

2.3 Joint Research

(1) List of Joint Research

Title of Joint Research Project

** A Representative of Joint Research to carry out each Project*

A-1) Micrometeorological Improvement of Agricultural Fields in Arid Lands

Studies on Characteristic of Turbulence Transfer of Heat, Moisture, Momentum and Scalar Quantity in and above Canopy under Dry Condition

Tamon TSUJI, Seiji HAYAKAWA and Makio KAMICHIKA*

Estimation of Soil Moisture in the Shallow Root Zone Using Simple Meteorological Observation

Nobuhiro MATSUOKA, Makio KAMICHIKA and Kyoichi OTSUKI*

Measurement of Evapotranspiration in Arid Fields by Micrometeorological Method

Takeshi MIURA, Makio KAMICHIKA and Kyoichi OTSUKI*

Study on Crop Coefficient for Estimating Actual Evapotranspiration

Koji INOSAKO, Kyoichi OTSUKI and Makio KAMICHIKA*

A-2) Irrigation Management for Water and Salinity Control in Soil

Numerical Study on Water and Salt Transport

Kazuro MOMII, Tomohisa YANO and Yoshinobu KITAMURA*

Physical Definition of Residual Water Content in Unsaturated Soils

Tadao AODA and Tomohisa YANO*

Evaluation of Root Water Uptake Characteristics under Water and Salinity Stress Condition

Shin'ichi TAKEUCHI, Yoshinobu KITAMURA and Tomohisa YANO*

A-3) Analysis of the Eco-physiological Characteristics of the Root System under Arid Land Condition

Study on Root Characteristics in Cereal Crops with Aspects of Functional Morphology

Jun ABE, Shinobu INANAGA and Yukihiro SUGIMOTO*

Study on Salt Tolerance of Pear Rootstocks

Kenji TANABE and Shinobu INANAGA*

Viscoelastic Properties of Root Cell Walls affected by pH and Humidity *in vitro*

*Eiichi TANIMOTO**, *Shinobu INANAGA* and *Yukihiro SUGIMOTO*

A-4) Studies on Water-Saving Cultivation of Crops in Arid Lands

Study of Genes for Water and Potassium Transport in Crops

*Maki KATSUHARA** and *Kunio HAMAMURA*

Effects of Salt Water Irrigation on Growth of Bulbous Plants

*Hiroshi OKUBO**, *Kaori II*, *Megumi INOUE*, *Kuang-Liang HUANG*, *Shikanori MATSUDA* and *Masao TOYAMA*

A-5) Eco-physiological Studies on Tree Tolerance to Water Deficiency and Salinity

Growth and Morphology of *Salix Psammophila* planted on the Sand Dunes of Mu Us Desert in Inner Mongolia, China

*Fukuju YAMAMOTO**, *Shigenobu TAMAI* and *Norikazu YAMANAKA*

Effect of Soil Microbes on Salt Tolerance of Trees

*Hiroaki OKABE**, *Shigenobu TAMAI* and *Norikazu YAMANAKA*

A-6) Studies on Farm Land Conservation in Arid Areas

On the Characteristics of Rill Patterns generated on the Salinity Soil

-On the Effect of the Saline of the Soil on Soil Erosion and Soil Physical Properties -

*Mitsuo FUKADA**, *Tahei YAMAMOTO* and *Mitsuhiro INOUE*

Effects of Soil Stability and Water Quality on Erosion during a Rainfall

*Taku NISHIMURA** and *Tahei YAMAMOTO*

Soil Erosion Prediction for Farmland Conservation

Kingshuk ROY, *Osamu KITANI** and *Tahei YAMAMOTO*

B-1) Integrated Researches on Soil-Water-Plant Monitoring by Remote Sensing

Estimation of Evapotranspiration using Remote-Sensing

*Kengo ITO**, *Makio KAMICHIKA* and *Kyoichi OTSUKI*

Change of Spectral Reflectance due to Mist-irrigation for Plants by Remote Sensing

