

YMC Multilingual support

Takashi TOGAMI, Kyosuke YAMAMOTO,
Takaharu KAMEOKA

Mie University, Japan

Self Introduction

Takaharu KAMEOKA, PhD , Professor

1984 : PhD from the University of Tokyo

Fundamental Research on Rough Rice Drying

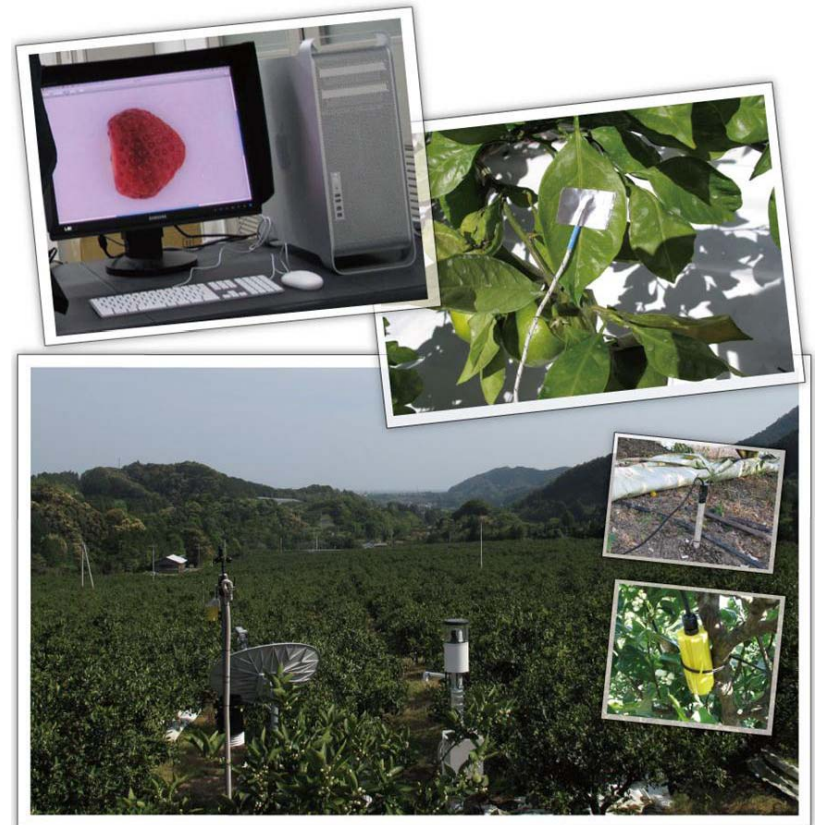
Major: Food Engineering, Agricultural Engineering

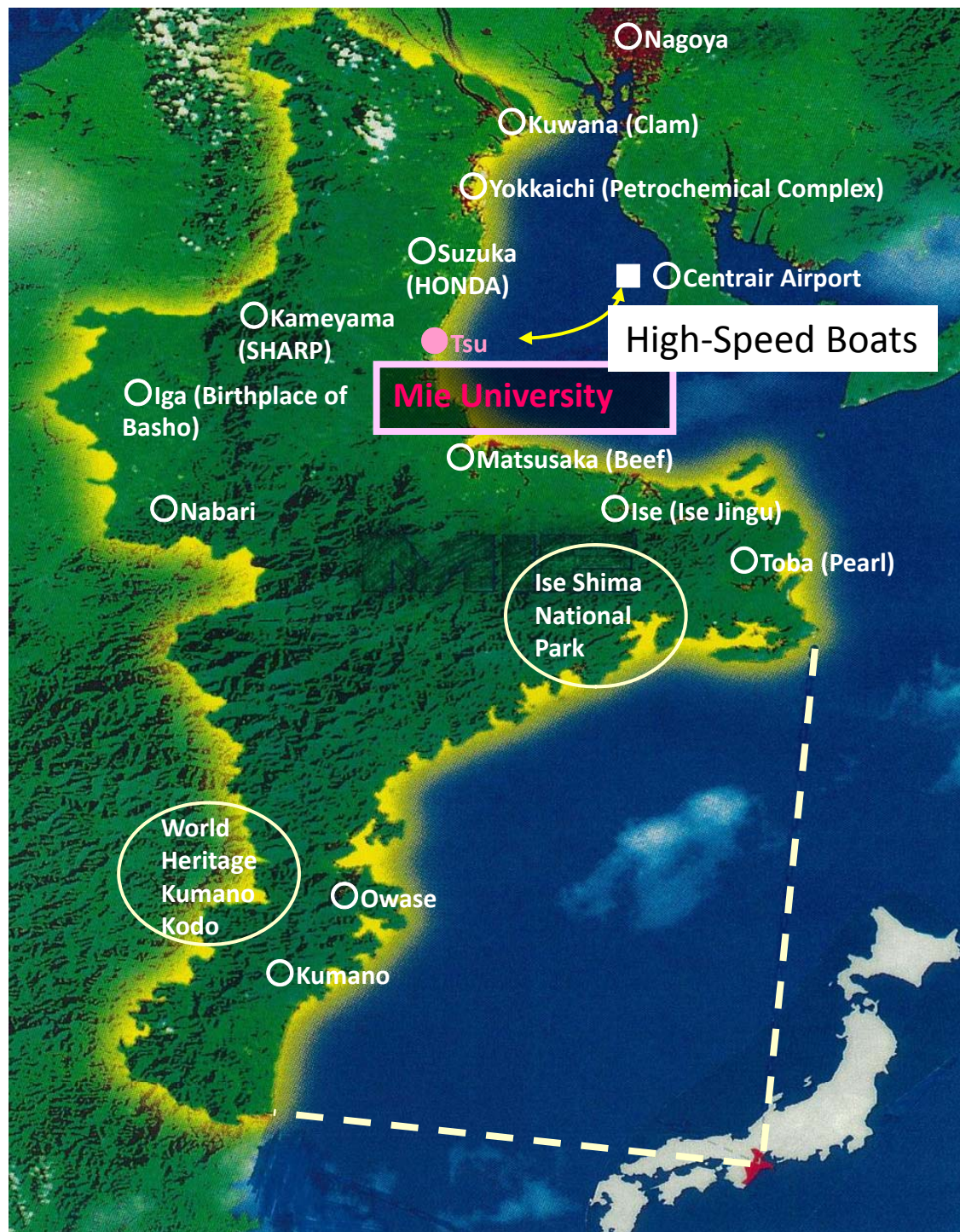
ICT Application in Agriculture

2005 : I firstly met Mori-san as a
vice-president of Mie University.
Then pangaea activity started.

