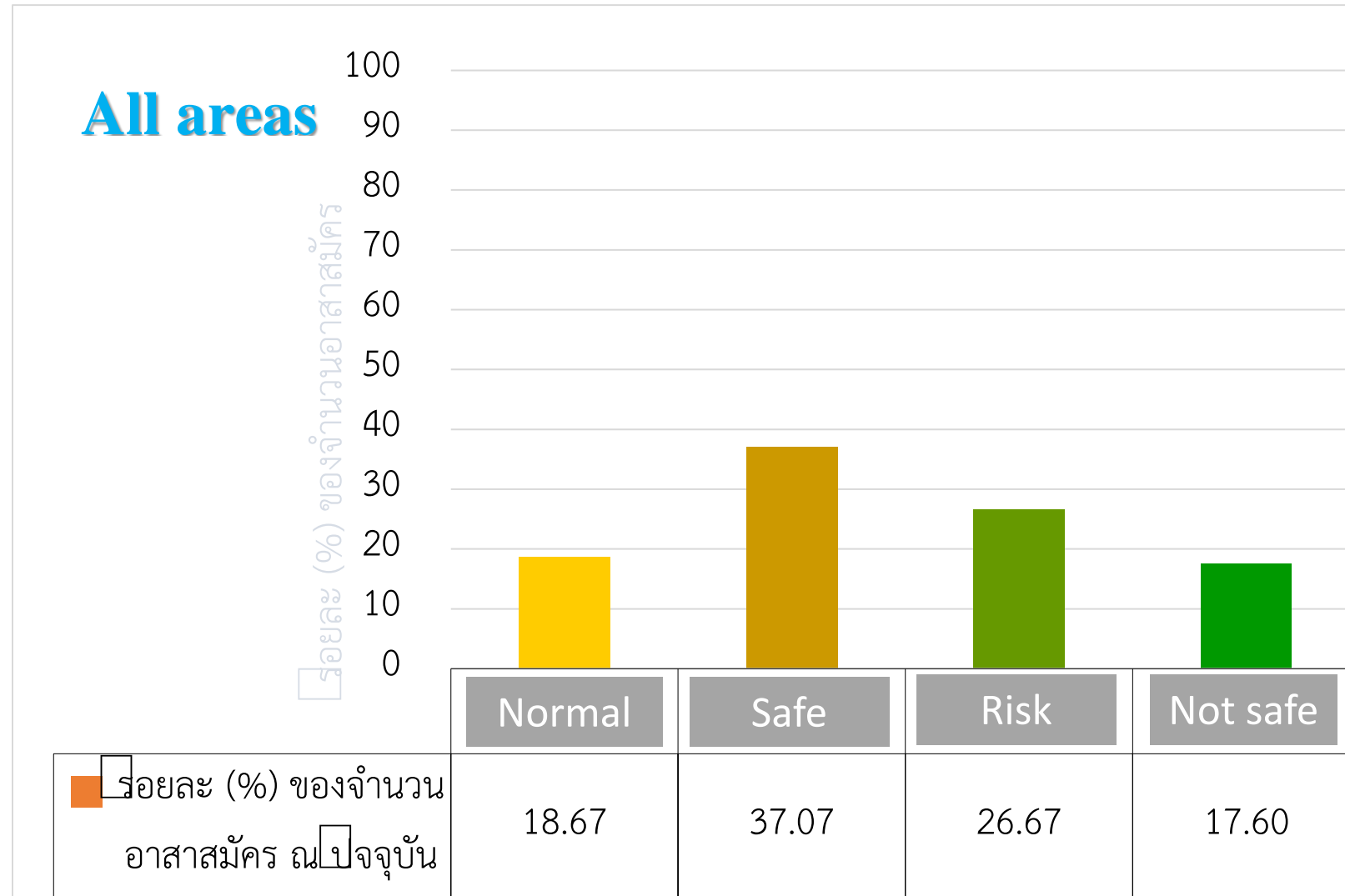
Uneven progress under difficult conditions

- Had to abandon fieldwork in Myanmar due to military coup and armed conflict in Shan State
- Research fieldwork complete in Thailand despite period when pandemic prevented progress
- COVID restrictions in Vietnam and Lao have prevented fieldwork until recently
- Most interviews now completed, but no blood tests yet done in Lao PDR and Vietnam. Transportation of blood test kits to Vietnam held up by suspension of flights to Hue, while Lao team unable to travel with lockdown.
- Problems because of spending deadline for UK GCRF projects

