

Publishable Executive Summary

This report outlines the work carried out as part of the EC-funded project called RICE-GUARD. The project concerns the development of a novel in-field system which is going to be capable of continuously monitoring weather data and predicting rice blast disease. A bottom-up approach was mobilised by consulting with farmers associations and carrying out research to obtain a clear understanding of the technological needs and specifications of European rice growers. These consultations serve to understand and detail the current needs and limitations of rice growers in the monitoring and controlling of the most important disease of rice. In addition, they will guide future research and development work to be in line with the markets demands for monitoring rice blast during the different growth stages.

Forty one questionnaires have been completed by farmers all around the European rice countries in order to gain an understanding of their activities during the cultivation, existing methods and tools, level of investment, knowledge of new technologies, etc. In addition, six in-depth interviews were carried out on-site of the participating sites among the selected SME-AGs. The questionnaires along with the in-depth interviews also served to gain an insight into the socio-economic issues that could be important during the development process.

A comprehensive review of literature was also carried out, as well as a review of the existing rice blast forecasting tools and methods. In addition, the different available weather conditions sensors and wireless networks of relevance to the RICE-GUARD project were studied in detail.

Major key findings revealed the necessity among the rice farmers to improve the way of monitoring and predicting rice blast, which was ranked as the major problem and mostly assessed by visual inspection, as the disease forecasting directly influences the decision making in the application of agrochemicals. Most of the farmers apply very active nitrogen (N) fertilizers, rather unsuitable for rice cultivation for environmental and rice blast epidemiological issues. Farmers recognized that temperature, humidity and N fertilization are the most critical factors of the rice blast pathogenesis. They confirmed the fact that tricyclazole is the most effective active substance for the control of the disease, even though it is officially banned by EU, while tricyclazole is circulated among the EU rice producing countries with short term annual registrations (120 days). Also, rice farmers have a thorough knowledge of the economic impact of the disease control concerning yield reduction and production cost. In terms of specifications, the value is an important factor, while a serious issue is the availability of electricity and mobile phone coverage. The overall reception of the project for building an in-field system for rice blast forecasting was very positive and the vast majority of consulted cultivators have stated their interest in using such a system when it becomes available. In conclusion, the results of this research confirm and clarify the interests and needs among European rice growers in improving the way of rice blast forecasting, which implies lower cost, a more environmental friendly cultivation and higher crop yield production.

The future research in the RICE-GUARD project will be based on and guided by these results in order to ensure that the proposed system will be useful and relevant for its uptake in the rice cultivation sector. Therefore, the preliminary specifications of the proposed system are given in full detail in this deliverable in line with the needs and requirements of the rice growers.