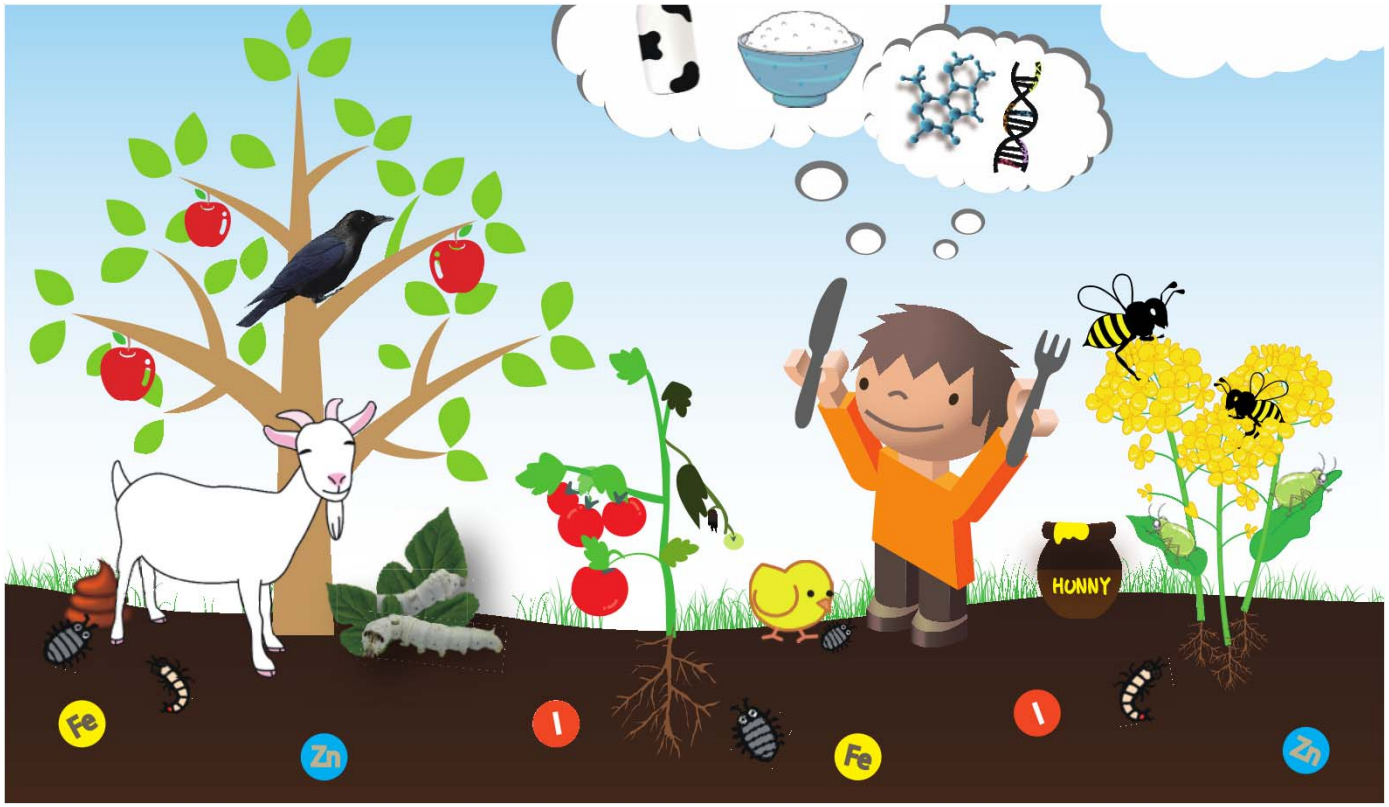
Department of Agrobiology and Bioresources



Dr. Kenji YAMANE
Faculty of Agriculture

宇都宮大学
UTSUNOMIYA UNIVERSITY

Until 2012

Department of Bio-productive Science

Plant Science

Horticulture
Crop Science
Soil Science
Plant Nutrition
Comparative Agriculture
Geology
Farm

Bioscience center
Weed science center

Animal Science

Breeding and Reproduction
Function and Morphology
Nutritional Biochemistry
Animal Production and Reproduction(Farm)

Applied Biology

Plant Breeding
Plant Pathology
Applied Entomology
Insect Biotechnology

Applied Biochemistry

Biomaterial Science
Inorganic Biochemistry
Bioorganic Chemistry

Biochemistry
Food Chemistry
Food Biochemistry
Applied Microbiology

Now Department of of Agrobiology and Bioresourses

Plant Science

Horticulture
Crop Science
Soil Science
Plant Nutrition
Comparative Agriculture
Geology
Farm
Bioscience center
Weed science center

Animal Science

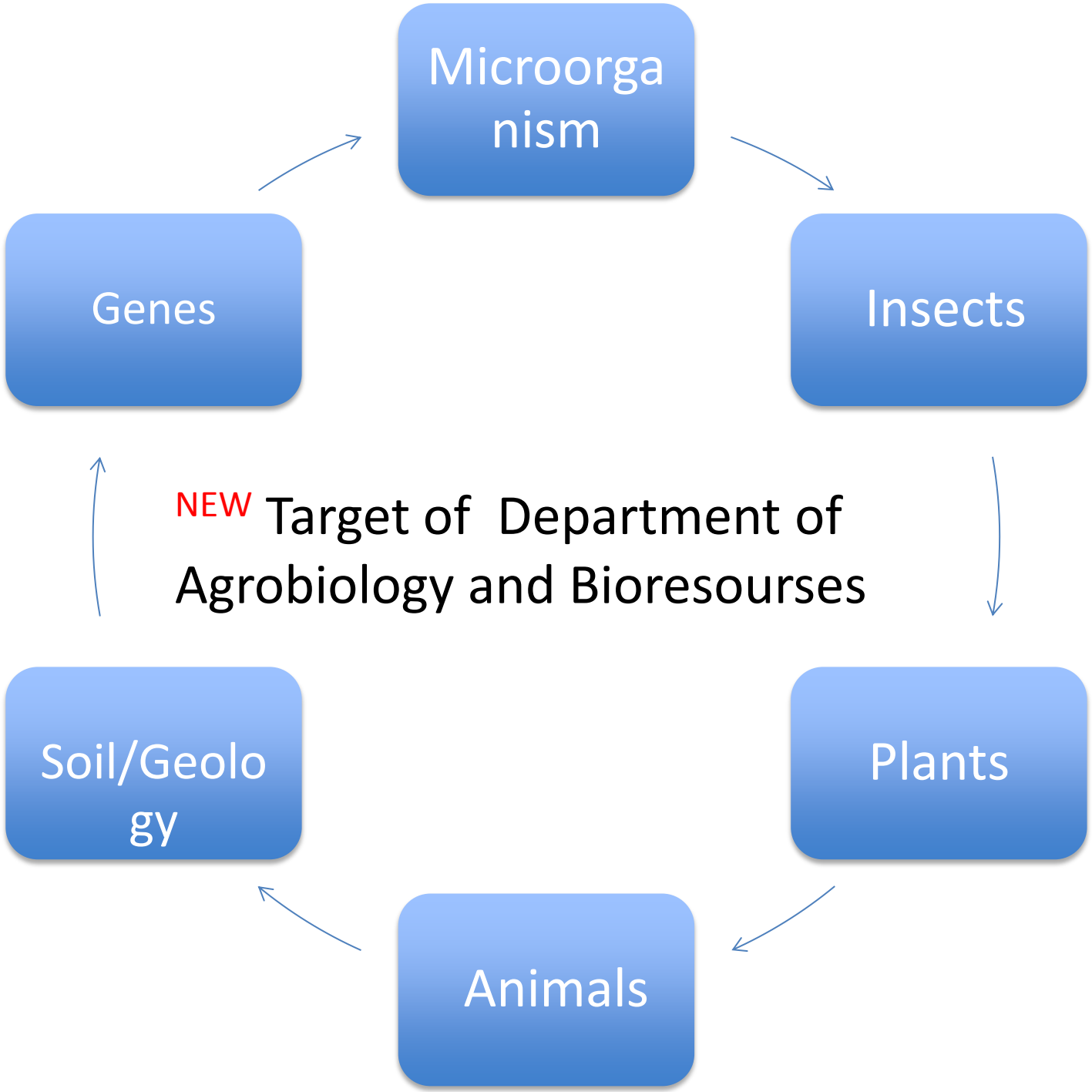
Breeding and Reproduction
Function and Morphology
Nutritional Biochemistry
Animal Production and Reproduction(Farm)

