2. Research Activities (Apr.1998-Mar.1999)

2.1 Outline of Activities

(1) Center

Arid Land Research Center (ALRC) is an independent department of Tottori University and at the same time is a National Joint-use Research Institute of the Ministry of Education, Science, Sports and Culture. The mission of the ALRC is to conduct research on desertification and to develop sustainable agricultural practices in arid and semi-arid areas. The door is open to all teachers of national universities who are engaged in this field of study.

Organization, Management, and Funding Subsidies

ALRC is managed by the Director, a Conference (which is composed of professors and associate professors), a Board of Management (which is composed of members from outside as well as professors of ALRC), the four research divisions, two office sections (the research cooperation section and the joint research section) and the technical section. In practice the Conference and the Board of Management operate our Center.

The four divisions are :

Arid Land Environment,
Biological Production,
Afforestation and Land Conservation,
Arid Land Sciences (Visiting).

The three full-time divisions each have two professors and two associate professors. The Visiting division has two visiting professors and one associate professor from Japan and, one visiting professor from abroad. In addition, two foreign researcher (visiting professor) and four part-time researchers are stationed at ALRC through the COE program (one program of the Center of Excellence funded by the Ministry of Education, Science, Sports and Culture) beginning in the 1995 fiscal year. Eight office staff (three clerks and five associate clerks), four technical officers and two research support technicians support the research and education.

With regard to the funding, subsidies for scientific study in the fiscal year of 1998, a total of eight themes were adopted :

Scientific Research (B)	: 3,
Scientific Research (C)	: 2,
JSPS Fellows	: 2,
International Scientific Research	: 1.

With regard to other research funding, a total nine themes were accepted :

Scholarship Contribution	: 3,
Entrusted Research	: 4,
Joint Researches with private enterprises	: 2.

Joint-Use Research, Education, Publication

During the fiscal year of 1998, 48 Joint-Use Researchers (Teachers from national and private universities) were attached to the Center. The number of students as of March, 1999 is 83 (12 Ph.D. Students, 32 Master Students, 35 Undergraduate Students, 3 Trainees and 1 Foreign Research Student).

Seminars were often held by internal and external experts. The foreign visiting professors periodically

give seminars.

Annual report has been published since the establishment of ALRC, which provides a brief overview of the activities in its various divisions and also summarizes our research and education.

The 8th seminar of Joint Research was held on December 9, 1998 at Tottori Prefectural Kenmin Bunka Kaikan. Two keynote lectures and twenty-four poster presentations were performed.

(2) Divisions

1) Division of Arid Land Environment

Subdivision of Natural Environment

Subdivision of Natural Environment conducts research on evaluation of the natural environment and the exploitation of natural resources and energy for the development of arid and semi-arid areas from the point-of-view of meteorology and climatology.

The staff in the subdivision consists of Dr. Kamichika, M. (Professor), Dr. Otsuki, K. (Associate Professor), and Ms. Yonehara, A. (Associate Clerk, also assigned for the Subdivision of Water Resources).

There were three Doctoral students, six Master's students and four undergraduate students in the fiscal year of 1998.

Dr. Abe, Y., the 3rd year doctoral student obtained the doctor's degree from the United Graduate School of Agricultural Science, Tottori University on March 1999. He has continued studies in the Arid Land Research Center as an COE researcher since April 1999.

Mr. Tasumi, M., the 2nd year master’s student, had continued studies in this subdivision until August, 1998 after the completion of master course. He will then enter the graduate school of Idaho University in U.S.A.. Ms. Hashizume, K., Mr. Hatsuta, T. and Ms. Matsubara Y., also the 2nd year master’s student, started work for the Green Information, Chubu and Shin-Giken Consultant respectively after the completion of master course.

Mr. Ushijima, H., the 4th year undergraduate students, has continued studying in this subdivision. Ms. Nakagame, E., the 4th year undergraduate student, has been working in Dominica as a Japan Overseas Cooperation Volunteer after the graduation.

In the fiscal year of 1998, the following researches have been conducted in Japan.

