ABSTRACT OF STAGE 3

At the level of the Complex Project ***INNOVATIVE TECHNOLOGIES FOR IRRIGATION OF AGRICULTURAL CROPS IN ARID, SEMIARID AND SUBHUMID-DRY CLIMATE (SMARTIRRIG),*** **stage 3**, **the planned activities were fully realized, the objectives degree of achievement being 100%**.

The result indicators are: 12 experimental methods; 1 demonstration method; 1 partial study to evaluate the efficiency of the innovative underground irrigation / fertigation technology; 1 partial study to evaluate the efficiency of precision mobile irrigation; 1 partial study to evaluate the impact of effluent on plants; 1 partial study to evaluate the impact of the effluent on the soil; 1 partial study to assess the potential risks to human health induced by the application of the technological solution; 1 prototype manufacturing documentation; 1 prototype manufactured; 1 patent application registered with OSIM; 3 articles published in ISI Indexed Proceedings; 3 articles accepted for publication in ISI indexed journals and 1 article accepted for publication in BDI indexed journal; 5 articles published in BDI Indexed Proceedings; 1 chapter in the book published; 3 participations in international conferences; 3 participations in international exhibitions of inventions and innovations; 2 mobility checks type B - working visit of experienced researchers; 1 training check type C - training of newly hired human resources.

Within the ***component project 1 - Innovative technology for underground irrigation / fertilization of hoeing crops specific to arid areas*** the method of testing the innovative technology of underground irrigation / fertigation was elaborated; the experimentation in real conditions of the technical equipment for the placement in the ground of the irrigation / fertigation hoses equipped with GPS system and of the underground irrigation system in real operating conditions was carried out; a partial study was carried out to evaluate the efficiency of the innovative underground irrigation / fertigation technology; an article was published in ISI Indexed Proceedings; another article was accepted for publication in the BDI indexed journal.

Within the ***component project 2*** - ***Innovative mobile system for powering irrigation and fertilization installations using photovoltaic and wind power*** the model was tested under load simulation conditions in accordance with the requirements of the irrigation installations regarding the power supply; the testing of the mechanical systems was performed at the assembly-disassembly of the mobile system in the open field; the operation of the mobile supply system was tested in real conditions of operation of the underground irrigation / fertilization installation; a chapter has been published in the book; an article is being evaluated for publication in ISI Proceedings.

Within the ***component project 3*** - ***Innovative system for precision mobile irrigation of leguminous crops and hoeing plants*** the test method for the precision mobile irrigation system was developed; the experimentation of the precision mobile irrigation system was carried out in laboratory-field conditions and in real conditions; a partial study evaluating the efficiency of precision mobile irrigation was developed; the functionality and usefulness of the precision mobile irrigation system was demonstrated; participated in two international exhibitions of inventions; two articles were published in BDI Proceedings.

Within the ***component project 4*** - ***Innovative technological solutions for utilization of waste water for irrigation of energy crops*** the testing of the experimental model of modular station in situ was performed to validate the proposed treatment technology; the effluent of the treatment plant was used to irrigate energy crops; a partial study was carried out to assess the impact of the effluent on plants and soil; a partial study was carried out to assess the potential risks to human health induced by the application of the technological solution; three articles have been published in ISI Proceedings; an article was published in the ISI indexed journal; another article was accepted for publication in the ISI indexed journal; two articles were published in BDI Proceedings; participated in two international conferences; participated in an international exhibition of inventions and innovations.

Within the ***component project 5*** - ***Innovative fertilization technology in fruit and vine plantations specific to arid and subhumid-dry climate*** the manufacturing documentation of the prototype of the fertigation equipment was elaborated and the physical product was manufactured; partial experimentation of the fertigation equipment in real operating conditions was performed; a patent application was registered with OSIM; an article accepted for publication in the ISI indexed journal.