Applied Biology

Plant Breeding
Plant Pathology
Applied Entomology
Insect Biotechnology

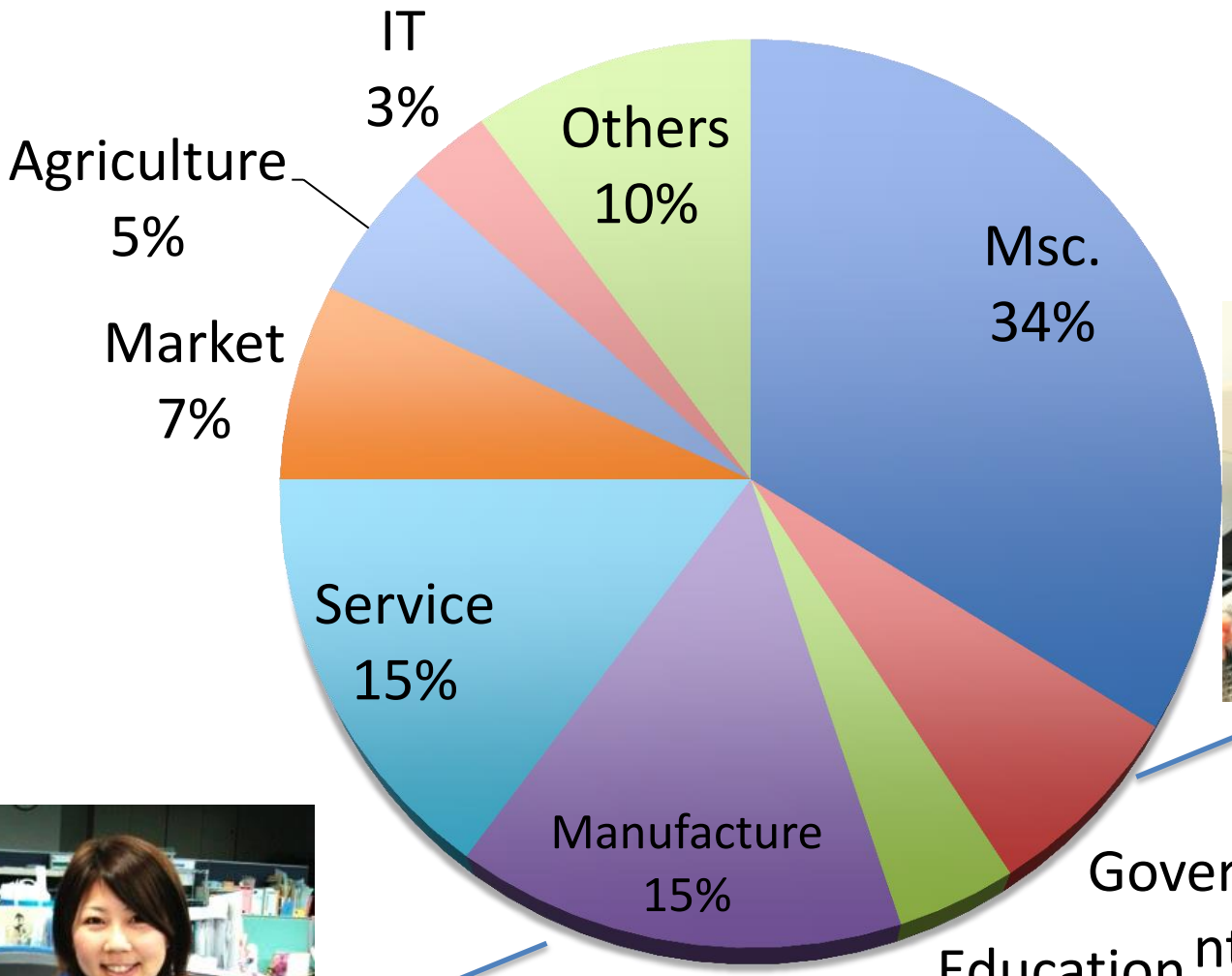
Department of Applied Biochemistry Now

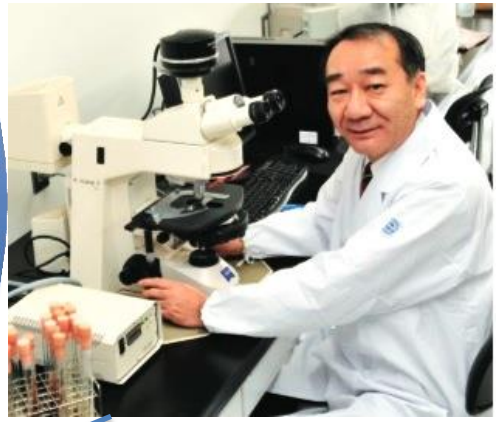
Biomaterial Science
Inorganic Biochemistry
Bioorganic Chemistry
Biochemistry
Food Chemistry
Food Biochemistry
Applied Microbiology