(1) MICROCLIMATE Energy balance, water balance and CO_2 flux have been observed in the fodder field in the Arid Land Research Center, and their relations to the plant growth, irrigation condition and land & sea breeze have been investigated. Estimation of evapotranspiration has been also studied based on these data. Dr. Hayakawa, S. et al. (Faculty of Agriculture, Yamaguchi University), Dr. Miura, T. (Faculty of Environmental Science and Technology, Okayama University), Dr. Matsuoka, et al. (Faculty of Horticulture, Chiba University) and Dr. Nakamoto, K. have continued the joint research of this subdivision “Researches on modification of microclimate of agricultural fields in arid Lands”. Studies on the effect of paper mulch under the Azuki bean cultivation gave several interesting results.

(2) REMOTE SENSING Under the theme "Analysis of Arid Land Surface Conditions by Remote Sensing" for joint research, cooperative works were conducted with, Dr. Senge, M.et al. (Faculty of Agriculture, Gifu University), Dr. Ishiguro, E. et al. (Faculty of Agriculture, Kagoshima University), Dr. Honda, Y. et al. (The Center of Environmental Remote Sensing, Chiba University) and Dr. Fujimura, H. (Faculty of Engineering, Tottori University). Landform changes of Tottori Sand Dunes have studied using aerial photographs.

(3) WIND EROSION Wind erosion has been investigated by measuring sand movement every month in

the Tottori Sand Dune and studying the relationship with the wind. Dr. Kawamura, T. et al. (Graduate School of Humanities and Sciences, Ochanomizu University) and Dr. Yajima, H. (Faculty of Engineering, Tottori University) cooperated in this study.

(4) RECYCLING USE OF WATER VAPOR Mechanism of dew formation on sand surface in Tottori Sand Dunes has been analyzed and the basic studies on the dew formation in the vapor collecting system were conducted.

(5) MEASUREMENT OF NATURAL ENERGY Solar radiation and wind speed have been observed and the solar energy and wind energy have been estimated.

Overseas research in the fiscal year of 1998 was as follows.

Assoc. Prof. Otsuki visited Pakistan to conduct “Positive studies for environmental conservation and establishment of sustainable agriculture in arid region” from November 1 to 6.

Subdivision of Water Resources

Staff and students: The staff consists of Dr. Yano, T. (Professor), Dr. Kitamura, Y. (Associate Professor), Ms. Yonehara, A. (Associate Secretary, also assigned for the Subdivision of Natural Environment), four Doctoral, eight Master's, and three undergraduate students.

Mr. Regea, M. F., Ms. Wang, S., and Takeuchi, S. received the doctor's degree of agriculture and finished the course in March 1999; the titles of theses are “Soil Hydraulic Parameters as Affected by Water Application, Water Quality and Soil Properties”, “Saline-Sodic Soil Reclamation under Continuous and Intermittent Ponding Conditions” and “Studies on the Application of the Sap Flow Measurement in Irrigation Management”, respectively.

Ms. Iwata, S., Ms. Fujiwara, and Mr. Yasuda, S., second year students of the Master's Course (MS), completed the course and joined to Sugioka Registration & Survey Co., Asahi Consultant Co. and Sansui Consultant Co. as engineers, respectively. Among three undergraduate students, Mr. Ohigashi, N. and Mr. Harada, K. entered the Master's Course.

Research: Research has been conducted in Japan and abroad on efficient water and soil management for water saving irrigation and saline water irrigation from the view point of protecting lands from desertification and for the sustainable agricultural utilization of arid lands.

Overseas Research: Overseas research in the fiscal year of 1998 were as follows:

A research on the development of technology for the rehabilitation of soils with salt accumulation in the Central Asia has been conducted as a main theme of the subdivision with a financial support of the Global Environment Research Fund by the Environment Agency. Prof. Yano visited the site in Kzyl-Orda, Kazakstan two times successively in August and September/October to carry out field experiment for making clear physical and chemical characteristics of highly saline soils in abandoned farmlands for the development of reclamation method of those degraded lands. In his second trip, he attended the International Symposium on Arid Region Soil held in Izmir, Turkey and presented a paper with Ms. Wang on "Salt Accumulation and Reclamation of Soils in Kzyl-Orda, Kazakstan" on his way to Kazakstan. Dr. Kitamura also visited the research site three times successively in April/May, July and September for conducting the research on water management to mitigate and prevent secondary salt accumulation in agricultural lands based on the field survey of water and salt balance in an irrigated area. Five students, i.e. Ms. Iwata, S., Yasuda, S., 2nd year of MS, Mr. Akiba, N., Higaki, E. and Tanaka, K., 1st year of MS, participated in the field study in the research site for one to two months.