Laboratory of Food, Environmental &
Cultural Informatics

Graduate School of Bioresources
Mie University





National University Corporation

Mie University

University, which had been a First Term University until 1978, consists of 5 Faculties, Humanities & Social Sciences, Education, Medicine, Engineering and Bioresources.

(Students: About 7000,
Intl. Students & Researchers: About 300)

*Regional University which covers the
eastern area of Kii Peninsula*



From Mie to the World:
the creation of a unique educational
environment and a research program based on the
local region toward the world.

**-In Harmony and Symbiosis
of Nature and Human -**

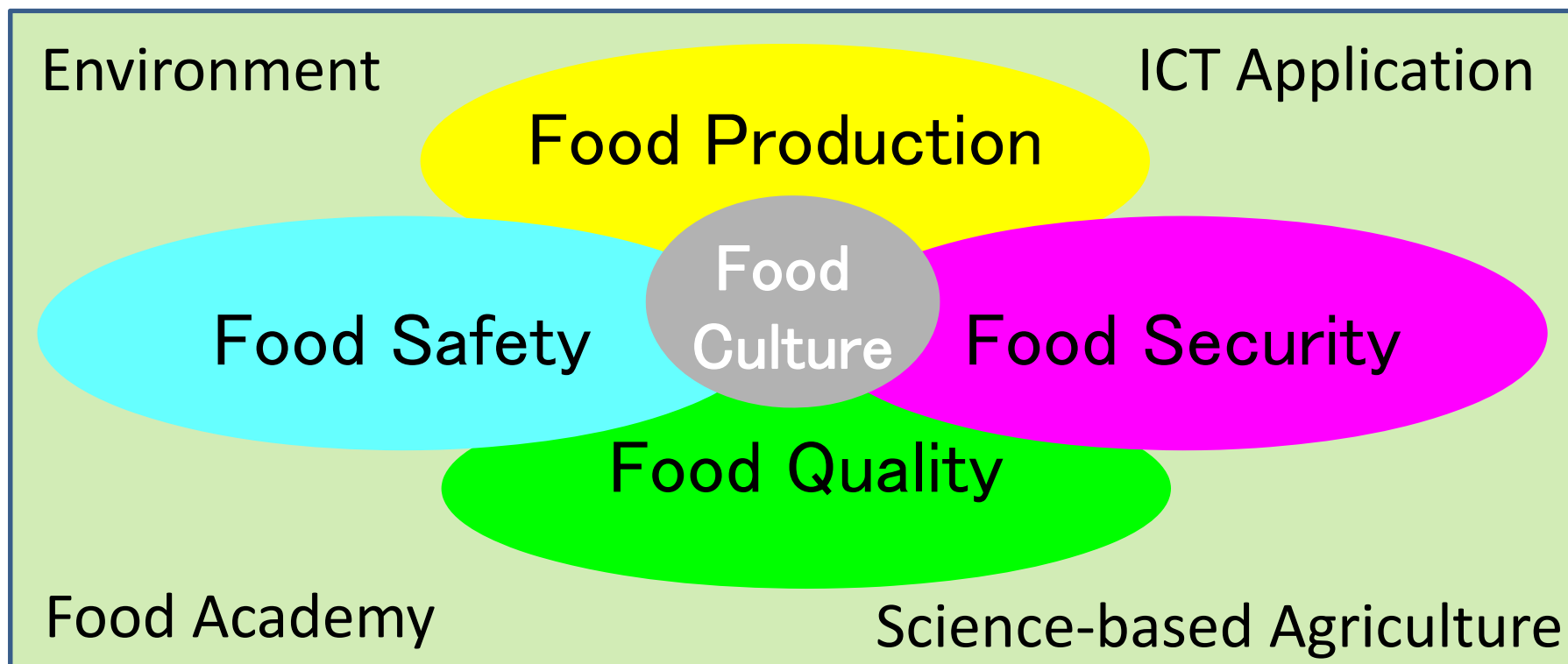