Microorganism
Insects
Plants
Animals
Soil/Geology
Genes
NEW Target of Department of Agrobiology and Bioresourses

Mission of Dept. of Agrobiology and Bioresources

- Sustainable production and usage of bio-resources.
- Function of bioresources





Career course of alumni
Dept. Bioproductive Science
(except Applied Chemistry)

Division Plant Science

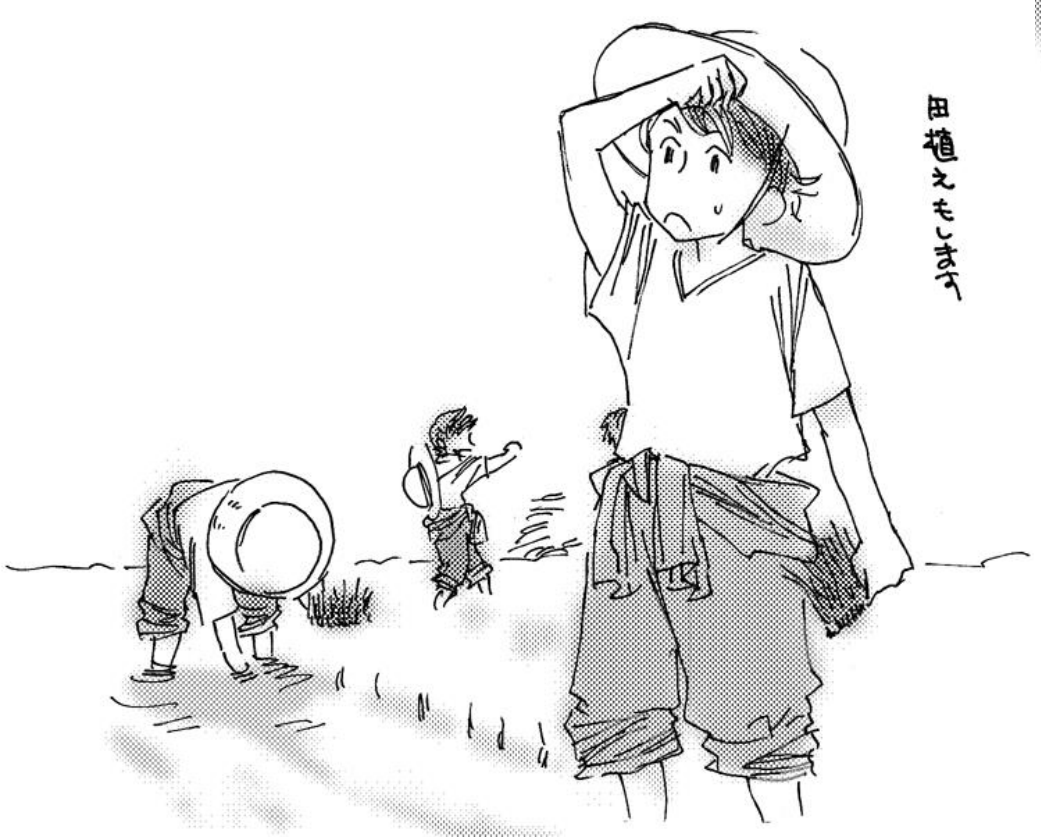
- Integrate theories of **plant production** at a regional as well as global scale, with an emphasis on soil and plant resources
- Sustainable coexistence of plant and human life

Chemical analysis

Quality evaluation

Tissue culture

Experiments



Planting rice in paddy field

Technical Training in University Farm (102 ha)

Putting bag on pears

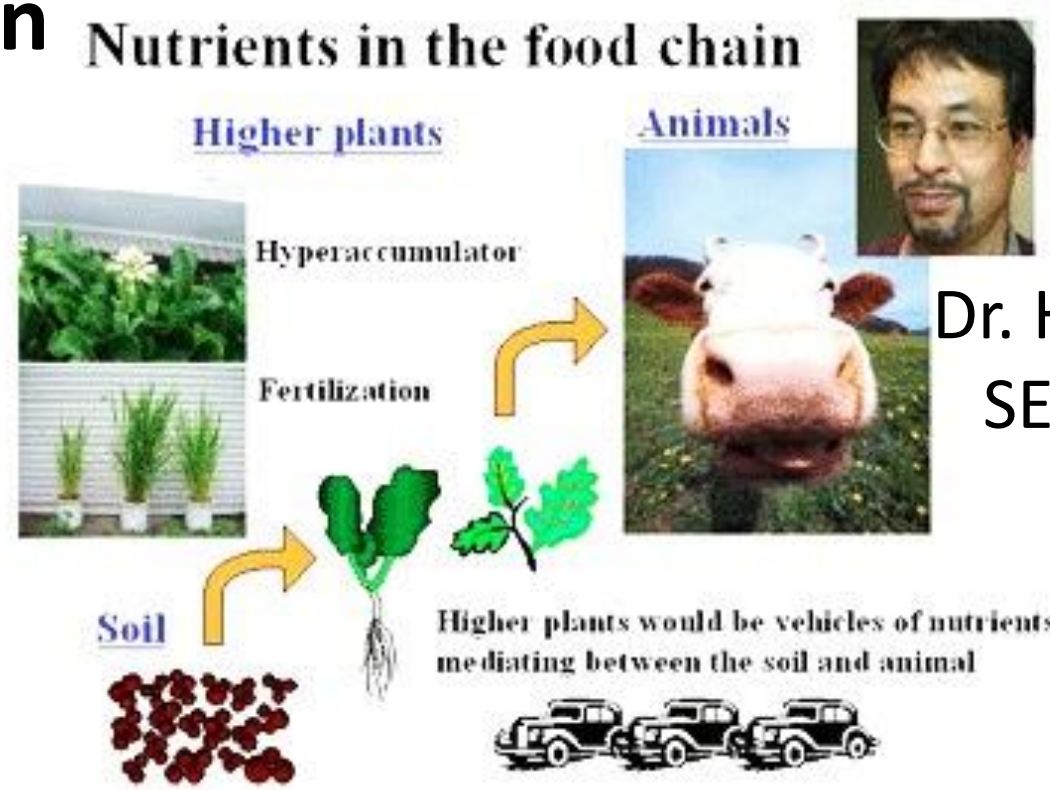
Centre of collaborative training of other universities

Soil Science

Dr. Hide HIRAI

(1)Soil classification
(2)Methane(CH_4) formation
(3)Phosphate metabolism
(4)Rural area development