*Kazuyoshi KIMURA**, *Makio KAMICHIKA* and *Kyoichi OTSUKI*

Estimation of the Aboveground Biomass Using Landsat-5/TM Data

*Etsuji ISHIGURO**, *Muneharu SATO*, *Koichi IWASAKI*, *Sumitaka KASHIWAGI*,
Kyoichi OTSUKI and *Makio KAMICHIKA*

Time Series Change Study in Tottori Sand Dune Using Remote Sensing

*Hisashi FUJIMURA** and *Kyoichi OTSUKI*

Basic Study on Saline Water Resources Assessment in the Middle East Based on Integrated GIS Database

*Masahiro MURAKAMI**, *Yoshinobu KITAMURA* and *Tomohisa YANO*

Application of Remote Sensing and GIS Technology for Water Management/Landuse Change in Large Scale Irrigation Project in Aridland

*Kiyoshi TORII** and *Tahei YAMAMOTO*

B-2) Studies on Salt Accumulation and Leaching

Mechanism of Simultaneous Water, Solute and Heat Transport

*Yasutaka KIHARA**, *Mitsuhiro INOUE* and *Kyoichi OTSUKI*

Mechanism of Salt Accumulation in Soil

*Jiro CHIKUSHI**, *Tomohisa YANO* and *Mitsuhiro INOUE*

Relationships between Ground Water Level Variation and Precipitation

*Yoshihiro YAMAMURA**, *Tomohisa YANO* and *Mitsuhiro INOUE*

Water Flow and Solute Transport in a Heterogeneous Soil

*Nobuo TORIDE**, *Md. A. MOJID*, *Mitsuhiro INOUE* and *Tahei YAMAMOTO*

Undisturbed Measurement of Water and Salt Movement in the Large-Scale Soil Columns (II)

*Toshimasa HONNA**, *Sadahiro YAMAMOTO*, *Atsuo INOUE* and *Mitsuhiro INOUE*

Soil Water and Salt Movement in Upland Fields Under Salt-Affected Groundwater Conditions

*Takeo AKAE**, *Hiroshi YOKOTANI* and *Mitsuhiro INOUE*

C) Free Subject on Arid Land Studies

Characteristics of Subsurface Water Movement in Sand Dune

Changyuan TANG, Yasuo SAKURA, Makio KAMICHIKA and Kyoichi OTSUKI*

Solar Photovoltaic Generation in Arid Land Environment Simulated in Arid Land Dome

Tsutomu HAYASHI, Makio KAMICHIKA, Yutaka HARA, Ryoji WAKA and Takashi TETSUI*

Spectral Analyze of Arid Land Soil by Visible and Near IR Range

Haruhiko YAMAMOTO, Makio KAMICHIKA, Kyoichi OTSUKI, Kiyoshi IWAYA and Syuhei OKADA*

Numerical Simulation of the Flow Field over the Tottori Sand Dune and the Estimation of the Effect of the Vegetation on the Flow Field

Tetuya KAWAMURA and Makio KAMICHIKA*

Study on the Simulation of Sand Dunes Variation

Hiroshi YAJIMA, Makio KAMICHIKA and Syuhei OKADA*

Durability Tests of the Concrete in the Drainage Canal in the Salt Accumulated Field

Hidehiko OGATA, Kunio HATTORI, Sadahiro YAMAMOTO and Kyoichi OTSUKI*

Ethnopedological and Ecotechnological Studies for Sustainable Agricultural Development of the Degraded Inland Valley Watershed in Sahel Zone of Niger

Toshiyuki WAKATSUKI and Yoshinobu KITAMURA*

Flow Meter in Micro-irrigation System by using the Bend Pipe

Soichi NISHIYAMA and Tomohisa YANO*

Measurement of Mass Transfer from an Agricultural Land Using the Micrometeorological Methods

