UTAEM Newsletter

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ENERGY JOURNEY OF BIOMASS WORKSHOP

“Energy Journey of Biomass Workshop" organized within the scope of the "Sustainable Biomass Project to Support the Development of Turkey's Economy towards Green Growth" carried out in cooperation with UNIDO (United Nations Industrial Development Organization), TAGEM (General Directorate of Agricultural Research and Policies) was held in our center between 01-03 February 2022 with 70 participants including ministry, UNIDO, university, NGOs and private sector representatives.

Following opening speeches of Chairman of the Board of Directors of Energy Law Research Institute Att. Süleyman BOSÇA, UNIDO Turkey Representative Süleyman YILMAZ and TAGEM General Director Dr.Nevzat BİRİŞİK', experts from Energy Law Research Institute, Black Sea Agricultural Research Institute, UNIDO and the Ministry of Energy and Natural Resources made presentations on the development of national and legislative infrastructure related to biomass and awareness activities. Within the scope of the workshop, a technical trip was organized to Aydın Çine Biomass Energy and Supply Facility on Thursday 3rd of Feburary.

PROJECT PROTOCOL FOR THE DEVELOPMENT OF REGENERATIVE AGRICULTURAL TECHNIQUES IN COTTON PRODUCTION

The first step was taken for the Private Sector Cooperation Project on the Development of Regenerative Agricultural Techniques in Cotton Production. Development of activities on sustainable agriculture and carbon emission reduction target within the framework of the EU Green Deal Action Plan is one of the prominent issues in the project. The protocol of the project, which will be carried out in cooperation with UTAEM, Association of Ecological Agriculture Organization and Egedeniz Tekstil Sanayi ve Ticaret A.Ş., was signed in our center on March 8, 2022, considering that the dissemination of regenerative agricultural activities and its inclusion in the value chain will support adaptation studies.

TRANING ON EFFECTIVE and EFFICIENT IRRIGATION

One day technical training on "Effective and Efficient Irrigation" organized by UTAEM and Tire District Directorate of Agriculture and Forestry was held on 27 January 2022 by 13 technical staff. Within the scope of this activity, our researchers from Department of Agricultural Irrigation and Land Reclamation in UTAEM gave lectures on agricultural irrigation management, modern irrigation techniques, irrigation water quality, drainage, agricultural irrigation management and SUET program.

IN-SERVICE TRAINING ON MODERN TECHNIQUES IN IRRIGATION MANAGEMENT

In-service training on "Modern Techniques in Irrigation Management" was carried out by the Department of Agricultural Irrigation and Land Reclamation of our center between 26-28 April 2022 with 36 participants through the Presidency Distance Education System. Within the scope of the training, technical personnel of from our center gave lectures on soil-plant-water relations, modern irrigation techniques, drip irrigation, irrigation management, SUET program, modeling in irrigation, use of wastewater in agriculture, irrigation water quality, drainage and salinity.

EGE UNIVERSITY STUDENT DAY

Under the leadership of Ege University, Faculty of Agriculture, Department of Field Crops, 2nd grade students of the Field Crops Department visited our center on April 12, 2022 within the scope of the "Field Crops " course.

In this regards, the trial plots of the research projects carried out in the institution were visited in order to show the studies carried out on site upon introduction of the center. Afterwards, our Institution Laboratory was visited and they were given useful information about soil fertility, chemical and physical analysis methods and the devices used in these analyzes. An interactive training was carried out with the students.

EXERCISE 2022

In order to be ready for disasters and to identify deficiencies, a theoretical and practical exercise was carried out by our center on April 15, 2022.

VISIT FROM PRIMARY SCHOOL STUDENTS

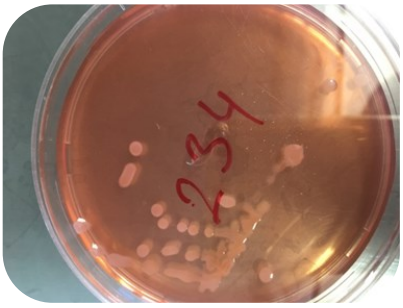
Students from Paylaşım Koleji, one of the schools of our district, visited the campus of our center on April 26, 2022 within the scope of the Nature and Environment-Themed technical trip.