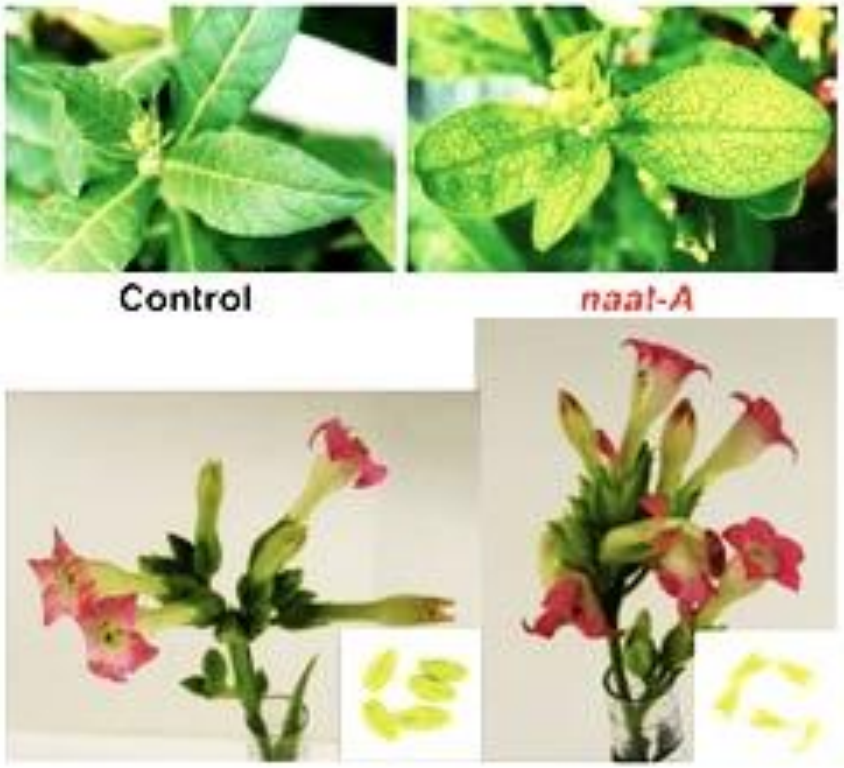
Plant Nutrition



Dr. Hitoshi SEKIMOTO

(1)Micronutrients in the food chain
(2)Iodine (I) uptake in plants
(3)Zinc and cadmium
(4)Controlled-release fertilizer and organic fertilizer
(5)Cesium into plants from fields in Fukushima

Dr. Michiko
TAKAHASHI



Plant Nutrition & Physiology

(1) Plant stress and heavy metals

(2) Transporter genes for Fe,Zn

Comparative Agriculture
(Regional and Agricultural Develop.)

Dr. Ryo FUKUI

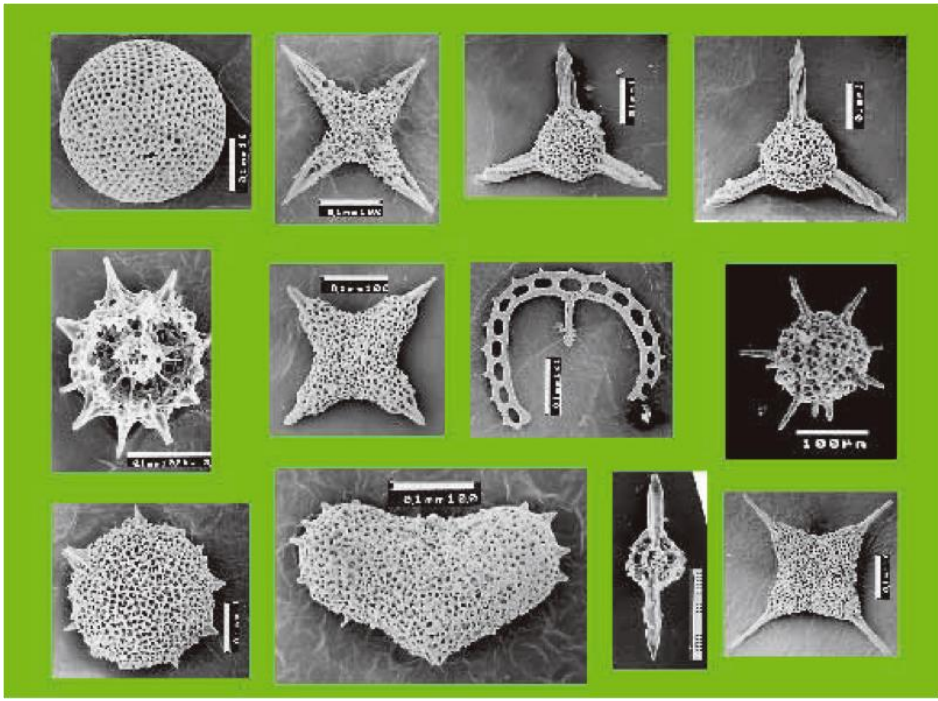
Soil microbiology to establish sustainable farm management