Studies in Japan: Our efforts in Japan have been made to carry out research themes on water and soil management for water saving irrigation and saline water irrigation based on a simulation approach as well as an experimental approach. Research on the measurement of stem flow through herbaceous plants and arboreal plants was also conducted to establish the measurement technology for the stem heat balance

method and the heat pulse method. Furthermore we conducted research on “Use of saline water for irrigation” and “Factors affecting evapotranspiration under arid and semi arid condition” with the cooperation of Dr. Ben-Asher, Jiftah, who was the 12th foreign visiting professor from the Ben-Gurion Univ. of the Negev, Israel. Study on water management practices for reuse of drainage water in tile drainage project area was continued in cooperation with Dr. Rai, Niaz Ahmad who was a JSPS Fellow from the University of Agriculture Faisalabad, Pakistan.

Cooperative researches have been conducted with the following researchers: Prof. Nishiyama, S. (Fac. of Agric., Yamaguchi Univ.), Dr. Momii, K. (Fac. of Agric., Kagoshima Univ.), Dr. Odani, H. (Univ. of Shiga Prefecture), Prof. Sakuratani, T. (Graduate School of Agricultural Science, Kyoto Univ.) and Prof. Takahashi, K. (University Farms, Fac. of Agric., Tottori Univ.). Two new research projects were started with Dr. Aota, T. (Fac. of Agric., Niigata Univ.) and Dr. Noborio, K. (Fac. of Agric., Iwate Univ.). The titles for these research projects are listed in the joint research section of this Annual Report.

2) Division of Biological Production

Subdivision of Plant Ecophysiology

Staff: The staff consisted of Dr. Inanaga, S. (Professor), Dr. Sugimoto, Y. (Associate Professor) and Ms. Fukunaga, M. (Associate Clerk, also assigned for the Subdivision of Plant Production).

Studies in Japan: Research projects undertaken domestically were: development of non-destructive measuring systems for root growth based on AE method, development of plant production system using sea water, physiological response of soybean on salt stress, effect of root zone temperature on root growth, search for germination stimulant of parasitic weed Striga (Monbusho Grant-in-Aid), search for potential plants from semi-arid regions (Tottori Industrial Technology Association) and biohalogenation in higher plants (Sumitomo Foundation). Joint researches have been conducted with Drs. Morita, S. (Univ. of Tokyo), Kobata, T. (Shimane Univ.), Tanimoto, E. (Nagoya City Univ.), Tamura, J. (Tottori Univ.), Abe, J. (Univ. of Tokyo), Takahashi, H. (Yamaguchi Univ.), Matsuura, A. (Kyushu Tokai Univ.), Yoneyama, K. (Utsunomiya Univ.) and Nakajima, H. (Tottori Univ.). Moreover, Dr. I. A. Ali from Sudan joined this subdivision as a JSPS postdoctoral fellow to conduct research on temperature generated signals in roots and their influence on water transport in plants.

Studies abroad: Dr. Inanaga, requested by Ministry of Foreign Affairs, visited the Middle East countries including Israel, Palestine, Jordan, Syria and Egypt and investigated progress of Desertification Prevention project, which is lead by World Bank. He also attended a committee of the project held in France as a member of Japanese Government. Dr. Sugimoto visited Sudan, in response to invitation from Dr. O. A. Ageeb, Director of Agricultural Research Corporation (A.R.C.), Sudan, to survey desertification in Sudan in collaboration with Prof. A. A. Hamada. He also discussed control of parasitic weeds with researchers of A. R. C. Moreover, he visited The Netherlands, in response to invitation from Prof. B. Zwanenburg, Head of the Department of Organic Chemistry, to discuss chemical control of parasitic weeds with Prof. Zwanenburg and Dr. G. Nefkens.

Students: There were three Ph.D. students (two 3rd, one 2nd grade), seven MS students (four 2nd grade and three 1st grade), five undergraduate students (three 4th grade and two 3rd grade). One of two Ph.D. students, who graduated in March 1999, was employed as a COE research associate in this center. Another will join this subdivision from August, 1999 as a foreign researcher sponsored by JSPS. A MS student and two undergraduate students continue their study for Ph.D. and MS degree at this subdivision. A MS student was employed at a private company.