Our ongoing project activities performed by the Department of Plant Nutrition and Soil

COLLECTION, EVALUATION AND SELECTION OF THE *RHIZOBIUM* STRAINS FROM THE AEGEAN REGION

The Project aims to identify Rhizobium strains with high symbiotic effectiveness and efficacy through nodule sampling, isolating bacteria, evaluation and selection of them. 400 nodules were taken as sample from various legume cultivation sites that represent different ecological sub-areas in the Aegean Region.

Following the *in vitro* isolation of bacteria, 79 of the strains out of 400 samples were selected based on the morphological criteria (e.g. shape, color and structure), colony growing rate, colony development, nodule development and gram stain. The selected strains were genetically diagnosed as 45 Rhizobium bacteria by means of advanced sequencing. Tests are carried out with the diagnosed Rhizobium bacteria in greenhouses for legumes, green peas, vetches, alfalfa, chickpea, beans, cowpeas.



The most efficient strains in greenhouse conditions will be selected based on the dry weight, nitrogen and symbiotic efficacy levels and then they will be used in microbial fertilizer production. The Project also aims to decrease utilization of fertilizer with nitrogen content and increase sustainability in agriculture sector by raising up the nitrogen fixation in legumes.

DETERMINING THE EFFECT OF APPLYING CERTAIN LEVELS OF NITROGEN THROUGH SUB-SURFACE FERTIGATION FOR THE YIELD OF CORN AND CERTAIN QUALITY CRITERIA

Corn is an important crop field in Izmir province of Turkey. Increase in population and food demand requires some new techniques in breeding and fertilization applications. Climatic challenges and some incentives highlighed the importance of sub-surface drip irrigation and fertigation method as well. This Project aims to make a fertigation program by determining the optimum nitrogen level for the corn irrigated by sub-surface drip system and to save fertilizer and water by putting the required amount of fertilizer to the root area of the plant and to make contribution to sustainable Agriculture in Turkey for the corn farming by sub-surface fertigation method and thereby increasing efficiency and quality as well as serving as a model for other types of products.

THE EFFECT OF ORGANIC OR CONVENTIONAL ALFALFA *(MEDİCAGO SATİVA L.)* GROWING ONTO THE SOIL FEATURES, EFFICIENCY AND CO2 EMISSION

Reducing greenhouse gas emissions is the first measure against climate change. CO2 is one of the most important greenhouse gases. It is clearly revealed that CO2 emission increases are caused by not only fossil fuels but also chemical fertilizers, over tillage and plant protection preparations. This study focuses on C fixation in the soil with alfalfa (Medicago sativa L) grown in three different agriculture system and comparison of plant efficieny levels with yield parameters in the soil and they will be analyzed in terms of statistics. Also, trade-offs and economical analysis of agriculturel systems will be performed. It is envisaged that selection of agricultural system is key importance for reducing the CO2 emissions and agricultural activity preferences will benefit for limiting the negative effects of climate change.

THE EFFECT OF PROCESSED OLIVE BLACK WATER (WASTEWATER) TO THE CERTAIN CHARACTERISTICS OF THE SOIL AND CORN YIELD

Olive black water is the waste water produced during the processing of olives. It is known as problematic waste in terms of environment as because it consists of high organic load and salt content as well as phytotoxic effects caused by phenological compounds. Main targets of the projects are reducing the compounds with phytotoxic effect in the black water to an accepted level by means of economic measures, increasing the microorganism population, researching the possibility as fertilizer, revealing the alterations in the physical and chemical characteristics in the soil, determination of its effect on corn yield and yield parameters.

For that purpose, in 2021, olive mill (black water) cake was subjected to process with raw black water and Ca (OH)2 and pilot sites (in which black water is taken as material) were established in UTAEM campus. Following the corn harvesting in 2022, wheat crops were sown on the same pilot areas without further intervention. The persistent effects of the applications performed during the corn cultivation in the first year were analyzed while planting the wheat.

ABOUT US...

UTAEM operates within the General Directorate of Agricultural Research and Policy under the Ministry of Agriculture and Forestry. The Center aims to carry out national/international research projects for increasing the agricultural productivity, conservation and sustainable management of natural resources and to hold national/international courses, workshops seminars etc. according to the needs and demands of public sector, private sector, professional organizations and non-governmental organizations. Besides its scheduled programs and projects, UTAEM is open to any kind of activities of training programs and research projects on demand from national/ international organizations. UTAEM adopts sharing the agricultural studies, experience and knowledge in international platform as principle and is one of the leading organizations in this regard.

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