Geology

Dr. Yoshi AITA

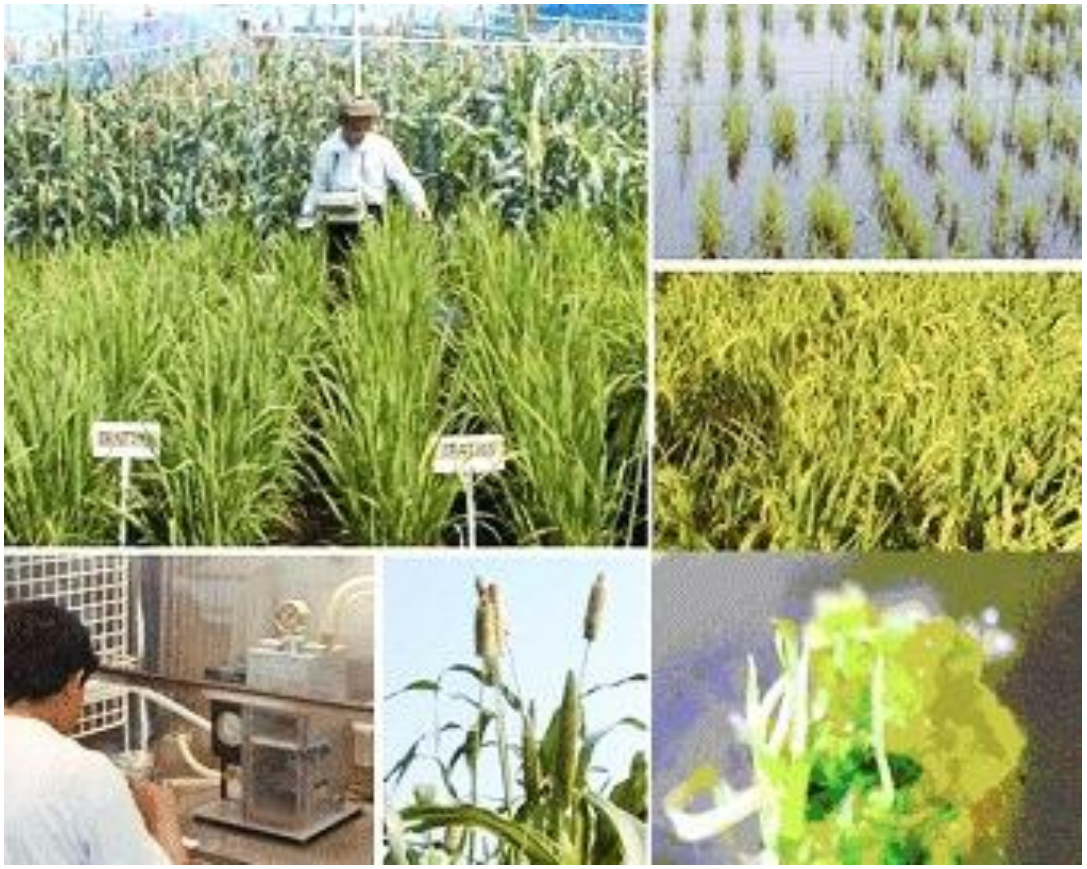
(1)Radiolarian

(2)Phytolith (plant opal)



Crop Science

Dr. Yoshi WADA



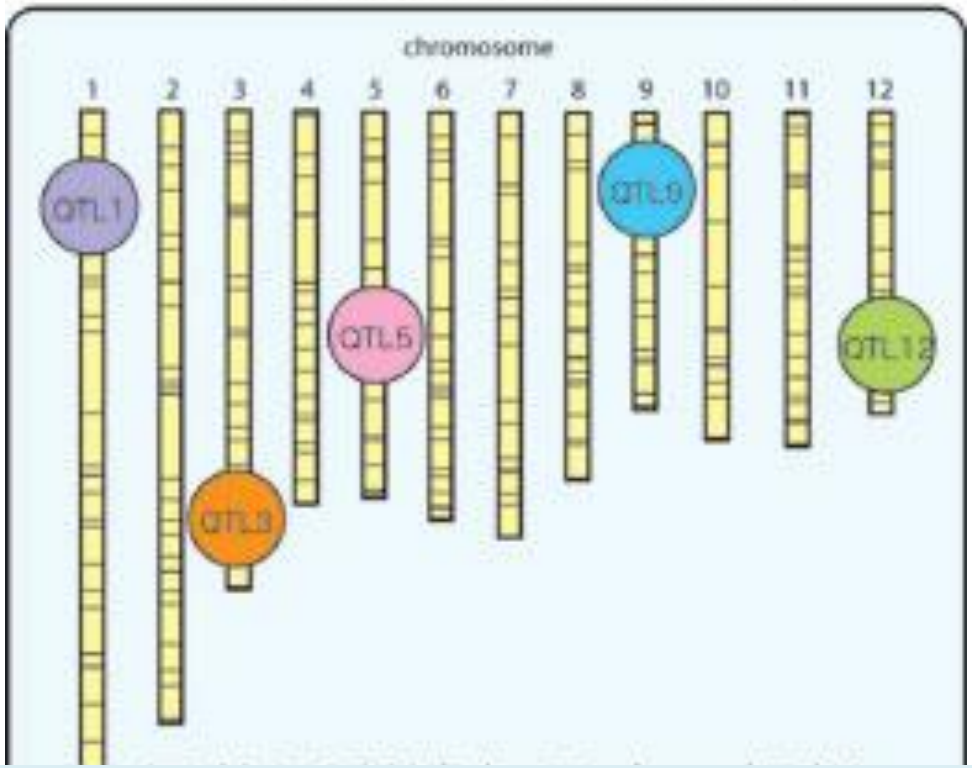
(1) Photosynthesis C_3-C_4 intermediate plants

(2) Heat stress on rice grain

Crop Science

Dr. Taka KASHIWAGI

Genetic factor on rice traits



Analysis of QTL in rice
-yield, lodging tolerance etc.

Plant Ecology
(Weed Science Center)

Dr. Taka NISHIO

Pueraria lobata

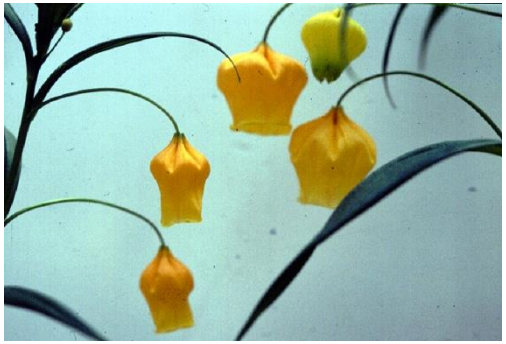
Rudbeckia laciniata

(1) Ecological management of native and invasive weeds.

Plant Production and Tech (University Farm)

Dr. Yukio IJIRO

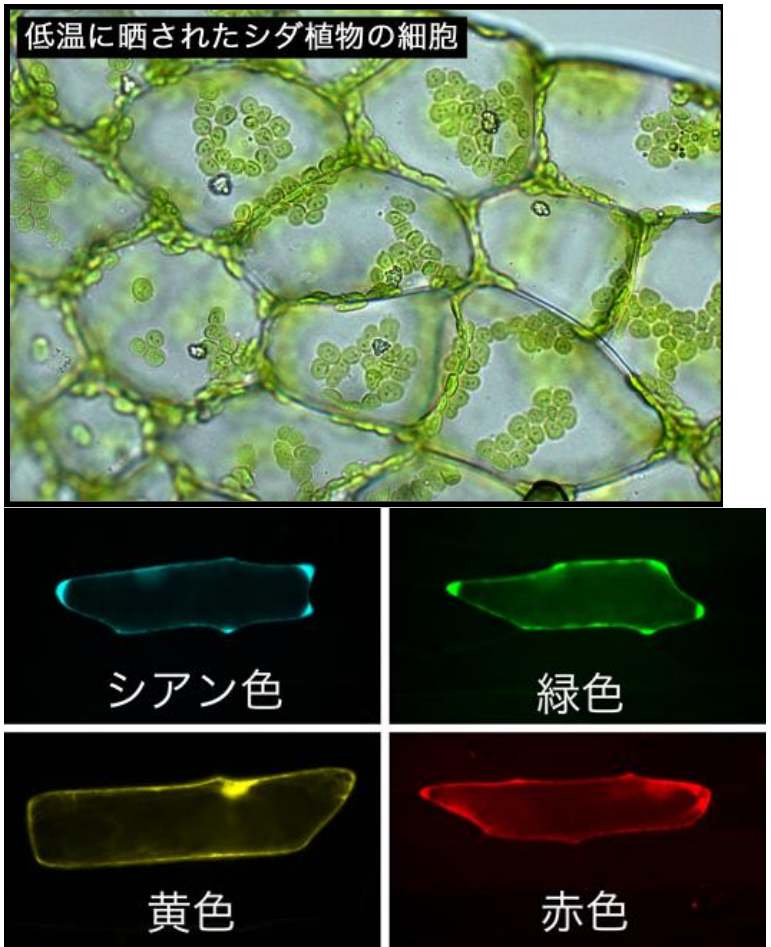
Dr. Yuki TAKAHASHI



(1) Production and propagation of horticultural crops,
(2) Less laborious, low cost rice production