ALFAE

Area-wide e-Laboratory for Food, Agriculture and Environment

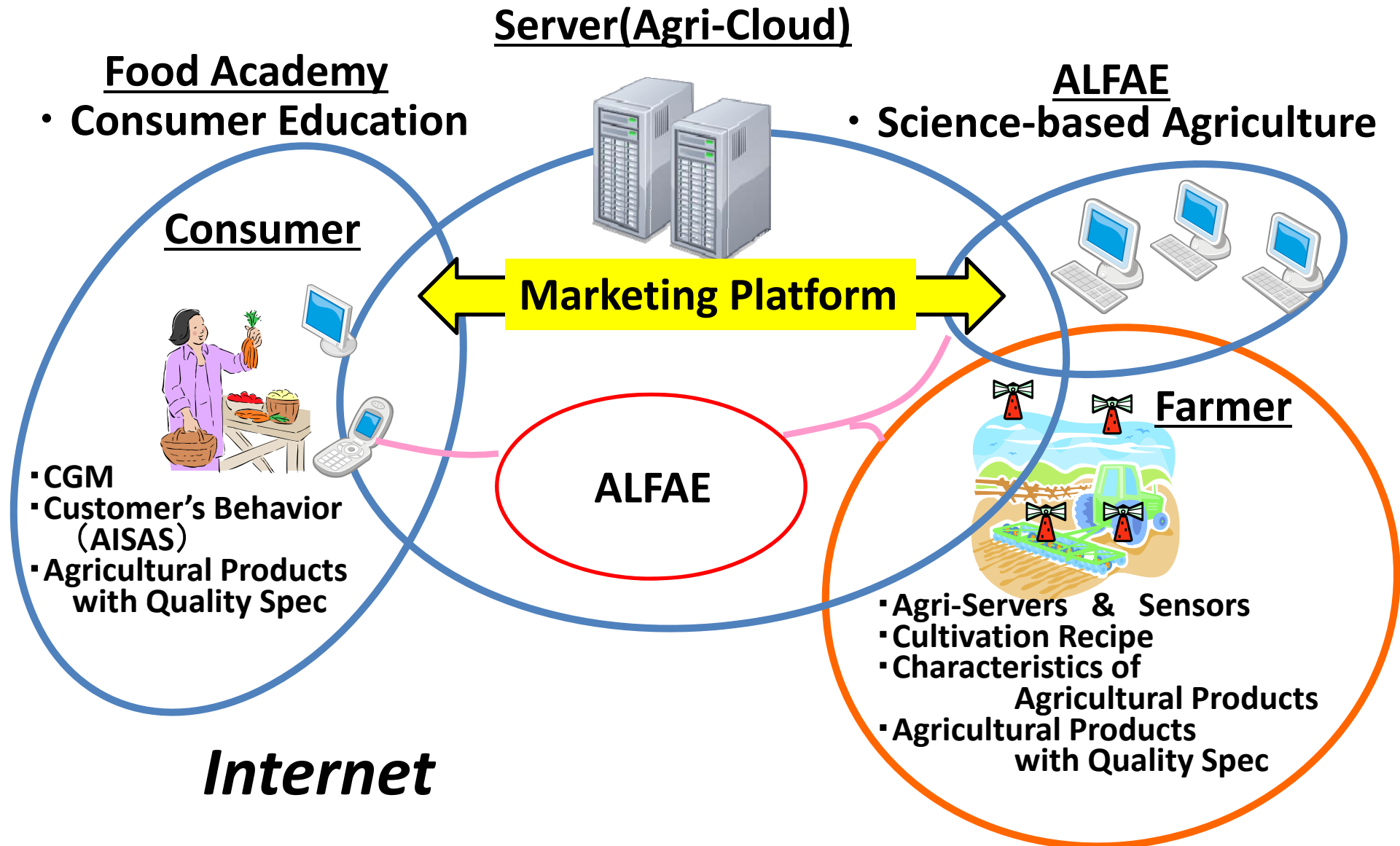
<http://www.alfae.org>

Aggregate corporation made up of the experts in Agricultural ICT



Chairman: Takaharu Kameoka(Mie University),
Vice Chairman: Seishi Ninomiya(The University of Tokyo)

Food Marketing Platform



Agri-Server

- New type FieldServer -

Temperature

Humidity

illuminance

Soil moisture content

Web camera



Images taken by Agriserver

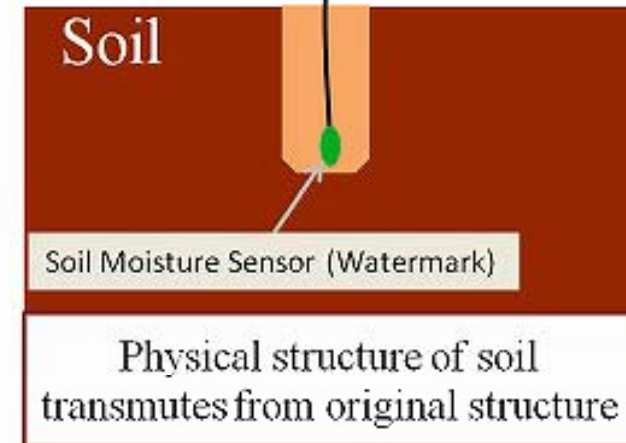
Color correction by using standard color chart



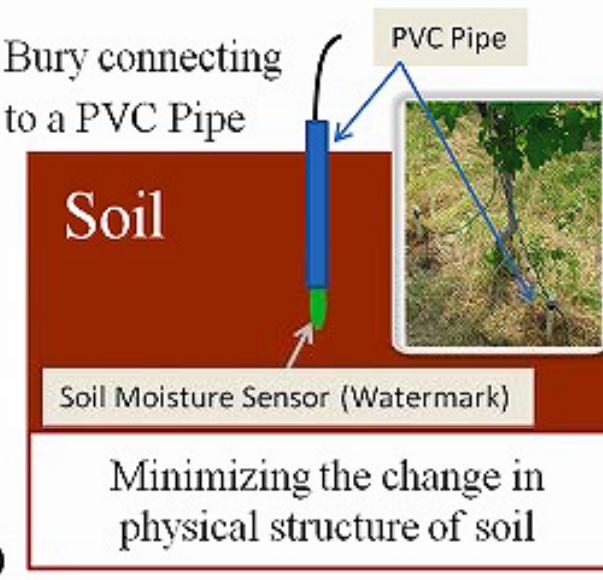
A Wireless Sensor Network in A Vineyard for Smart Viticultural Management