Relevance to FAW work plan

- Study does not investigate full range of factors affecting farmers' decision about whether and how to use pesticides
- Does collect data on:
 - Types of crops involved and mode of application
 - Prior training and preparation for using pesticides
 - Knowledge about safe and unsafe practices
 - Use of self-protective behaviours and knowledge of possible health impacts
- Self-reported health effects + test of AChE blood levels

Thailand: Results from cholinesterase blood test kits



Provisional findings from Thai case

- Over 90% said they had received training on safe use of pesticides
- Knowledge of how to handle pesticides was generally good – 84% got at least 12 of 16 questions right
- Over 90% scored highly on knowledge of health protective practices
- >20% reported “sometimes” experiencing 5 of 7 common psychological symptoms of pesticides exposure listed (e.g. insomnia, anxiety/irritation, poor concentration, depression, appetite loss)
- >30% reported skin itching and >20% skin rashes
- So good knowledge not translating into zero health effects

Current Situation of Project

- Blood tests in Laos & Vietnam incomplete
- Last weekend passed deadline for spending GCRF funds and can only reimburse for activity already undertaken
- Face problem of finding funds to finish fieldwork in those two countries
- Reference: Hughes, D. et al. (2021) Pesticides use and health impacts on farmers in Thailand, Vietnam, and Lao PDR. PLOS One, 16(9): e0258134. <https://doi.org/10.1371/journal.pone.0258134>.



Questions and Answers

Delisa Jiang, CropLife Asia

Future studies: Pesticides and Farmer Behaviour: Viet Nam

David Hughes, Swansea University United Kingdom

Future Studies: Pesticides use and health impacts on farmers in Thailand, Vietnam, and Lao PDR

Errol Perera, Consultant to the ASEAN Secretariat

Future studies: ASEAN agrochemical stocktaking project

Please use the Q & A Box to ask questions to our speakers



Thomas Jäkel, PhD

Crop Protection and Rice Specialist,
GIZ-CIM & International Rice Research
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Thailand

Closing Thoughts: The Big Picture

ASEAN Pesticides Workshop (21 October 2021)

Where to go in ASEAN?

Industrial style monoculture?



Diversified agro-ecosystems?



The path will determine the input requirements of, e.g., pesticides, etc.

Pesticides' impact not only on human health...also on ecosystem health

- More broad-spectrum pesticides means reduced biodiversity on farms (Lundgren and Fausti 2015; Science Advances 1:e1500558 31)
- Non-crop habitats strengthen the natural biocontrol function/ES and adjacent forests increase agricultural soil biodiversity (Yang et al. 2021, Nature Comm. 4:979; Le Provost et al. 2021, Nature Comm. 12: 3918)
- Contrary to popular perception/belief: Reducing broad-spectrum pesticides strengthens ES, which, in turn, increases yields (e.g., Pretty and Bharucha 2015)