Kodama Lab in Bioscience Center

Dr. Yutaka KODMA



Horticultural Science

Kenji YAMANE

Takeshi KUROKURA

- Pre and Postharvest Quality
- Control of Flowering in Peach
- Flowering and quality of Strawberry
- Horticultural Well-being

Molecular physiology of flowering in Rosaceae crops
-Wild strawberry as a model-

Left: Normal plant Right: Transgenic plant

SD wild strawberry can flower under LD condition by the suppression of flowering inhibitor.

The Division of Animal Science

Overview

Research program in the division cover the range from analysis of genes to analysis of whole organisms and fall into four broad categories.

- **Function and Morphology**
- **Breeding and Reproduction**
- **Nutritional Biochemistry**
- **Animal Production and Reproduction (Farm)**

The division aims at the theoretical and technical investigation regarding animal production issues. High standard instruction and research concerning genetics, breeding, reproduction, morphology, ecology, nutrition and feeding, physiology, pathology, and management are conducted sophisticatedly and widely. In cooperation with the National Institute of Livestock and Grassland Science, instruction and research are also conducted.

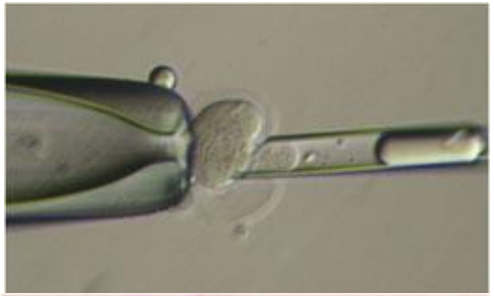
The Division of Animal Science

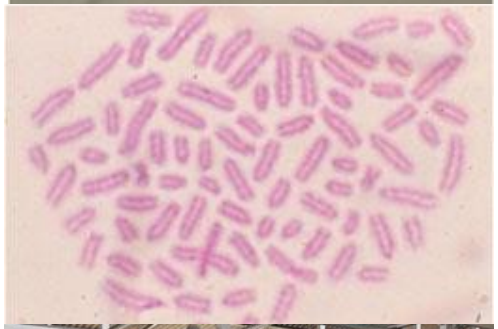
Faculty

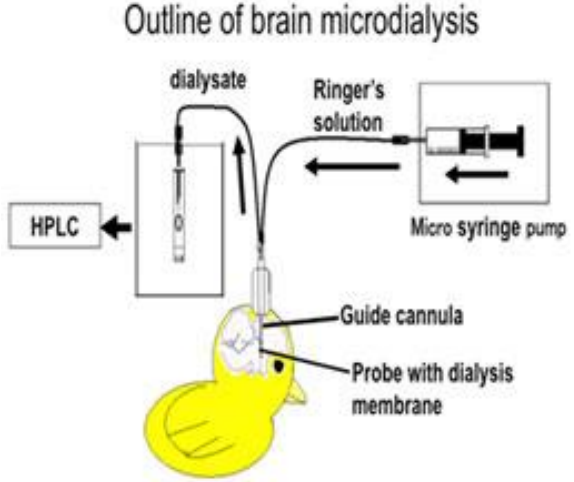
Midori Yoshizawa, Ph.D.
Professor
Animal Reproduction
"Reproductive technology and cytogenetics in mammals"

Kunio Sugahara, Ph.D.
Professor
Animal Nutrition
"Regulation of energy metabolism in domestic fowl"

Shoei Sugita, Ph.D.
Professor
Animal Anatomy & Physiology
"Physiology and morphology of the domestic and wild animals; especially central nervous system and mechanisms of vision"







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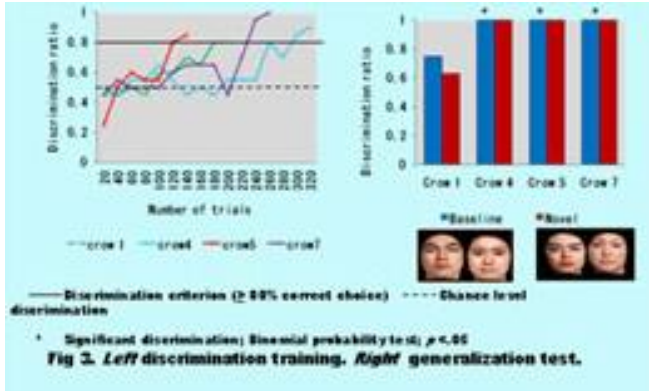
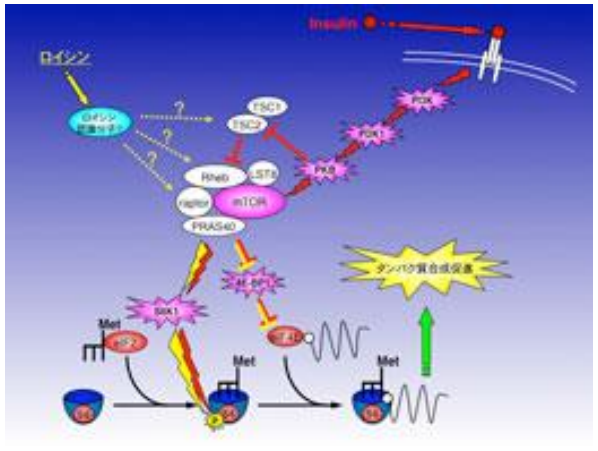


The Division of Animal Science

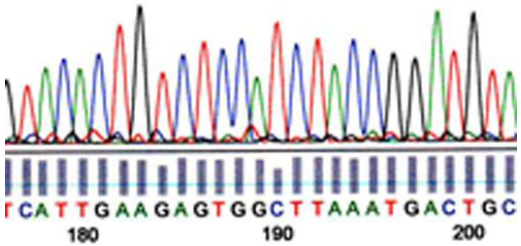
Faculty

Yoshikazu Nagao, Ph.D.
Professor
Animal Reproductive Science
"Early development and biological applications of bovine embryos"

Fumiaki Yoshizawa, Ph.D.
Professor
Nutritional Physiology
"Studies on nutritional regulation of protein synthesis and its mechanism"