Directly bury

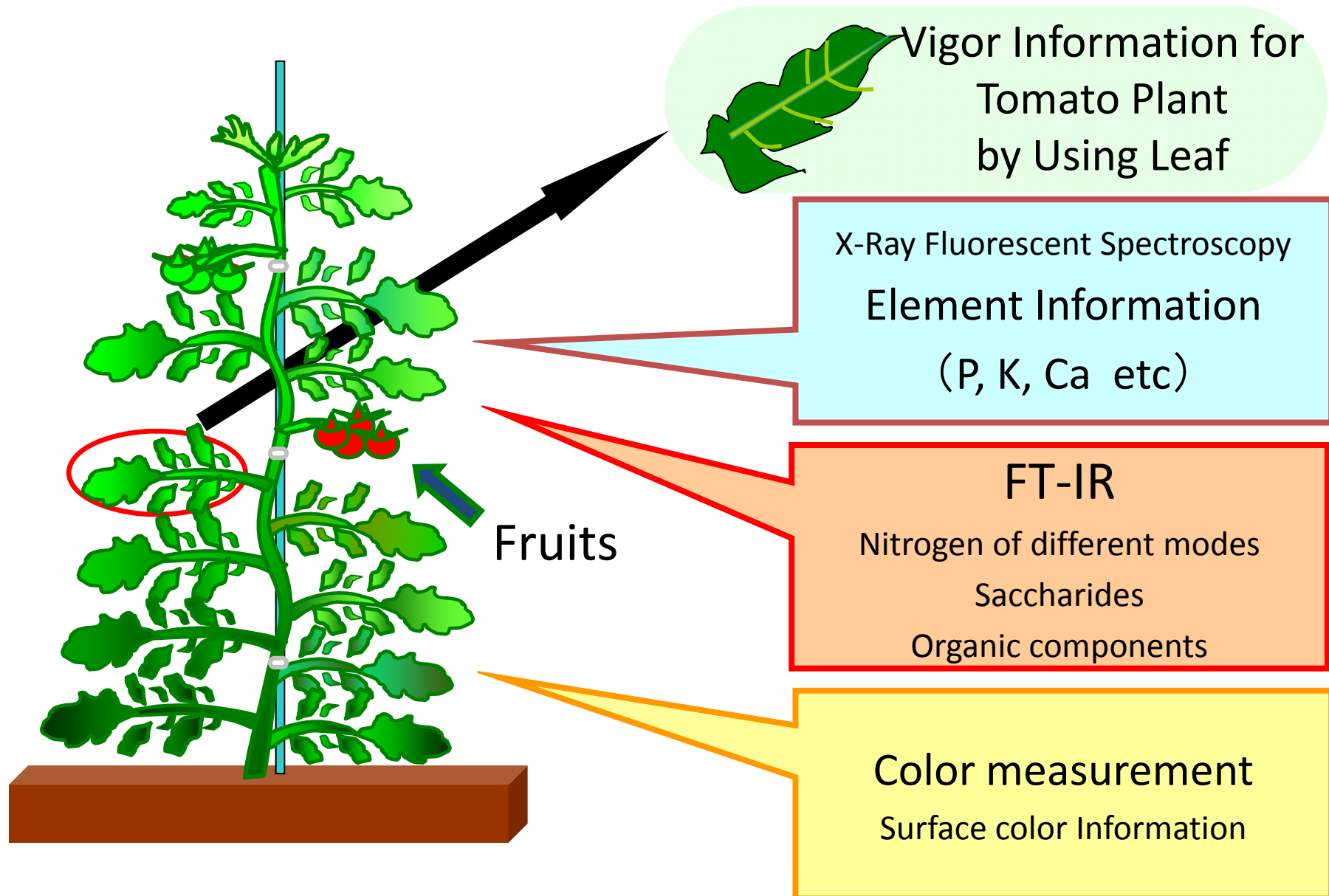


Bury connecting to a PVC Pipe



Optical sensing fusion for Cultivation management

Non-destructive, rapid, easy, simple, non-chemical



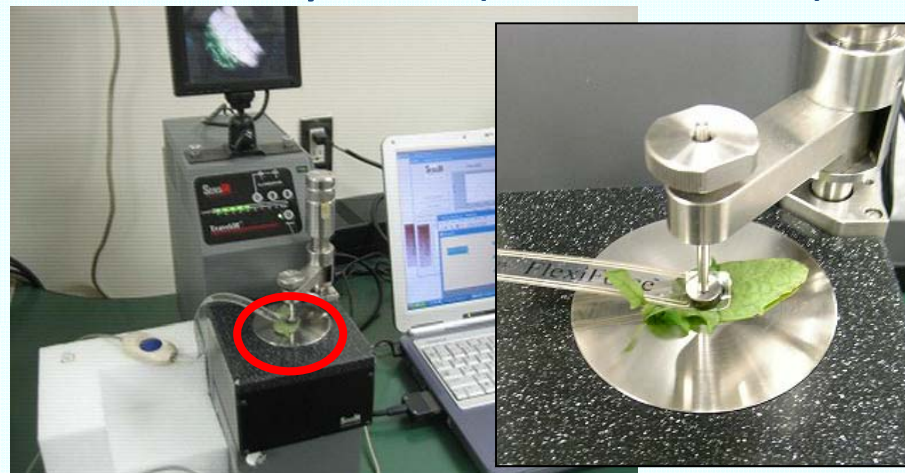
Optical measurement

X-Ray Fluorescent Spectrometer



Energy Dispersive XRF Spectrometer
(Rayny EDX-700, Shimadzu, Kyoto, Japan)

FT-IR System (ATR Method)



Travel IR (SensIR)

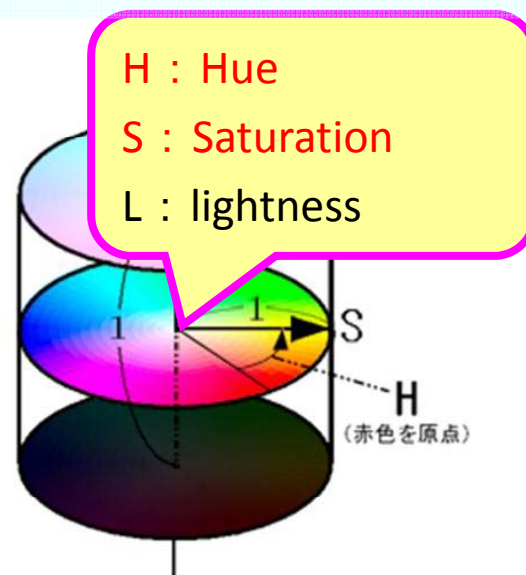
Color Measurement



Scanner GT-X700 (EPSON)