Additional assignments: Dr. Inanaga acted as a councilor of Crop Science Society of Japan, the

Japanese Society of Sand Dune Research and the Japanese Association for Arid Land Studies. He was also assigned as a committee member under Prime Minister's Council for Science and Technology, a member of the committee on establishing Institute of Earth Environmental Sciences under the Ministry of Education, Science, Culture and Sports and a member of the committee on planning education system for Tottori University of Environmental Sciences.

International relationship: Dr. Inanaga exchanged opinion about scientific collaboration with Exective Secretary of UNCCD.

Subdivision of Plant Production

The subdivision is composed of Dr. Hamamura, K. (Professor), Dr. Toyama, M. (Associate Professor), Ms. Fukunaga, M. (Associate clerk), 4 students in the master course, 5 senior and 2 junior students (Undergraduates) and 2 research students from Oman and China (since October, 1998).

The research is focused on crop production problems pertaining to arid and semi-arid lands and additional attention is put on Xerophyte and Halophyte studies. Crop production systems under desert conditions were studied with emphasis put on crop tolerance against water deficiency and salinity. The major subject studied was water saving crop cultivation with an auto-irrigation system utilizing water holding substances. Other subjects included: salt tolerance of lettuce, peony and Salsora and Salicornia plants, nutritional effects of several salts on pakchoy, growth promoting effects of microbial or calcic materials on vegetables, root growth and drought tolerance of pigeon pea and germination and early growth of Casuarina.

Dr. Toyama undertook several field experiments in Mongol on the use of water holding substances in desert areas. Special emphasis was laid on the effect of these substances on desert afforestation and on water saving-cultivation with encouraging results.

3) Division of Afforestation and Land Conservation

Subdivision of Revegetation and Grassland Development

The present staff of this subdivision consists of Dr. Tamai, S. (Professor), Dr. Yamanaka, N. (Lecturer), Mrs. Hamamoto, N. (associate Clerk, also assigned for the Subdivision of Land Conservation), 1 Master's, 2 undergraduate students and one research student from China. Our research focuses on afforestation in semi-arid areas, especially on the plant communities and their specific characteristics. The research mainly includes: (1) the distribution of plants in semi-arid land and its specific characteristics, (2) the maintenance mechanisms of plant communities in arid areas, (3) the relationships between water and nutrient dynamics, and the growth of trees, (4) the effects of salt spray from the sea on tree growth, and (5) the dynamics of plants on sand dunes.

The most important research in this subdivision is the prevention of desertification and afforestation in semi-arid areas by native plants and we are analyzing vegetation of China and Northeast Brazil.

While the distribution and growth of trees in semi-arid areas mainly depend upon water conditions of the soil, nutrients connected with water also play an important role on the growth of trees. Then research on water and the nutrients dynamics of trees and in the soil with the growth of trees has been conducted.

The investigation is to clear the dynamics of nutrients in the soil with changing soil water potential by six large scale lysimeters in vinyl houses. Salinity of the soil in semi-arid land sometimes becomes a hazard for the germination, establishment and growth of trees, and salt attached on the above part of the plant also affects the growth of trees. We are investigating salinity from the sea and its effect on the growth, shape and form of Japanese black pine on the sand dune, Tottori.

Ecological researches of plants on sand dunes and studies on growth and reproductive characteristics of woody plants in arid areas have also been conducted.

Cooperative research on the drought stress tolerance of trees was conducted with the scientists for joint research of the Center. And a number of trainees from abroad were took on.

Dr. Yamanaka visited Brazil on May and June 1998 for research on conservation of sand dunes and semi-arid areas in northeast Brazil. Prof. Tamai also visited Brazil on Feb. 1999 for same project. On Aug. 1998 Prof. Tamai visited China with Dr. Yamanaka for research on the Arid Land vegetation. Prof.Tamai visited Inner Mongolia of China on late Aug. 1998, invited by the Inner Mongolia Academy of Forestry Science and conducted research on the salt tolerant plants of arid areas.

Subdivision of Land Conservation

The main studies in this subdivision were on the dynamic movement of moisture and salt in the soil and measures to control salinity problems. Soil conservation and water pollution under irrigated fields were also studied in order to conduct research on the mechanism and control of desertification under arid land conditions. The staff is made up of Dr. T. Yamamoto (Professor), Dr. M. Inoue (Associate Professor), Mrs. N. Hamamoto (Associate clerk assigned to the entire Division) and thirteen students. Three students are enrolled in the doctoral course at the United Graduate School of Agricultural Sciences, six as master course students and six as undergraduate students in the Faculty of Agriculture.