Insects 2015, 6

Pretty and Bharucha 2015

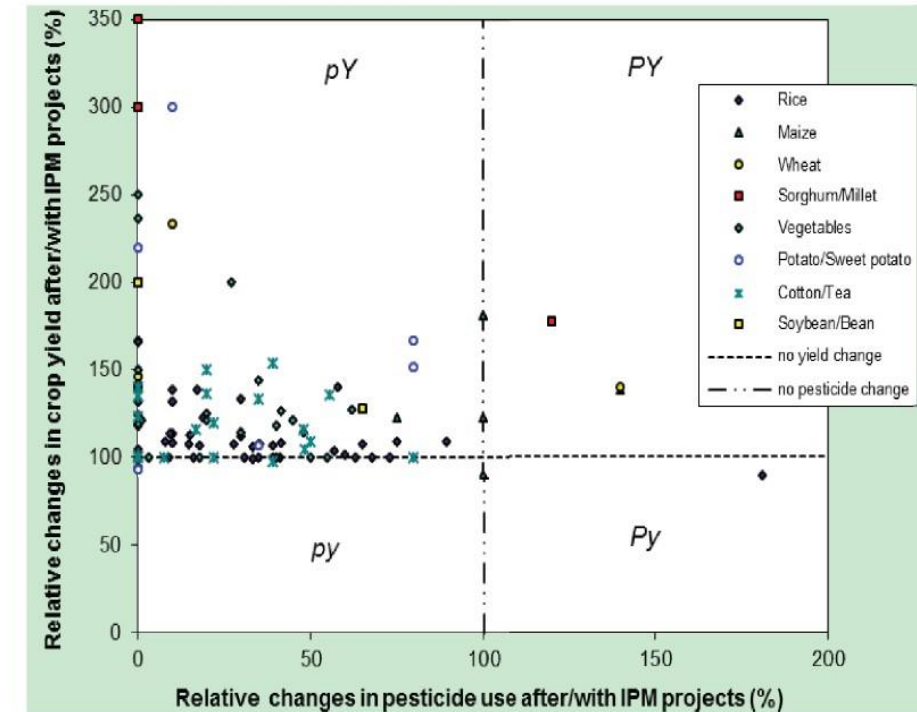


Figure 1. Impacts of IPM projects and programmes on pesticide use and crop yields (data from 115 crop combinations, 85 projects, 24 countries of Africa and Asia).

Yes, pesticides are part of IPM but...

- ❑ IPM means integrated PEST & DISEASE management, NOT integrated PESTICIDE/PRODUCT management
- ❑ IPM is responsible for preventing/reducing losses due to pests & diseases, NOT increasing yields
- ❑ The latter claim often prevents farmers from making the right agronomic decisions when increasing yields and farm productivity is concerned: Improving soil health, selecting the right crop variety, proper water management, and other cultural practices (e.g., crop rotation, diversification, sanitation etc.) matter most
- ❑ Stop selling pesticides as “Magic Bullet” for everything
- ❑ How come that some banks mandate a “pesticide package” if they offer agricultural loans to smallholders?

Newer synthetic pesticides more toxic to non-target insects, not less toxic

- Neonicotinoid residues in honey products at concentrations that can harm pollinators like bees...worldwide (Science, 6 Oct 2017, Vol 358, Issue 6359, pp. 109-111, DOI: 10.1126/science.aan3684)
- Per weight a.i. toxicity against arthropods has increased in newer pesticides (Science, 2 Apr 2021, Vol 372, Issue 6537, pp. 81-84, DOI: 10.1126/science.abe1148)
- Why is the use of substances like Fipronil still allowed in aquatic systems like rice, if we know that it is extremely toxic to aquatic organism and bees? (*'Unsavory pesticide saga'* Bangkok Post, 6 NOV 2020; ScienceAsia 2017, 43:82-87; Paddy Water Environ 2013,11:277-284, DOI 10.1007/s10333-012-0317-3; Kovach et al. 2009, IPM program, Cornell University, New York State Agricultural Experiment Station Geneva, New York)
- Regulatory action required



Conclusions

- Yes, educating farmers about use of pesticides is important but too narrow as future focus; farmers were better off if general economic, agronomic, and ecological literacy was improved, enabling them to make informed decisions...why not elevate farming as a profession? (vocational education)
- Availability of low-risk pesticides like biopesticides and biological control agents needs to be expanded
- Why not take pest management completely out of the hands of farmers? New business/service models for the crop protection industry?
- Propose, we need total crop management and ecological engineering to withstand climate change – present agricultural monoculture is not sustainable (e.g., Rockstroem et al. 2017, Ambio 46:4-17)

Questions and Answers

Thomas Jaekel, CIM/GIZ

Closing Thoughts: The Big Picture

Please use the Q & A Box to ask
questions to our speakers



Summary:



ASEAN Action Plan on FAW Farmer Communication Workshop Series

A four-part series to catalyse action on the development and design of more effective farmer communications on IPM and FAW control.

Session 1: Behaviour

Completed

Session 2: Case studies of Farmer Communication

Completed

Session 3: The Behaviour of Pesticide Purchasing and Use

Tuesday 7 September 2021

Session 4: Guidance for Communication – Top Tips for Effective Farmer Outreach

Tuesday 23 November 2021

Register at: <https://www.aseanfawaction.org/events>

Case-Studies: We want your case-studies and examples – contact us at faw@growasia.org



EFFECTIVE FARMER COMMUNICATION: A critical component of achieving IPM

21 October 2021

CLOSE

Part 3B: Pesticide Behaviour, Decision-making & Communication