Image (RGB)



HSL Color Space

Tasting & Sommelier Robot (2005-)

2005 World Exposition, Aichi, Japan

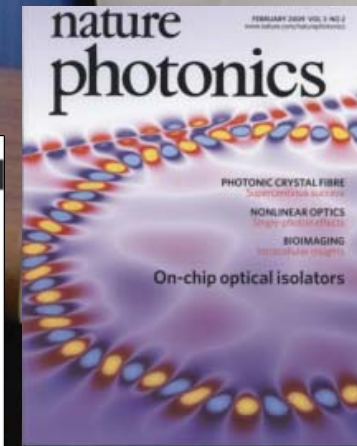


Figure 1 | The Robot Sommelier, which uses near-infrared sensors to differentiate wine types.

able to sense many more than a dozen different wine types and their origins.

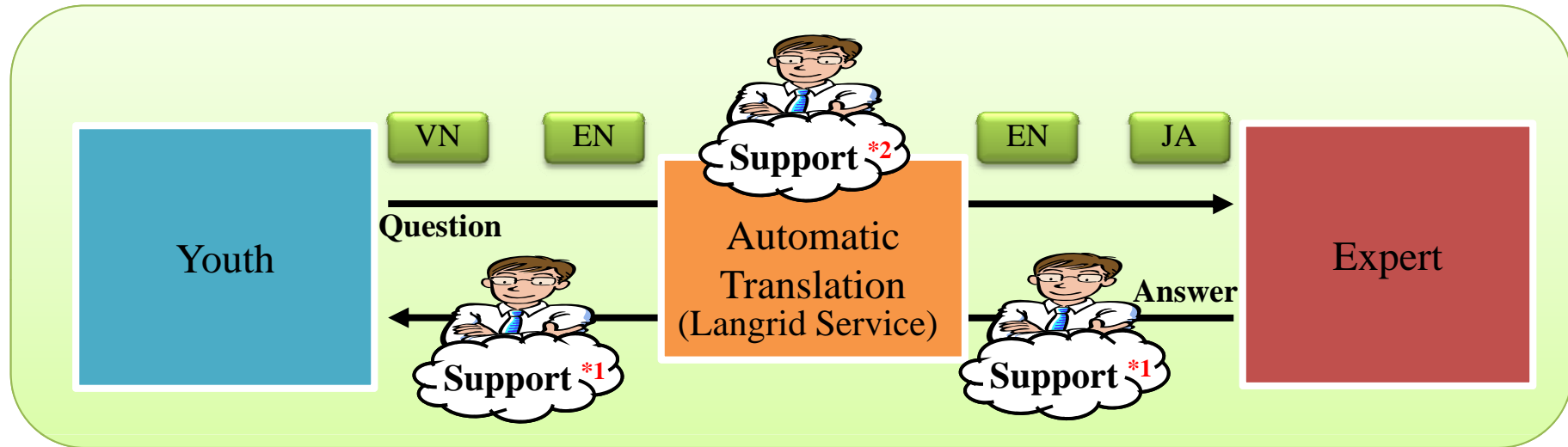
NEC is now looking at downsizing the sensing technology of the robot before it can be commercialized. "If we can make it small enough to be inserted into a cell phone, we will get huge success," says NEC's Hoshizawa.

Although many of these photonic solutions will remain at the research stage, it is becoming apparent that optical science has much to offer the food industry. The result is likely to be a state of optical solutions that will ultimately check the safety, quality and nutritional value of food throughout the logistics chain. Because of the non-destructive nature of many of these technologies, the food industry should also be able to have its cake and eat it.

Shunpei Dotsu, NEC's vice president of research and development, is based in Brighton, UK. e-mail: shunpei.dotsu@nec.com

Additional reporting by Rachel Witte, an associate editor of Nature Photonics based in Tokyo, Japan. e-mail: rachel.witte@nec.com