The main domestic research titles are ①discussion on soil degradation mechanism and efficient irrigation schedules in irrigated arid land supported by Monbusho Scientific Research B(2), ②measures against problems of water pollution under drip irrigation supported by Ministry of Agriculture, Forestry and Fisheries since 1992, ③soil salinity improvement using artificial zeolite by the Kimura Chemical Plants Co. since 1996, ④estimation of hydraulic properties using multistep inverse method, ⑤water application efficiency of small-strip border irrigation method on sandy field in Mu Us Shamo Desert- aiming for effective use of groundwater resource for irrigation-, ⑥analysis of natural environment data for tank irrigated agriculture, ⑦simultaneous measurement of soil water flow and solute transport by using soil water pressure gauges and four electrode sensors. Except above research titles ①～⑦, studies on water erosion and saturated hydraulic conductivity of the sodic clay soils were positively carried out under the leadership by Dr. Rami Keren who is COE foreign researcher, using the three dimensional soil water erosion analyzing system, and monitoring system for water flow and solute transport newly introduced in Arid Land Dome.

As joint research with other divisions in universities, the staff carried out ①studies on farm land conservation in arid land, together with Dr. H. Cho (Fac. of Agr., Saga Univ.), Dr. U. Takeshita (Fac. of Env., Okayama Univ.), Dr. M. Fukada(Fac. of Agr., Yamaguchi Univ.), Dr. T. Nishimura(Fac. of Agr., Tokyo Univ. of Agric. and Tec.), ②studies on analysis of surface conditions in arid land by remote sensing, together with Dr. S. Torii (Fac. of Agr., Kyoto Univ.) on the title of compiling of desertification by using geographic information system (GIS), ③studies on salt accumulation and leaching using monitoring system for water flow and solute transport with Dr. Y. Kihara.(Shimane Univ.), Dr. T. Akae (Okayama Univ.), Dr. H. Yasuda(Tottori Univ.), and Dr. T. Honna (Tottori Univ.) as Group Joint Research B-II, ④ studies on in-situ measurement of soil permeability with Dr. T. Morii (Niigata Univ.), ⑤studies on analysis of soil water movement by using generalized model for unsaturated hydraulic conductivity with Dr. K. Kosugi (Kyoto Univ.), ⑥studies on soil moisture management on the varieties of baker's gralic grown on sand dune fields with Dr. S. Yamada (Tottori Univ.), and ⑦characteristic of natural development and rural development of arid land agriculture in Western Asia with Dr. R. Hara (Fac. of International Relations, Daitobunka Univ.), as free subjects on arid land studies.

Open seminars with our active support were shown as follows. Seminar on 'mechanism of selective soil erosion process for controlling soil loss' by Dr. T. Kusaka (Fac. of Agr., Yamaguchi Univ.) and 'characteristics of suspended sediment loads at the agricultural watersheds' by Dr. T. Nagasawa (Fac. of Graduate School of Agriculture, Hokkaido Univ.) were held on 27th in October. Seminar on 'salt accumulation mechanism in root zone, - movement of water, salt, and heat transport -' was held by Dr. M. Inoue (ALRC), Dr. S. Shiozawa (Institute of Agricultural and Forest Engineering, University of Tsukuba), and Dr. T. Kasubuchi (Fac. of Agr., Yamagata Univ.) on 21 July 1998. Seminar on 'solute dispersion in a unsaturated soil' was held by Dr. N. Toride (Fac. of Agr., Saga Univ.) on 10 Dec. 1998.

By cooperation with Arturo Prat Univ. in Iquiqe of Chile, Dr. Yamamoto carried out preliminary investigation from 15th to 23th in August on the title of sustainable development for protection technology of soil degradation in Atacama Desert. After that he visited to Gent University in Belgium from 26th to 29th in August in order to discuss for further joint research on Atacama Desert.