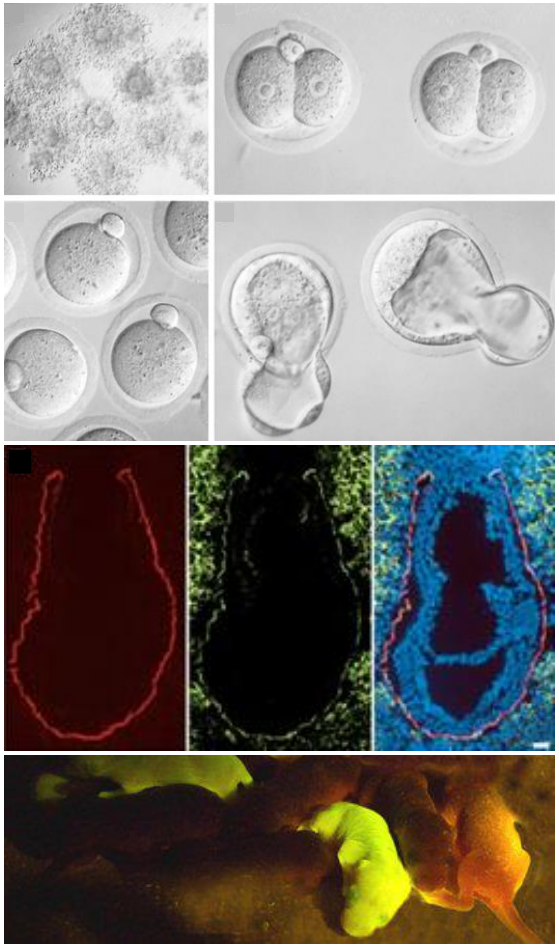
Emiko Fukui, Ph.D.
Associate Professor
Animal Breeding
"Genetic variation of blood proteins and DNA in animals"



The Division of Animal Science

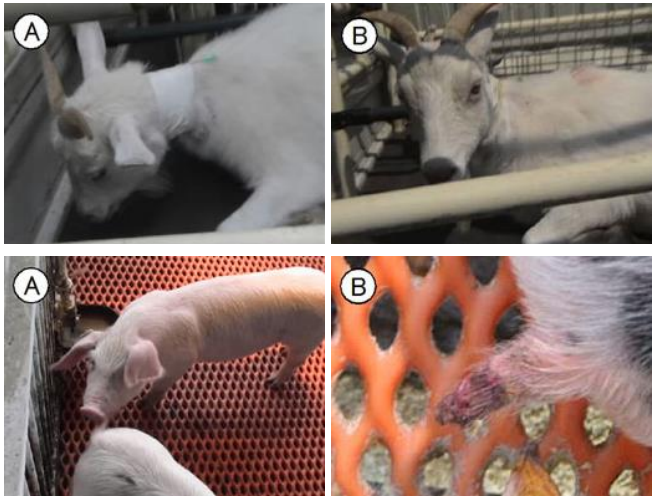
Faculty

Hiro Matsumoto, Ph.D.
Associate Professor
Reproductive Physiology
"Developmental biology of mammalian embryos during periimplantation"



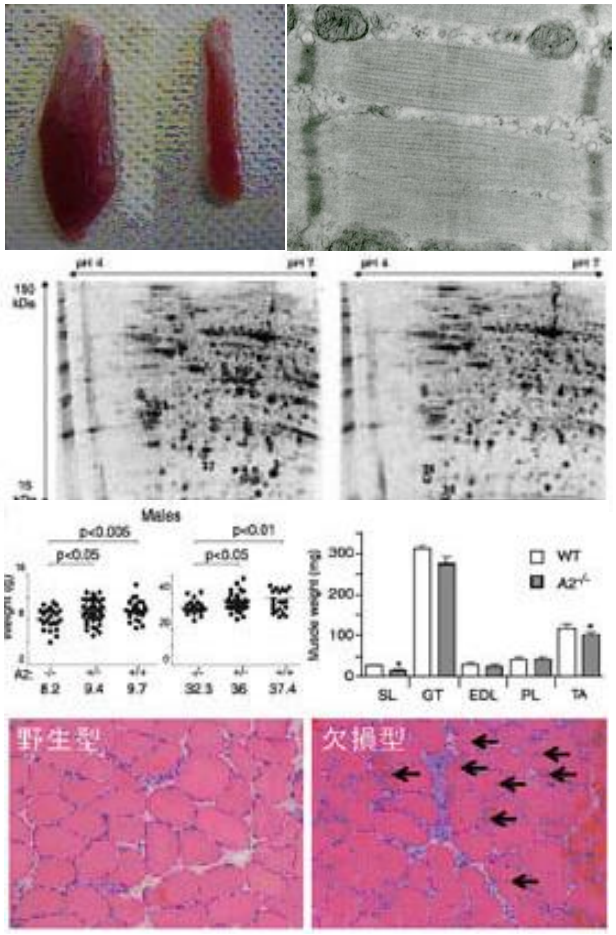
Masato Aoyama, Ph.D.
Associate Professor
Applied Ethology

"Neurophysiological mechanisms of stress responses in domestic animals and establishment the animal managements for reducing their stress"



Yusuke Sato, Ph.D.
Assistant Professor
Muscle Physiology

"Differential regulation of the muscle "



宇都宮大学
UTSUNOMIYA UNIVERSITY

Applied Biology Division

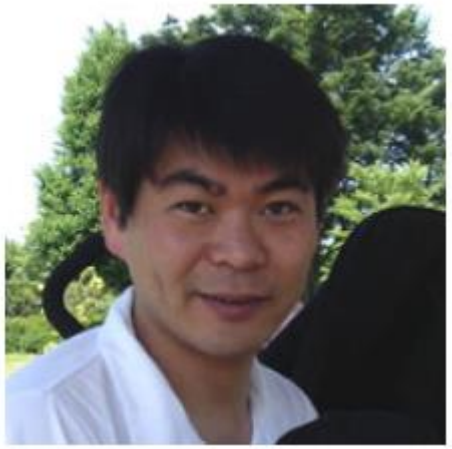
This division has a diverse teaching program and conducts research in the applied biology to meet local and international needs agricultural science. The degree program provides students with a variety of courses from the foundation of biology and chemistry to the modern biotechnology and the ecological science. Our main role is to train professionals in plant breeding, plant genetics, plant pathology, plant virology, applied entomology and zoology, sericulture science, and insect technology.