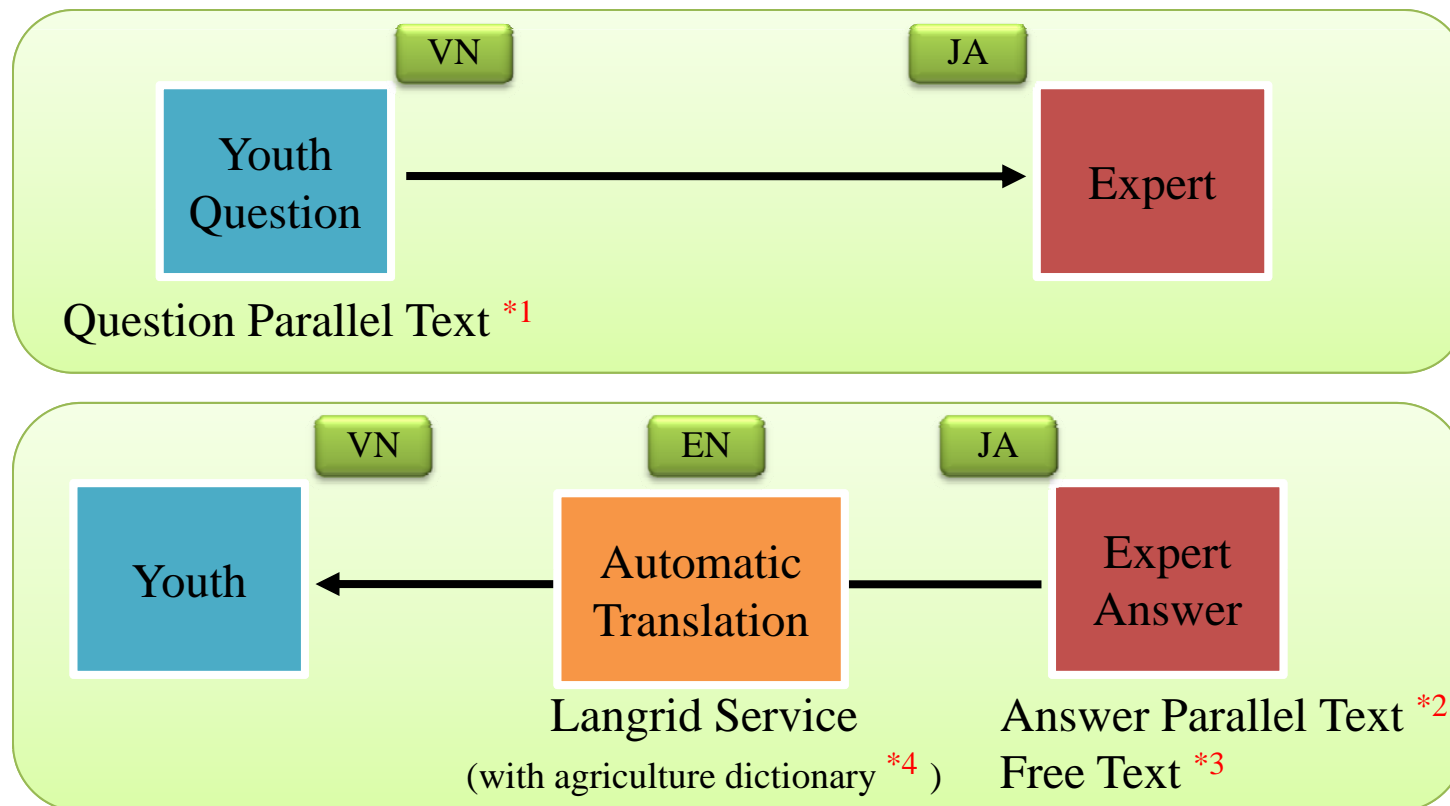
Background; Role of Bridger



Role of Bridger

1. To support youths to understand the answer from an expert correctly
(necessary to simplify & adjust the expression [use of easy expression] of the answer)
2. To support Langrid Service for high translation accuracy
(human translator)

Background; Required Tasks



Required Tasks for Creating Resources

Expert

*2 Check & correction of the created parallel text

*4 Check & correction of stored word for higher translation accuracy (in Japanese, English)

Bridger

*1, 2 Preparation for the text (in Japanese, English, Vietnamese)

*3 English translation & storing the text as a new resource (in Japanese, English, Vietnamese)

*4 Storing word for higher translation accuracy (in Japanese, English, Vietnamese)

Agricultural Group (Japan)

Coordinator : Yumiko MORI

Advisor : Seishi NINOMIYA

Expert : Seishi NINOMIYA, Ryoichi IKEDA,
Akane TAKEZAKI, Takaharu KAMEOKA
Yasukazu OKANO,

Bridger & Staff : 7 Students from Kameoka Lab.
1 Person from Ikeda Lab.

Self Introduction

Takashi Togami

1577 Kurimamachiya-cho, Tsu City, Mie-Pref. 514-8507

Graduate School of Bioresources, Mie University, Japan

Education

Feb. 2007	Charles Sturt University, Australia Bachelor in Applied Science Major in Environmental Science
Sep. 2009	Mie University , Japan Master in Sustainable Resource Science
Present	Mie University, Japan Doctoral Student in Graduate School of Bioresources Major in Sustainable Resource Science

Kyosuke Yamamoto

1577 Kurimamachiya-cho, Tsu City, Mie-Pref. 514-8507

Graduate School of Bioresources, Mie University, Japan

Education

Mar. 2010	Mie University, Japan Bachelor in Bioresources Major in Sustainable Resource Science
Present	Mie University , Japan Master Student in Gradate School of Bioresources Major in Sustainable Resource Science

2 Phases for System Support as a Bridger

Phase 1: Preparation of Resources

At least 400hrs / person

- Youth Question Parallel Text (1447 texts)
- Expert Answer Parallel Text (about 760 texts)
- Storing Words in YMC Dictionary (about 2300 words)
- English Translation

Phase 2: Work Online

At least 150hrs in total

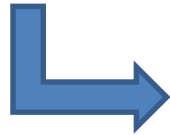
- Editing Expert's Answer Message
- English Translation (about 320 texts)
- Storing Expert Answer Parallel Text
- Storing Words in YMC Dictionary (about 200 words)

Youth Question Parallel Text	: 1447
Expert Answer Parallel Text	: Over 1100
YMC Dictionary	: About 2500

Phase 1: Preparation of Resources

Requirements when creating parallel texts

- Check & correction by experts
- English Translation
- Vietnamese Translation



Necessity of

- resource sharing
- promotion of streamlining for the operation (working on the same resources)



Adoption & Application of Cloud Computing

- Google Document
(Designing of operation sheet)

Phase 1: Preparation of Resources

Operation Sheet Design

1. Preparation of operation sheets for each category
(Rice, Paddy, Agricultural Chemicals, Fertilizer, Disease, Insect Pest, Birds/Animals, Weather)
2. Sheet Design (common design for all sheets)

