



## LETTER OF INTENT

### 1. BACKGROUND:

#### **1.1. Short presentation of INMA**

The National Institute of Research-Development for Machines and Installations designed to Agriculture and Food Industry-INMA, from Bucharest/Romania ([www.inma.ro](http://www.inma.ro)) has an experience of about 80 years and it is the unique Romanian institute in the field. The main activities performed within the institute are *research-development* and *scientific services*.

*The research-development activities* comprise elaboration of diagnoses, prognoses and strategies in the domain of technologies and technical equipment designed to agriculture and food industry, research and development of the processes, technologies and technical equipment for agriculture and food industry, performing of experimental models and prototypes, testing in laboratory and operating conditions of the machines and installations designed for agriculture and food industry in compliance with the UE procedures, norms and directives, standardization in the domain of technical equipment and activities of professional training, specialization and staff certification in the domain of mechanization technologies.

*The scientific services* comprise testing of technical equipment, certifying the product conformity, performing technical inspections for tractors, lorries, trailers and cars, technological transfer and innovative business through the accredited incubator INMA-ITA.

*The main Research Directions* are:

- Fundamental research of interaction phenomena of biological, soil and technological factors on the technical equipment in the processes of mechanization and automation of works in agriculture;
- Scientific substantiation of the processes in agriculture, food industry and creating of new innovative technologies, instruments and technical equipment designed to soil works, establishing, maintaining and harvesting agricultural crops, horticultural cultures, as well as, agricultural and livestock and agro-forestry works, in compliance with environment preserving and fighting against draught phenomena and desertification;
- Renewable power sources: biomass, bio-fuels, biogas (from animal dejections and vegetal wastes), technologies and technical equipment for their use in conditions of efficiency, life, health and environment protection;
- Rural development and raising of life quality by technological transfer and demonstrations of the research results performed by the Institute;
- Strengthening the research basis (human resources, logistics, research equipment) and performing some partnerships for connecting to ERA, including the integration within the technological platforms at the European level;
- Substantiating and achieving new mechanizing and automating technologies designed to agricultural and food industry processes, such as: conditioning, processing, stocking and storing primary agricultural products, non-agricultural products and aquaculture in conditions of efficiency, security and safety.

#### **1.2. INMA achievements**

The natural links of INMA with various rural and urban communities have allowed the observation and understanding the needs of increasing of energy consumption and their correlation with the abundance and potentials of local renewable energy sources locally

available. For this reason, especially in the last decade, INMA has carried out activities related to the promotion, obtaining and use of biofuels, continuously developing a modern research basis (pilot plant for the production of biofuels from oilseeds, biofuels testing laboratory and stand for the internal combustion engine and the development of the techniques of poly-carburizing, laboratory and pilot plant for biogas obtaining, pilot plant for the manufacture of pellets from agricultural wastes) and supporting the training of specialized personnel for these concerns. The research team dedicated to the field of exploitation of renewable energy sources has conducted research under precompetitive regime, within some projects or under commercial contract regarding the Diesel engines feeding with vegetable oil, conditioning of vegetable oils for the use of them as fuel for engines, the performance of some biodiesel variants, biogas production in small capacity plants, production and energetic use of pellets from agricultural wastes, environmental heat extracting and pumping for small scale processes in food, wood and leather industry. Beyond some notable results of these researches, the team presented over 25 articles and communications in journals and at national and international events.

### **1.3. INMA infrastructure**

In terms of recognition of technical and scientific capabilities by accreditation, the research infrastructure of INMA consists in research, testing and experimenting laboratories, accredited in accordance with the rules and directives of EU, which verify the technical and scientific competence of certain ideas, solutions, equipment and new products having a state-of-the-art technical endowment and high qualified personnel.

The institute has a Testing Department for Tractors and Technical machinery for agriculture and food industry which has in subordinate 2 equipped laboratories which performance is similar to EU laboratories in the field, accredited in accordance with standard SR EN ISO / IEC 17025: 2005:

- DI - Testing Department for Tractors and Technical Equipment for Agriculture and Food Industry;

## **2. DIRECTION AND OBJECTIVES OF RESEARCH:**

We are open to any collaboration in order to continue and develop our research regarding *the cover of a significant part of thermal energy consumption by integrated and intelligent controlled exploiting of renewable energy sources available in the surroundings.*

## **3. COLLABORATION PROPOSAL:**

Programme: Horizon 2020

Pillar no. 3: Societal Challenges

Objective no. 10: Secure, clean and efficient energy

Call: CALL – ENERGY EFFICIENCY

Topic: EE 13 – 2014/2015: Technology for district heating and cooling

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Date: 14.02.2014

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