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COST Action FP0905: final results

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Background

The European Cooperation in Science and Technology (COST) Action FP0905 is aimed at evaluating the scientific knowledge of genetically modified (GM) trees related to biosafety protocols and coordinating existing and new information from various European countries [1]. This will help to provide a basis for future EU policy and regulation recommendations regarding the use of GM forest trees. A large, but diverse, body of knowledge on the environmental effects and biosafety issues of transgenic trees and other transgenic organisms has been acquired in many countries over approximately the past 25 years. Because of the potential unification of European states, there is now an urgent need to compile, collate, and analyze this scattered knowledge in order to create a unique platform of knowledge particular to the European environment [1]. The Action started the 12th of April 2010 and ended the 11th of April 2014. In this action, 27 COST countries (Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Israel, Italy, Latvia, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, The Former Yugoslav Republic of Macedonia, and United Kingdom) have signed the Memorandum of Understanding (MoU). Seven NON-COST countries (Albania, Australia, Canada, China, New Zealand, South Africa, USA) were participating to the Action.

The main objective of the COST Action was to evaluate and substantiate the scientific knowledge relevant for GMT biosafety protocols by putting together already existing information generated in various European and Non-EU countries as basis for future EU policy and regulation for the environmental impact assessment and the safe development and practical use of GMTs.

Methods

The Action work plan was organized in 4 Working Groups (WGs) focussed on: (i) the biological characterization of GMTs aiming to evaluate existing knowledge including the experience from expert scientists in the field of forest GMTs (WG1), (ii) the assessment of possible environmental impacts and monitoring of GMTs in the whole production chain from plantation to final products (WG2); (iii) the socio-economic implications and public acceptance and concerns of potential use of GM forest trees and R&D investments in the framework of Cost-Benefit Analysis (WG3), and (iv) increasing public awareness and understanding of GM forest plantations by providing science-based information through management of the www.cost-action-fp0905.eu dynamic website (WG4).

For each WG, the main methodology used was desk research through the use of PC to collect information from internet in specific web-site and specialized scientific journal. Each participant was contributing existing data from own research carried out with own national funds. In addition, questionnaires (surveys) have been worked out and sent to institutions to collect data on which GMT are “in the pipe”.

Each Working Groups (WGs) was led by a WG Leader and Vice Leader to facilitate the coordination and the exchange between and within each WG. The leader of each WG was supported by a Task Group (TG), identified within the participants to the WGs, to organise the collection the data.

Results and conclusions

WG1 launched the building of a database that gather the current knowledge on field trials and greenhouse experiments with transgenic trees. The knowledge gained was ultimately be used to guide the safe use and management of GMTs in forest tree plantations and to protect forest ecosystems. To support this goal, WG2 was launching and moving through expert-based surveys to: (1) evaluate the environmental impacts of the GMTs already developed and (2) assess the efficiency of existing transgene containment strategies, and to (3) investigate effective pre- and post-market monitoring techniques. The outcome from WG1 was used to develop a clear factual overview of the status of GMTs in European and non-European countries in order to provide sound scientific data for risk assessment to be further evaluated and monitored in WG2. In addition, it was very important to understand the kind of policies needed to meet the concerns of the society in relation to the possible use of GM trees which are widely spread in many of the Europe countries.

Therefore, two types of surveys were conducted worldwide by WG3: one to define a set of environmental and socio-economic indicators to be included in Cost-Benefit Analyses, and a Knowledge Attitude Perception (KAP) survey to explore public attitude towards adoption of transgenic forest trees. The cross- country results of the KAP surveys are expected to provide policy support to the European Commission with regards to public acceptance of transgenic forest trees and their potential conflicts of values.

On the other hand, through WG4, accurate and science-based information were



Figure 1. GMT database homepage.

communicated through our website to educate the general public on technical, socio-economic and environmental aspects of GM forest trees. In addition, the website provided an open discussion forum on transgenic forest biotechnology and biosafety, as well as on the potential impact of transgenic tree plantations on the current established forestry practices.

WG1 provided a list of the principal biological characters of existing and potential GMTs in EU and non-EU countries and the WG4 established the GMT database with the main information on forest GMTs (Figure 1). Since the end of the

COST Action, the GMT database is free available to the scientific community and Europe organisations.

The EU COST Action FP0905 was expected to generate important benefits as it also has foreseen a strong collaboration among R&D bodies and legislative directives. This was fundamental to address policy-making efforts and to allow the scientific community to discuss to public concerns in a responsible way, particularly concerning socio-economic implications and biosafety issues of transgenic tree plantations.

Competing interests

The author declares that they have no competing interests.

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References

1. Fladung M, Altosaar I, Bartsch D, Baucher M, Boscaleri F, Gallardo F, Haggman H, Hoenicka H, Nielsen K, Paffetti D, Seguin A, Stotzky G, Vettori C: **European discussion forum on transgenic tree biosafety**. *Nat Biotech* 2012, **30**:37-38.