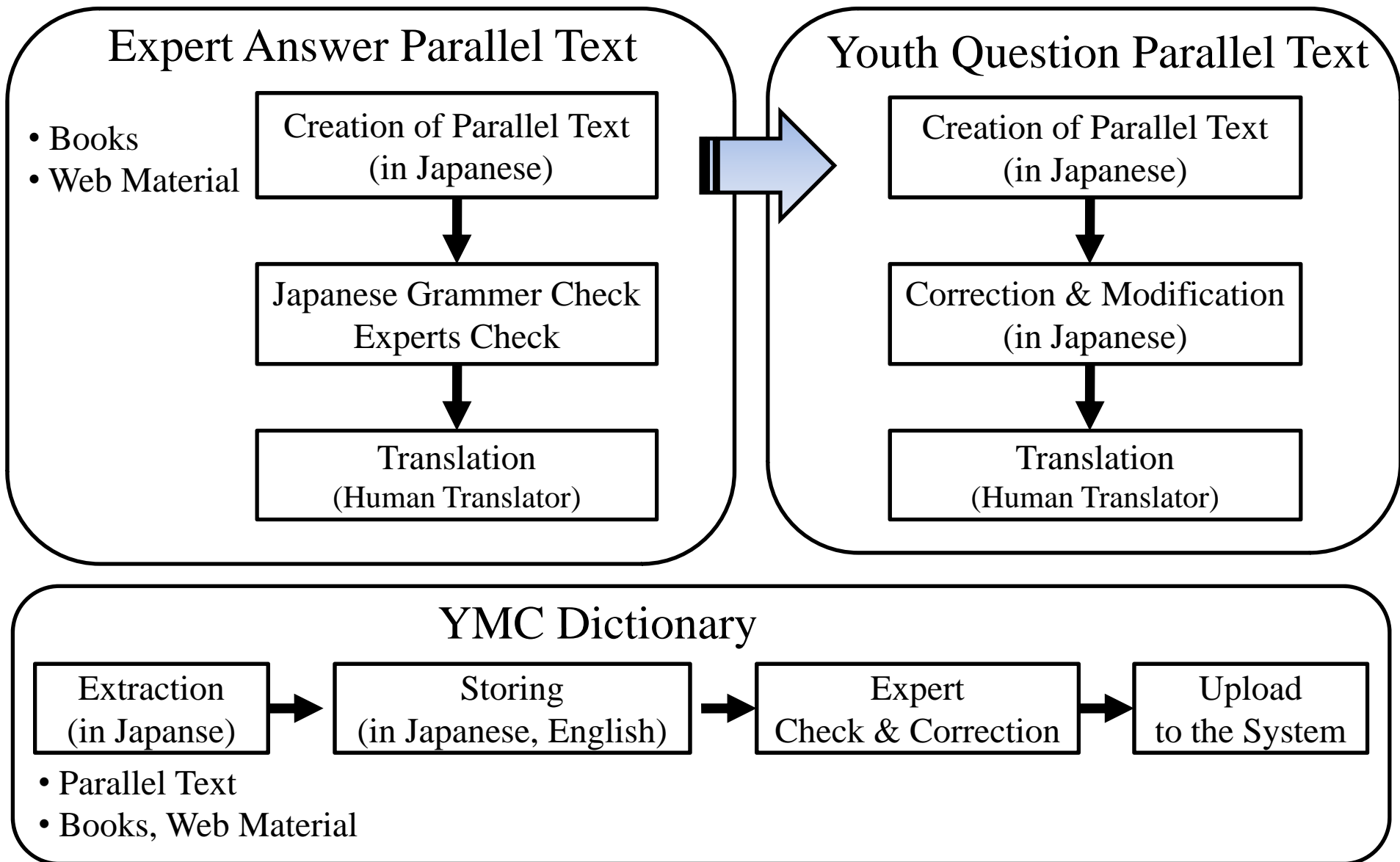
	Duplic ID ation (通 ID 番) 重複 ID	sentence_ja 日本語センテンス	sentence_en 英語センテンス	sentence_vi ベトナム語センテンス	categories カテゴリ群	category ID
T	'1-1'5-15	ほとんどの場合は薬剤を 使って消毒をしますが、お 湯で消毒をすることもでき ます。その場合は、60℃ のお湯に5分ぐらいつけま す。	Usually seeds are sterilized using chemicals, but it is also possible to sterilize them with hot water. Soak seeds to hot water of 60 degrees C for about 5 minutes in that case.	Thông thường, hạt được khử trùng bằng cách sử dụng hóa chất, nhưng nó cũng có thể để khử trùng họ với nước nóng. Ngâm hạt giống với nước nóng 60 độ C trong khoảng 5 phút	イネ.タネもみ.種ま き準備, イネ.防除.病気, 病気.防除	aec00100100 3, aec00101100 3, aec00500500 0

3. Creation of Operation rule (color coding rule)

Description	Font Color	Background Color
Parallel texts that have passed Japanese Grammar checks at Kameoka lab.	Black	
Parallel texts applicable in multiple first categories.	Black	
Sentences that should be prepared as an "answer text", but require expert's help for the addition and the correction of the sentences due to uncertainties of Vietnamese circumstances and climatic conditions.	Black	
Expressions used in Japanese sentences have been revised. Therefore, revision for the same sentences in English and Vietnamese could be necessary.	Black	
Sentences that have been revised by Experts	Red Blue Green	

Phase 1: Preparation of Resources

Operation Flow for Creating Resources



Phase 1: Preparation of Resources

Creating Resources; Youth Question Parallel Text

Note *Creation of a question parallel text by a youth.*

1. Children access to YMC System
2. Select category
3. Select sentence from Level 1, Level 2 and Level 3 (if necessary)

Creation Flow

1. Creating a question parallel text in Japanese
2. Correction & modification of the Japanese text with English Grammar in mind (if necessary)
(Dividing into levels for meeting the system requirements)
3. Translation

Example:

イネの葉が黄色いです。病気ですか？

(A rice leaf is yellow in color. Is it a disease?)