Dr. Inoue presented simulation results on two-dimensional soil water movement of subsurface irrigation at annual meeting of JSIDRE on 23 July. He discussed co-operated research with Dr. Wallach of Hebrew University in Israel from 31 August to 15 September for the international academic research on 'water, salt and nutrient interaction in plant growth' funded by Monbusho Grant-in Aid for Scientific Research. He and Dr. Wallach visited Dr. Akae's Laboratory of Okayama University and Dr. Mitsuno's Laboratory of Kyoto University, and discussed on salt accumulation in arid land. He also presented experimental results using monitoring system for water flow and salt transport at annual meeting of soil science society on 1st October. His co-operated researchers, Dr. Cho and Dr. Toride presented at annual meetings of Soil Science Society of America on 18 - 22 October in Baltimore, Maryland USA. He had lectures on water resources development and its use in arid areas for JICA researchers on 3 - 4 November. He presented on 'application of HYDRUS-2D to water flow and solute transport in sandy soil' in the seminar at the Tokyo National Research Institute of Cultural Properties on 17 Nov. He invited Dr. Nielsen from University of California, Davis, and held open seminar on 'concept of miscible displacement applied to soil salinity and leaching' on 19 March.

4) Division of Arid Land Science

Foreign Visiting Researchers

The 12th foreign visiting professor, Dr. Ben-Asher, Jiftah (Ben-Gurion Univ. of the Negev, Israel), arrived on January 1, 1998 and stayed for fifteen months until March 31, 1999. He conducted his study on “Use of saline water for irrigation” and “Factors affecting evapotranspiration under arid and semi arid condition”.

Besides his own researches, he taught students with great zeal, and gave seminars in ALRC.

Internal Researchers

As internal visiting professors to ALRC, Professor Takao Amaya (Fac. of Agric., Gifu Univ.), Professor Ryozo Sakiyama (Graduate School of Agricultural and Life Sciences, the Univ. of Tokyo), Associate Professor Nobuo Toride (Fac. of Agric., Saga Univ.) arrived at their posts on April 1, 1997 and had conducted joint researches until March 31, 1999.

5) COE Researcher

Foreign Researchers

The COE foreign visiting researcher, Professor Babiker, A.G.T. (Gezira Res. Station, Agric. Res. Corp., Sudan) arrived on December 1, 1997 and stayed for one year until November 30, 1998. He conducted "Basic studies on the control of semi parasitic weeds, *Striga* species in arid land"

After that, the COE foreign visiting researcher, Professor Fadul, Hassan M. (Land and Water Research Center, Agric. Res. Corp., Sudan) arrived on December 1, 1998 and stayed for six months until May 1, 1999. He conducted "Basic studies on analytical method of soil degradation and methodology of its rehabilitation in Sudan, Africa".

The COE foreign visiting researcher, Professor Keren, Rami (The Volcani Center, Israel) arrived on April 1, 1998 and stayed for 10 months until January 31, 1999. He conducted the research on "Three dimensional analysis of water erosion in saline soils".

Besides their own researches, they taught students with great zeal, and gave seminars in ALRC.

Internal Researchers

Dr. Tomemori, H., Dr. Fujimaki, H., Dr. Nakamoto, K. and Dr. Furumoto, T. conducted "Researches on the Establishment of Plant Production System using Sea Water in the Coastal Arid Areas" based on their specialized knowledge.

6) Administration

From April 9, 1998, Administration office became to belong to Research Support Dept. from Faculty of Agriculture by reorganization and unification of Tottori University. And General Affairs Section was renamed to General Cooperation Section.

Research Cooperation Section

Research Cooperation Section is the administrative section which deals with the general affairs for the management of the ALRC.

There are two clerks (Chief Clerk : Mr. Taniguchi, K. and Clerks : Mr. Shimizu, K.) and four associate clerks (Ms. Yamada, E., Ms. Yonehara, A. <Division of Arid Land Environment>, Ms. Fukunaga, M. <Division of Biological Production>, Ms. Hamamoto, N. <Division of Afforestation and Land Conservation>) in this section.

The former clerk Mr. Yokota, H. moved to the Finance Division of the Headquarters.

Joint Research Section

Joint Research Section is the administrative section which deals with the affairs related to the joint research of the ALRC.

There are one clerk (Chief Clerk : Mr. Kitamoto, H.), and one associate clerk (Ms. Matsuoka, M.) in this section.

Technical Section

It was detached from General Affairs Section, Faculty of Agriculture, by reorganization and unification of the office organization of Tottori University, and newly became to belong to ALRC. The Technical Section is taking charge of the maintenance management of the experiment, assistance about joint use of ALRC, and institution and equipment.

There are four technical officials (Mr. Kodani, S., Mr. Ueyama, I., Mr. Murota, K., and Mr. Shimizu,

T.) and two research support technicians (Mr. Takata, T. and Mr. Anyoji, T.) in this section.