- ✓Plant Breeding
- ✓Plant Pathology
- ✓Applied Entomology
- ✓Insect Biotechnology

Insect Biotechnology

***Bombyx mori**: A source of Insect Biotechnology, providing a range of products for our use.*

Prof. KAWASAKI, H



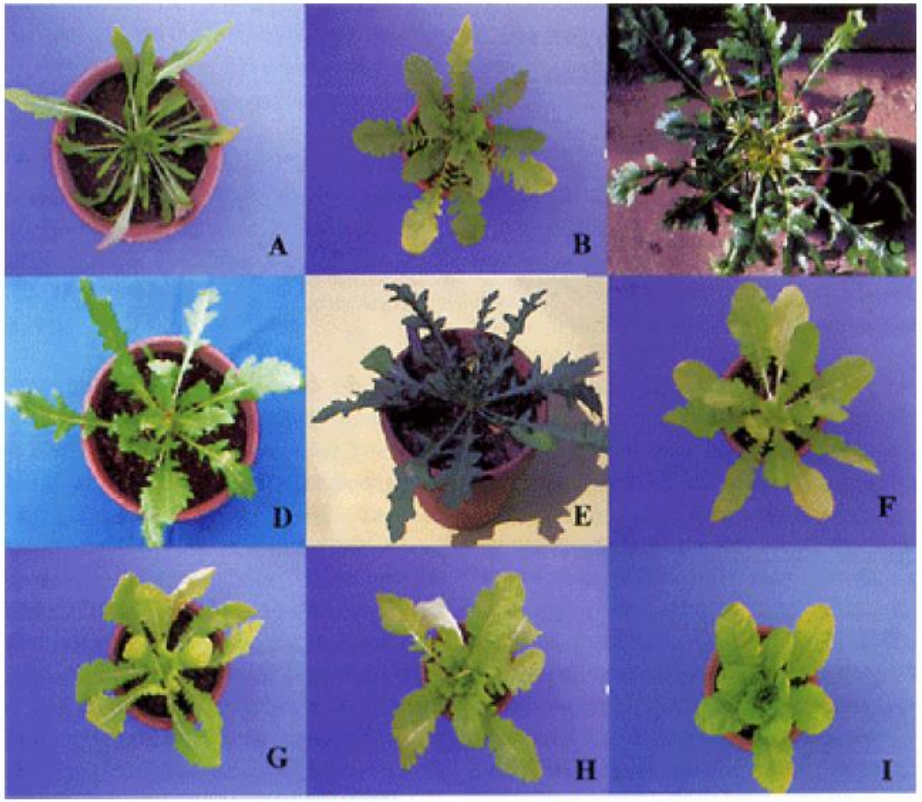
Dr. IWANAGA, M

Through strategies such as diapause, metamorphosis, and communication capacity, insects flourish on the earth. We learn from their life through observation, biotechnology, paper-reading. We study insect endocrinology, metamorphosis, and viral diseases, mainly of the silkworm *Bombyx mori*. Recent genetic and genomic analyses have provided a wealth of new information for understanding insects.

Plant Breeding

Prof. KANEKO, Y

Dr. BANG, S. W.



Parental plants: (A) *Diplotaxis tenuifolia*, (B) *Raphanus sativus* cv. '4-season leaf', and novel progenies: (C) amphidiploid, (D and E) sesquidiploid, (F-I) *D. tenuifolia* monosomic addition lines of *R. sativus*.

We are exploring the potential for distant hybridization in the genetics and plant breeding of Cruciferae, including radish, chinese cabbage, turnip, cole and their wild allies. We provide novel hybrid progenies, such as synthetic amphidiploid line, alien gene(s) introgression line, alloplasmic line, monosomic addition line and monosomic substitution line. Our research currently focuses on the production of cytoplasmic male sterility line and clubroot resistant line, and using a character for low photorespiration to improve the crop production.

Applied Entomology

Prof.
MURAI, T

Mr. TAKAHASHI, S.

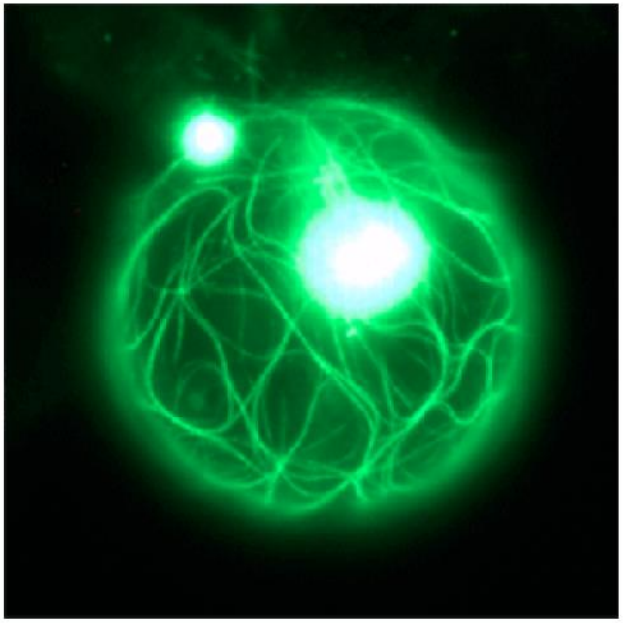
Mr. KAGAWA, K

Recently ,*Aphis glycines*, the soybean aphid, was introduced into the USA where it is now a pest.

Ceranisus menes, a parasitic wasp, attacking a thrips larva

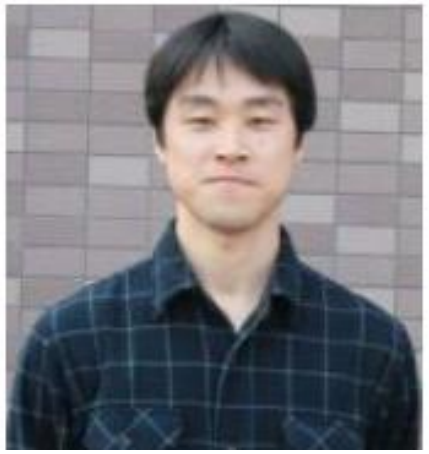
Our research examines basic and applied aspects of aphids, thrips, and their natural enemies in several crop systems. Our basic research focuses on revealing the life cycle and ecology of aphids and thrips, and relationships between insects and their associated organisms. Our applied research includes evaluating the efficacy of natural enemies for controlling target pests, developing recommendations for using biological control in specific areas, and integrating biological control into integrated pest management systems.

Plant Pathology



Plant virus based-vector epressing green-fluorescent protein in a protoplast

Prof. NATSUAKI, T



Dr. NISHIGAWA, H.

We offer exceptional opportunities to gain experience in researching plant pathogens, especially of viruses and phytoplasmas. Our facilities for investigating host-pathogen interactions are excellent. We use advanced molecular biology, virology and computing technology to study the interaction between plant pathogenic viruses and the host plants they infect. We also investigate the many attenuated viruses that may offer better ways to control plant viral diseases without using chemical pesticides or genetically modified organisms.