Breaking down into levels

Japanese

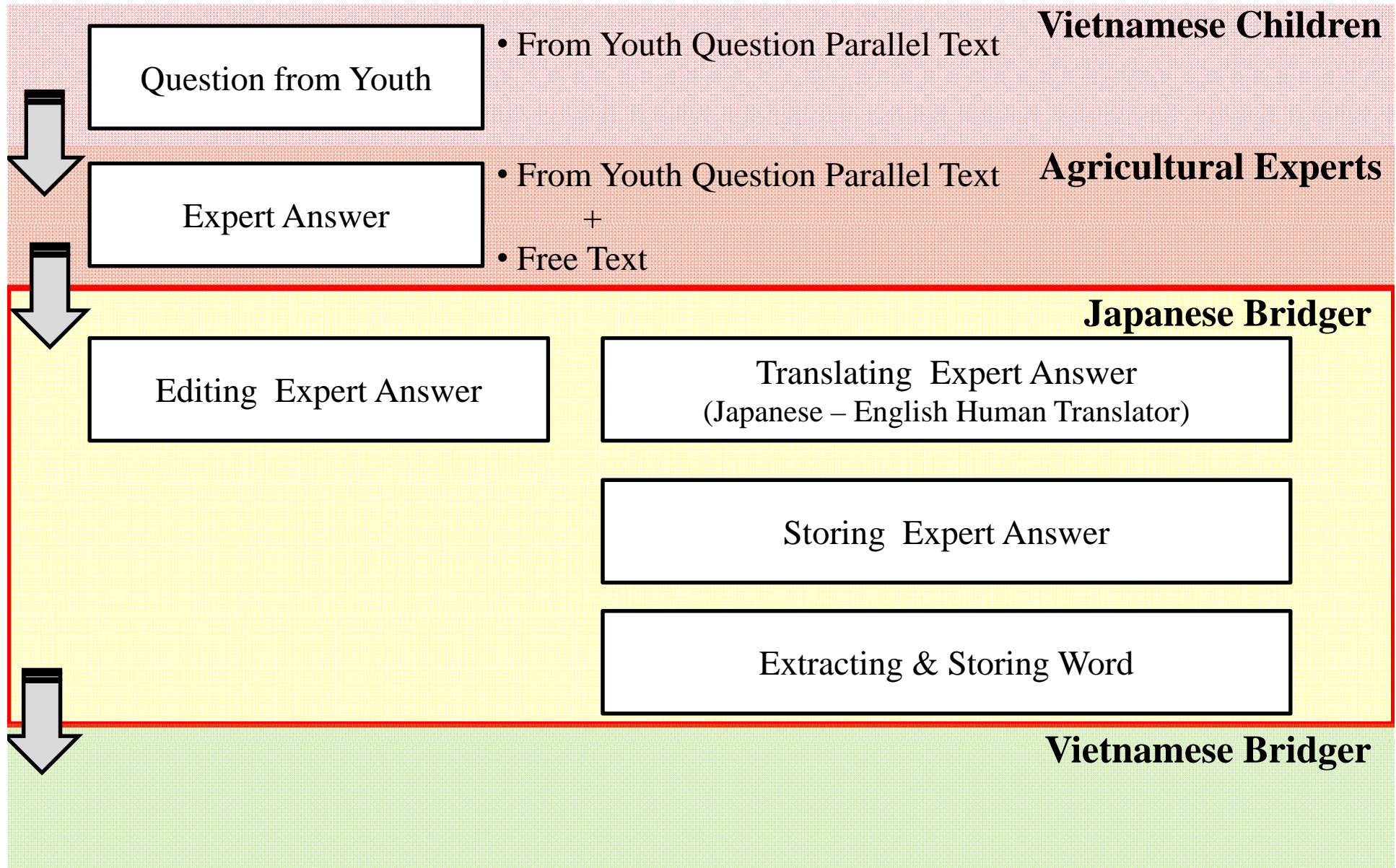
Level 1 : イネの葉が
Level 2 : 黄色いです。
Level 3 : 病気ですか？

English Translation

Level 1 : A rice leaf
Level 2 : is yellow in color.
Level 3 : Is it a disease?

Phase 2: Work Online

Operation Flow for Phase 2



Debatable Point 1

Expert Answer Parallel Text

- Answers that are similar, but mean slightly different exist. → **I**
- Answers that are not exactly correspond to the question exist. → **II**

Example

Question

Reseda and bistred mottles are on a rice leaf. Is that a disease?

Answer

If the shape of reseda lesions is longitudinally diamond-shaped, it indicates rice blast.
I assume rice plants have got the disease.

If there is reseda, blistered, or gray mottle on a rice leaf, → **I**
the rice plant may have already got rice blast.

Rice blight is also the disease caused by mold. The indication of the disease is big
bistered mottles that look like a macule appear on rice leaves. It is still possible to
harvest unlike rice blast, but it bears less fruits and the quality becomes bad. → **II**



Necessary to simplify and merge sentences under expert's support?

Necessary to create a parallel text by a single sentence?

Debatable Point 2

Youth Question Parallel Text

Difficulties in putting a category ID for lower level sentence.

ID	1st Category	2nd Category	3rd Category
aec001000000	Rice		
aec001011000	Rice	Prevention	
aec001011001	Rice	Prevention	time
aec001011002	Rice	Prevention	weather
aec001011003	Rice	Prevention	disease
aec001011004	Rice	Prevention	virmin / animals
aec001011005	Rice	Prevention	varmint / bird
aec001011006	Rice	Prevention	harmful pest

Example

Original Sentence

I sterilize seed rice. Why?

Dividing into levels

Level 1: I sterilize seed rice.

Level 2: Why?

ID: aec001000000 (Rice), aec005000000 (Disease)

Applicable to all categories.

No rules for putting a category ID.



Specific category ID necessary for a sentence consisting of an interrogative?