Hiomichi ODANI and Tomohisa YANO*

Perspective of Root Biology for Sustainable Agriculture

Shigenori MORITA, Shinobu INANAGA and Yukihiro SUGIMOTO*

Synthesis of Novel Abscisic Acid Analogues and Their Effect on Plant Growth

Jun-ichi TAMURA, Junko TANAKA, Shinobu INANAGA and Yukihiro SUGIMOTO*

Effect of Na on Nitrogen Absorption of Rice

Noboru NAKATA and Shinobu INANAGA*

Changes of Water Use Efficiency in Rice Subjected to Depth of Different Water Table

Tohru KOBATA, Hirosuke HIMURO and Shinobu INANAGA*

Effect of Transpiration Ability on Productivity of Cotton Canopy in Arid Region

Akihiro ISODA, Tadashi TAKAHASHI, Shinobu INANAGA and Yukihiro SUGIMOTO*

Screening Novel Germination Stimulants for Parasitic Weed Seeds

Yasutomo TAKEUCHI, Koichi YONEYAMA, Masaru OGASAWARA and Yukihiro SUGIMOTO*

Fundamental Study on Natural Plant Growth Regulators for Enhancement of Crop Productivity in the Arid Land

Hiromitsu NAKAJIMA, Yukihiro SUGIMOTO and Shinobu INANAGA*

Wheat Breeding for Salt-Tolerance by Transferring *Agropyron Elongatum* Chromatin into the Wheat Genome

Wen-Ye YUAN, Motonori TOMITA, Hiroyuki TANAKA, Yoshimasa YASUMURO, Shan-Cheng SUN, and Kunio HAMAMURA*

Study on Breeding Ostrich in Arid Area

Toshiyuki SAITO and Masao TOYAMA*

Study on Mineralization of Organic Materials in Sandy Soil

Kazuhisa HASEGAWA and Masao TOYAMA*

Investigation on Useful Plants for Arid Farming

Hisashi KOJIMA and Masao TOYAMA*

Ecophysiological Studies on Pine Wilt Disease Occurred in Japanese Black Pine Forests on Coastal Dune

Kazuyoshi FUTAI, Shigenobu TAMAI, Norikazu YAMANAKA and Fukujyu YAMAMOTO*

Study on the Production of Local Desertification Map

Tatsuaki KOBAYASHI, Shigenobu TAMAI and Norikazu YAMANAKA*

Studies on Chlorophyll Fluorescent Response of Xerophytes under Short Term Water Stress

Ken YOSHIKAWA, Ayako, SEO and Shigenobu TAMAI*

Development of Low-cost Disdrometer and Observational Study on Precipitation Processes of Shallow Clouds Developing in Winter

Kenji SUZUKI, Tetsuya KAWANO and Tahei YAMAMOTO*

Preferential Flows and Solutes Transport in Sandy Soils

Hiroyuki CHO, Tahei YAMAMOTO and Mitsuhiro INOUE*

Natural Environment and Agro-Rural Development in Arid Zone of West Asia and North

Africa

– Through GIS Analysis and Fieldwork -

Ryuichi HARA and Tahei YAMAMOTO*

In-situ Measurement of Soil Permeability

Toshihiro MORII and Mitsuhiro INOUE*

Analysis of Soil Water Movement by Using the Generalized Model for Unsaturated Hydraulic Conductivity

Ken'ichirou KOSUGI and Mitsuhiro INOUE*

Water Requirement of Vegetable and Fruit Trees Using Moisture Sensor

Kuniaki TAKAHASHI, Noboru NAKATA and Mitsuhiro INOUE*

Effect of Heterogeneous Water Flow on Unsaturated Hydraulic Conductivity Measurement

Yasushi MORI and Mitsuhiro INOUE*

Research on Estimation of Unsaturated Soil Hydraulic Properties Using Genetic Algorithms

Yuji TAKESHITA and Mitsuhiro INOUE*